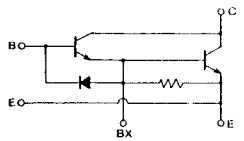
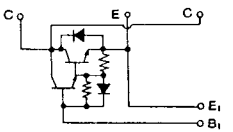
トランジスタ・モジュール 〔NPN, 1アーム〕

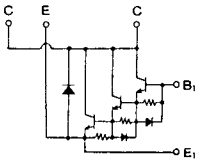
HD-1A




HY-1A



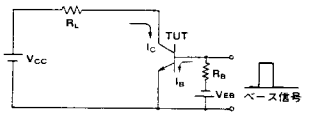

HY-2A

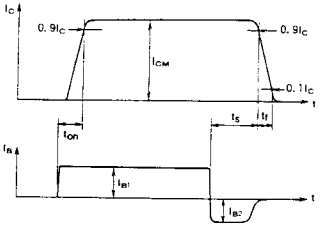



注1. $I_C$=1A, $V_{EB}$=2V, #印は$V_{CEX}$ ($V_{EB}$=2V)。　注2. 60Hz, 単相半波1サイクル波高値。　注3. $T_C$=25℃。　注4. AC. 1分間。

| 型名 | 最大定格 ($T_J$=25℃) | | | | | | | | | | | 電気的特性 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $V_{CBO}$ (V) | $V_{CEX(SUS)}$ (注1) (V) | $V_{EBO}$ (V) | $I_C$ (A) | $I_B$ (A) | $I_F$ (A) | $I_{FM}$ (注2) (A) | $P_C$ (注3) (W) | $T_j$ (℃) | $T_{stg}$ (℃) | $V_{iso}$ (注4) (V) | $I_{CEX}$ (mA) 最大 | $V_{CE}$ (V) | $V_{EB}$ (V) | $I_{EBO}$ (mA) 最大 | $V_{EB}$ (V) | $V_{CEO(SUS)}$ (V) 最小 | $I_C$ (A) | $h_{FE}$ 最小 | $V_{CE}$ (V) | $I_C$ (A) |
| QM200HA-H | 600 | 600 | 7 | 200 | 12 | 200 | 2000 | 1250 | 150 | −40〜125 | 2500 | 4 | 600 | 2 | 200 | 7 | | | 75/100 | 2/5 | 200 |
| QM200HA-2H | 1000 | 1000 | 7 | 200 | 10 | 200 | 2000 | 1560 | 150 | −40〜125 | 2500 | 4 | 1000 | 2 | 800 | 7 | | | 75/100 | 2.8/5 | 200 |
| QM200HA-24 | 1200 | 1200 | 7 | 200 | 10 | 200 | 2000 | 1560 | 150 | −40〜125 | 2500 | 4 | 1200 | 2 | 800 | 7 | | | 75 | 5 | 200 |
| QM200HC-M | 400 | 350 | 10 | 200 | 6.0 | 200 | 2000 | 830 | 150 | −40〜125 | − | 1 | 350 | 2 | 400 | 10 | | | 100 | 2 | 200 |
| QM300HA-H | 600 | 600 | 7 | 300 | 18 | 300 | 3000 | 1380 | 150 | −40〜125 | 2500 | 4 | 600 | 2 | 300 | 7 | | | 75/100 | 2/5 | 300 |
| QM300HA-2H | 1000 | 1000 | 7 | 300 | 16 | 300 | 3000 | 1980 | 150 | −40〜125 | 2500 | 4 | 1000 | 2 | 400 | 7 | | | 75/100 | 2.8/5 | 300 |
| QM300HA-24 | 1200 | 1200 | 7 | 300 | 16 | 300 | 3000 | 1980 | 150 | −40〜125 | 2500 | 4 | 1200 | 2 | 400 | 7 | | | 75 | 5 | 300 |
| QM300HC-M | 400 | 350 | 10 | 300 | 10 | 300 | 3000 | 1250 | 150 | −40〜125 | − | 2 | 350 | 2 | 600 | 10 | | | 100 | 2 | 300 |
| QM400HA-H | 600 | 600 | 7 | 400 | 10 | 400 | 4000 | 1500 | 150 | −40〜125 | 2500 | 5 | 600 | 2 | 400 | 7 | | | 750 | 2.5 | 400 |
| QM400HA-2H | 1000 | 1000 | 7 | 400 | 20 | 400 | 4000 | 3120 | 150 | −40〜125 | 2500 | 8 | 1000 | 2 | 600 | 7 | | | 75/100 | 2.8/5 | 400 |
| QM400HA-24 | 1200 | 1200 | 7 | 400 | 20 | 400 | 4000 | 3120 | 150 | −40〜125 | 2500 | 8 | 1200 | 2 | 600 | 7 | | | 75 | 5 | 400 |
| QM500HA-H | 600 | 600 | 7 | 500 | 10 | 500 | 5000 | 1780 | 150 | −40〜125 | 2500 | 5 | 600 | 2 | 500 | 7 | | | 750 | 2.5 | 500 |
| QM600HA-2H | 1000 | 1000 | 7 | 600 | 30 | 600 | 6000 | 3500 | 150 | −40〜125 | 2500 | 8 | 1000 | 2 | 800 | 7 | | | 75/100 | 2.8/5 | 600 |
| QM600HA-24 | 1200 | 1200 | 7 | 600 | 30 | 600 | 6000 | 3500 | 150 | −40〜125 | 2500 | 8 | 1200 | 2 | 800 | 7 | | | 75 | 5 | 600 |
| QM600HD-M | 400 | 350 | 10 | 600 | 15 | | | 2080 | 150 | −40〜125 | 2500 | 2 | 350 | 2 | 800 | 10 | | | 500 | 2 | 600 |

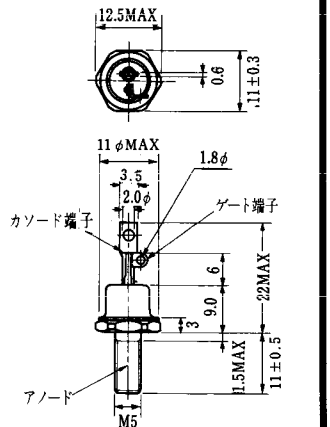
■スイッチング時間測定回路



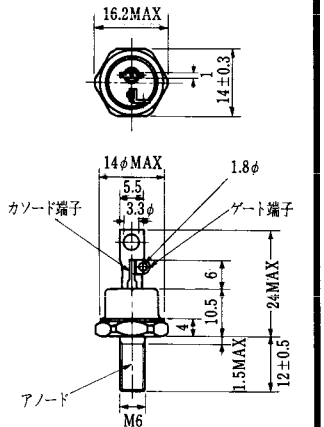




| (Tj=25℃) | | | | | | | | | | | エミッタ・コレクタ間ダイオード | | | | | | 熱抵抗 | | 等価回路 | 外形図 | 記事 | 型名 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 飽和電圧 (V) | | IC | IB | スイッチング時間 (μs) | | | IB1 | IB2 | VCC | IC | VF | | trr | | | | θj-c (℃/W) | | | | | |
| VCE | VBE | | | ton | tstg | tf | | | | | (V) | IF | (μs) | IF | VBE | di/dt | トランジスタ部 | ダイオード部 | | | | |
| 最大 | 最大 | (A) | (A) | 最大 | 最大 | 最大 | (A) | (A) | (V) | (A) | 最大 | (A) | 最大 | (A) | (V) | (A/μs) | 最大 | 最大 | | | | |
| 2.0 | 2.5 | 200 | 2.6 | 2.0 | 12 | 3.0 | 4.0 | -4.0 | 300 | 200 | 1.75 | 200 | | | | | 0.1 | 0.39 | HA-1C | M-8A1A | UL認定済 | QM200HA-H |
| 2.5 | 3.5 | 200 | 4.0 | 3.0 | 15 | 3.0 | 4.0 | -4.0 | 600 | 200 | 1.8 | 200 | | | | | 0.08 | 0.35 | HA-2B | M-9B1A | UL認定済 | QM200HA-2H |
| 3.0 | 3.5 | 200 | 4.0 | 3.0 | 15 | 3.0 | 4.0 | -4.0 | 600 | 200 | 1.8 | 200 | | | | | 0.08 | 0.35 | HA-2B | M-9B1A | UL認定済 | QM200HA-24 |
| 2.0 | 2.5 | 200 | 2.0 | 2.0 | 10 | 3.0 | 4.0 | -4.0 | 200 | 200 | 1.5 | 200 | | | | | 0.15 | 0.25 | HC-1B | M-6A1A | 非絶縁形 | QM200HC-M |
| 2.0 | 2.5 | 300 | 4.0 | 2.5 | 12 | 3.0 | 6.0 | -6.0 | 300 | 300 | 1.85 | 300 | | | | | 0.09 | 0.3 | HA-1B | M-9B1A | UL認定済 | QM300HA-H |
| 2.5 | 3.5 | 300 | 6.0 | 3.0 | 15 | 3.0 | 6.0 | -6.0 | 600 | 300 | 1.85 | 300 | | | | | 0.063 | 0.3 | HA-2B | M-9B1A | UL認定済 | QM300HA-2H |
| 3.0 | 3.5 | 300 | 6.0 | 3.0 | 15 | 3.0 | 6.0 | -6.0 | 600 | 300 | 1.8 | 300 | | | | | 0.063 | 0.3 | HA-2B | M-9B1A | UL認定済 | QM300HA-24 |
| 2.0 | 2.5 | 300 | 3.0 | 2.0 | 10 | 3.0 | 6.0 | -6.0 | 200 | 300 | 1.85 | 300 | | | | | 0.1 | 0.25 | HC-1B | M-7A1A | 非絶縁形 | QM300HC-M |
| 2.5 | 3.5 | 400 | 0.53 | 3.0 | 10 | 3.5 | 0.8 | -8.0 | 300 | 400 | 1.8 | 400 | | | | | 0.083 | 0.25 | HA-2C | M-7A1A | UL認定済 | QM400HA-H |
| 2.5 | 3.5 | 400 | 8.0 | 3.0 | 16 | 3.0 | 8.0 | -8.0 | 600 | 400 | 1.8 | 400 | | | | | 0.04 | 0.175 | HA-2C | M-7B1A | UL認定済 | QM400HA 2H |
| 3.0 | 3.5 | 400 | 8.0 | 3.0 | 18 | 3.0 | 8.0 | -8.0 | 600 | 400 | 1.8 | 400 | | | | | 0.04 | 0.175 | HA-2C | M-7B1A | UL認定済 | QM400HA-24 |
| 2.5 | 3.5 | 500 | 0.76 | 3.0 | 10 | 3.5 | 1.0 | −10 | 300 | 500 | 1.8 | 500 | | | | | 0.07 | 0.25 | HA-2C | M-7A1B | UL認定済 | QM500HA-H |
| 2.5 | 3.5 | 600 | 12 | 3.0 | 16 | 3.0 | 12 | −12 | 600 | 600 | 1.8 | 600 | | | | | 0.035 | 0.16 | HA-2C | M-7C1A | UL認定済 | QM600HA-2H |
| 3.0 | 3.5 | 600 | 12 | 3.0 | 16 | 3.0 | 12 | −12 | 600 | 600 | 1.8 | 600 | | | | | 0.035 | 0.16 | HA-2C | M-7C1A | UL認定済 | QM600HA-24 |
| 2.0 | 2.5 | 600 | 1.2 | 3.0 | 15 | 3.0 | 2.0 | -4.0 | 200 | 600 | | | | | | | 0.06 | | HD-1A | M-7A1A | 非絶縁形, FDなし | QM600HD-M |

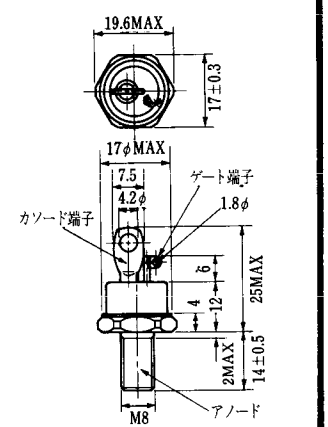
## FD-1




## FD-2




## FD-3

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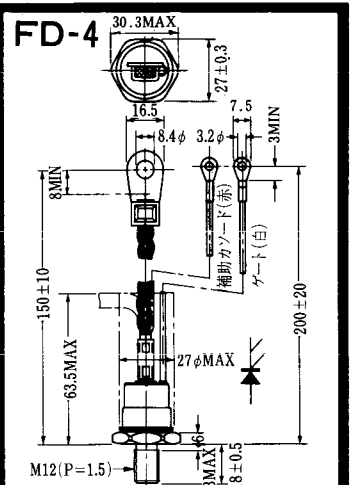
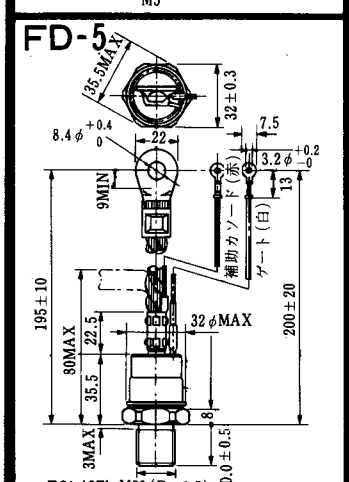



## FD-5

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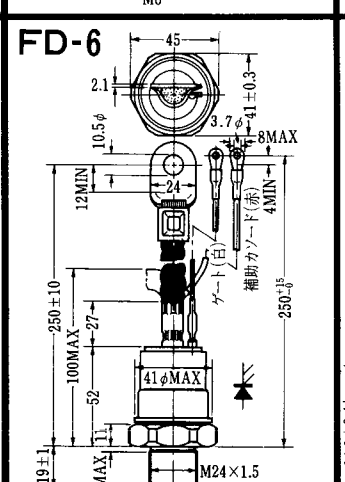
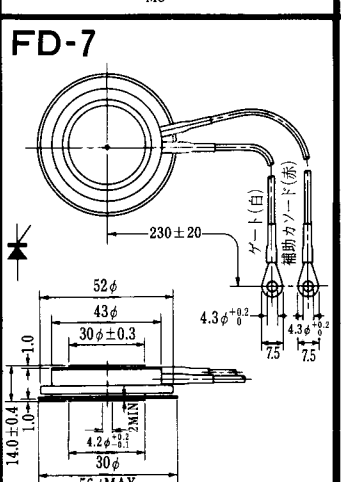
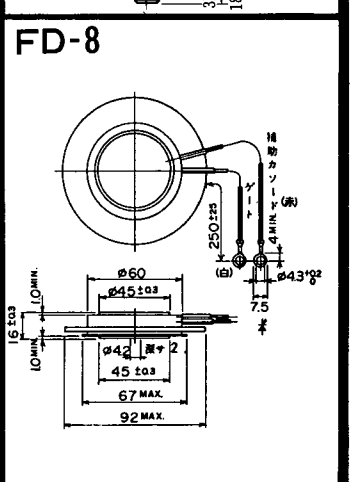



## FD-7

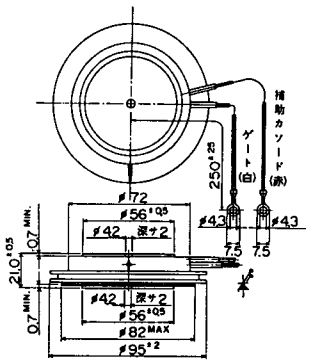



## FD-8

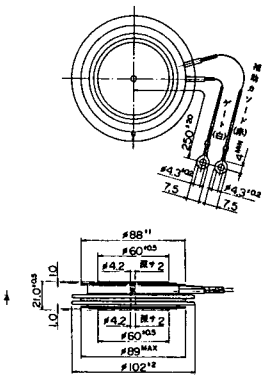



〈寸法図単位:mm〉

## FD-9




## FD-10

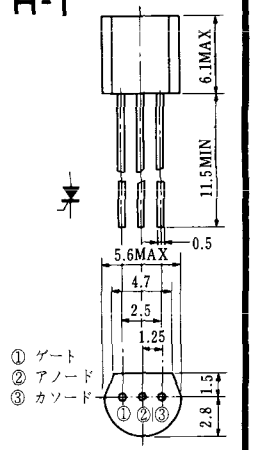



## FD-11

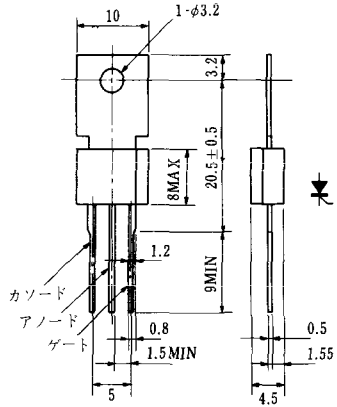
## FD-12

《寸法図単位:mm》

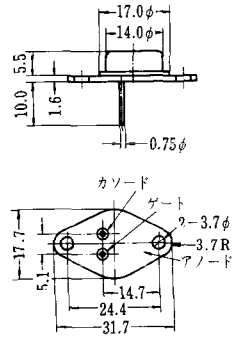
## H-1



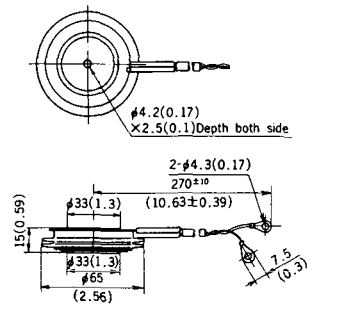

## H-2



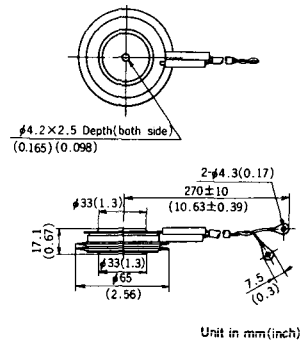

## H-3



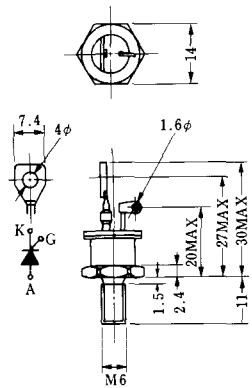

## H-4



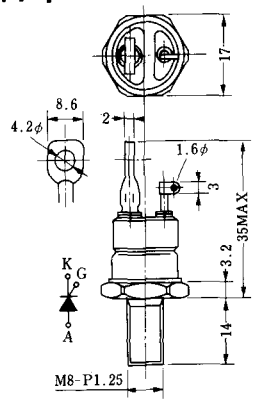

## H-5



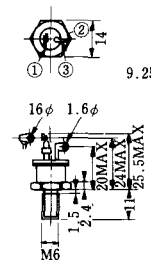

## H-6



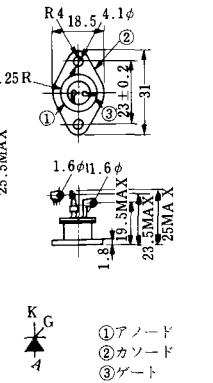

## H-7




## H-8A

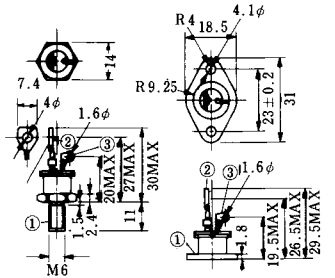



## H-8B



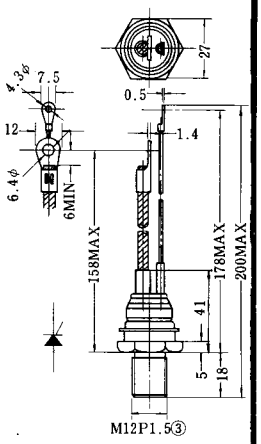

《寸法図単位：mm》

## H-9A　H-9B

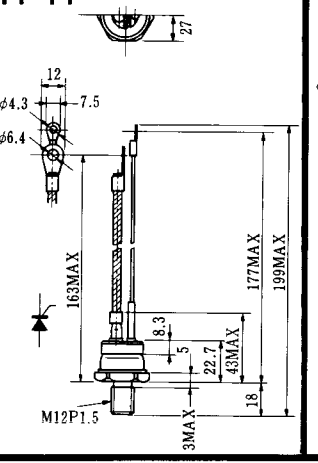



①アノード
②カソード
③ゲート

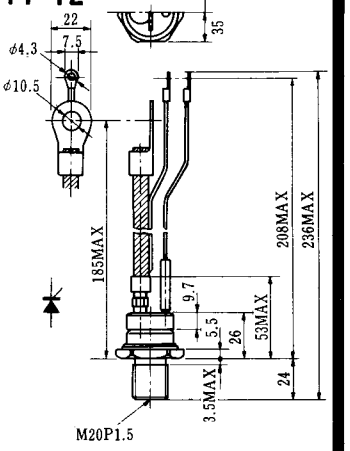
## H-10



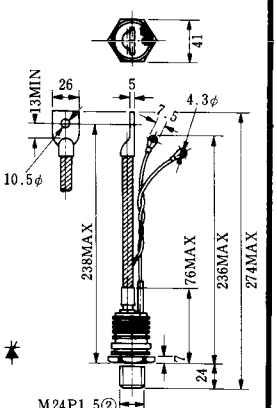

## H-11



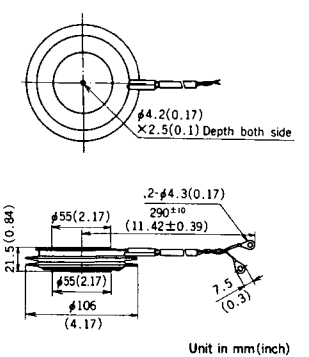

## H-12



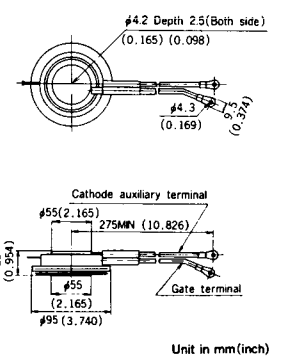

## H-13



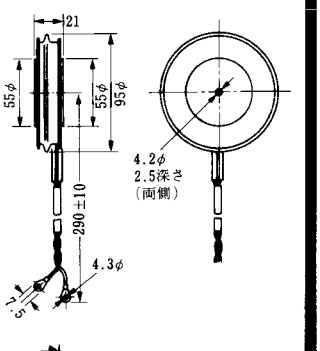

## H-14




## H-15

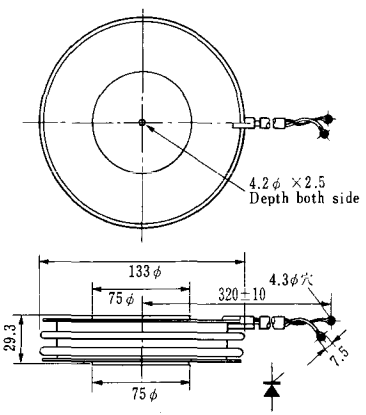



## H-16

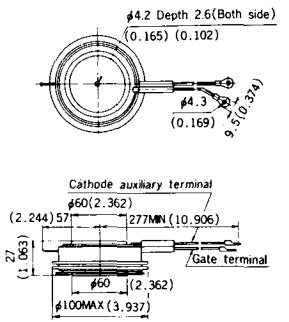



《寸法図単位：mm》

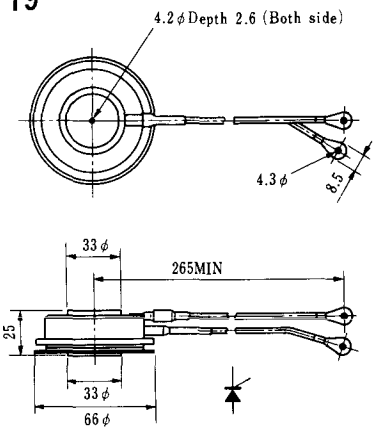
## H-17



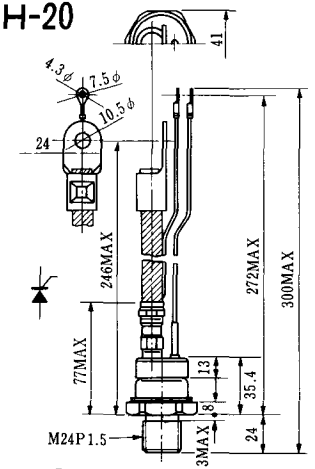

## H-18



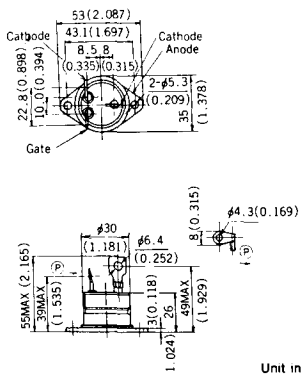

## H-19



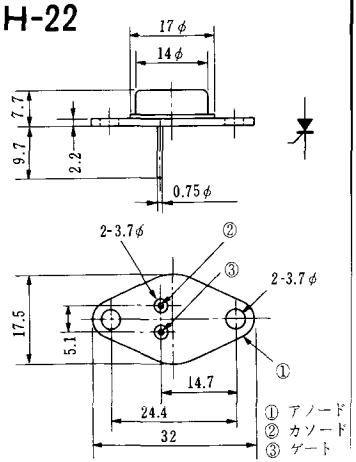

## H-20




## H-21

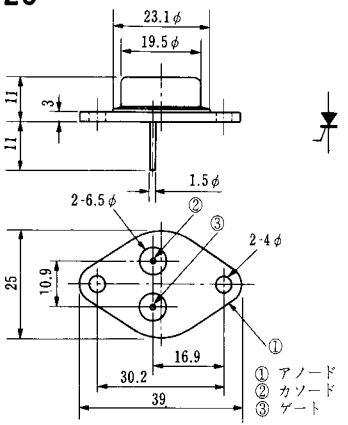



## H-22

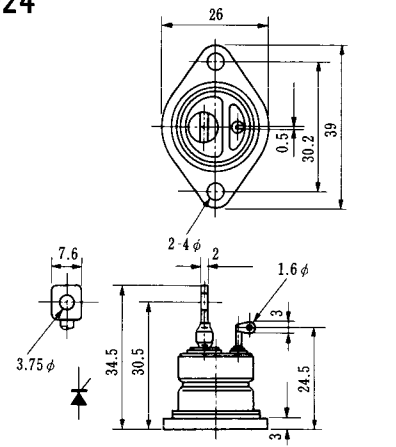



《寸法図単位：mm

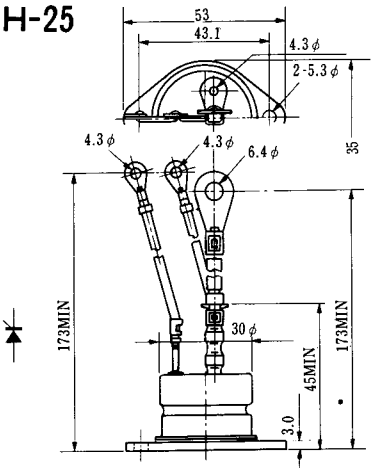
## H-23



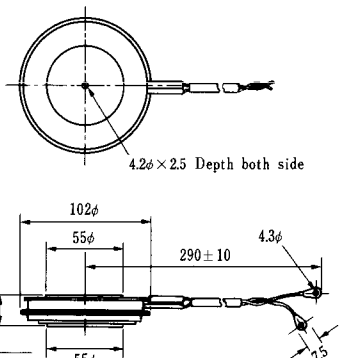

## H-24




## H-25

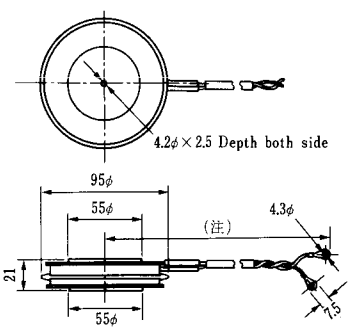



## H-26




| Type | Direction of polarity |
|---|---|
| CA12 | |

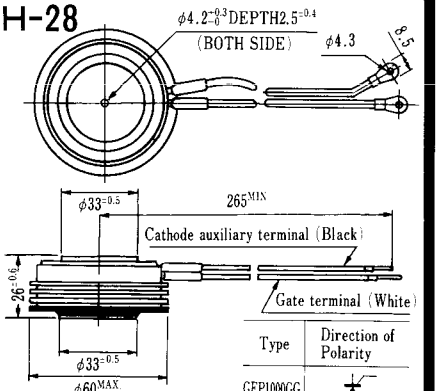
## H-27




| Type | Direction of polarity |
|---|---|
| CF11V | |

(注) CC11V : 400±10
CF11V : 250±10

## H-28



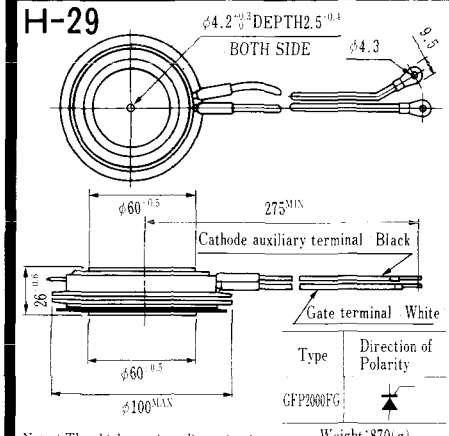

| Type | Direction of Polarity |
|---|---|
| GFP1000GG | |

Weight : 360(g)

Note : The thickness is a dimension in press at the rated mounting force.

《寸法図単位 : mm》

## H-29

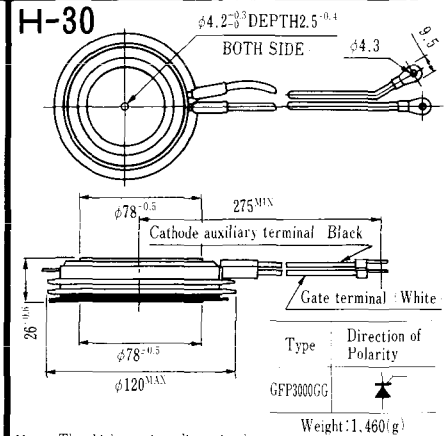



| Type | Direction of Polarity |
|---|---|
| GFP2000FG | |

Weight:870(g)

Note : The thickness is a dimension in press at the rated mounting force.

## H-30



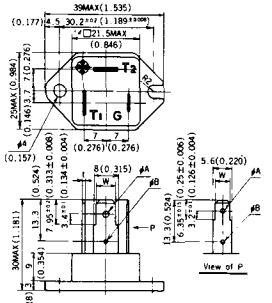

| Type | Direction of Polarity |
|---|---|
| GFP3000GG | |

Weight:1.460(g)

Note : The thickness is a dimension in press at the rated mounting force.

《寸法図単位:mm》

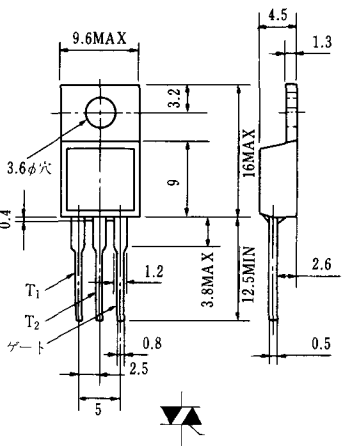
## HT-1

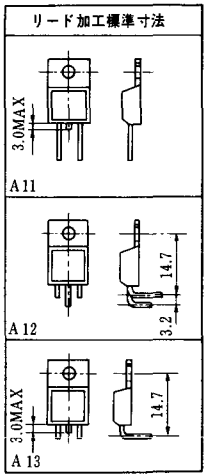



| TERMINAL | t | W | φA | φB |
|---|---|---|---|---|
| $T_1$ | 0.8±0.025 (0.031±0.001) | 6.35±0.1 (0.250±0.004) | $2.00^{+0.1}_{-0}$ $(0.079^{+0.004}_{-0})$ | 1.3 (0.051) |
| $T_2$ | 0.8±0.025 (0.031±0.001) | 6.35±0.1 (0.250±0.004) | $2.00^{+0.1}_{-0}$ $(0.079^{+0.004}_{-0})$ | 1.3 (0.051) |
| G | 0.5±0.025 (0.020±0.001) | 4.75±0.1 (0.187±0.004) | $1.55^{+0.1}_{-0}$ $(0.061^{+0.004}_{-0})$ | 1.3 (0.051) |

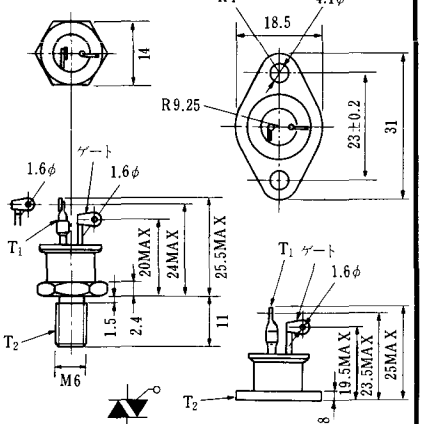
Unit in mm(inch)

## HT-2

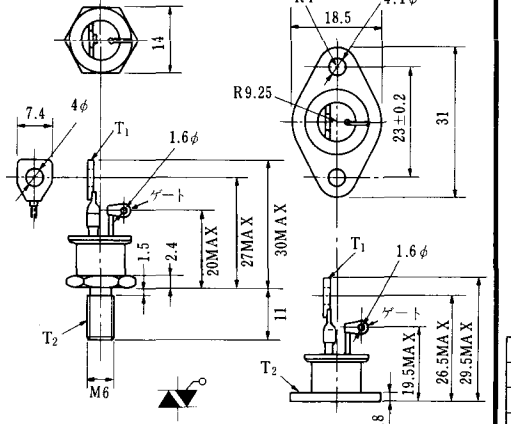


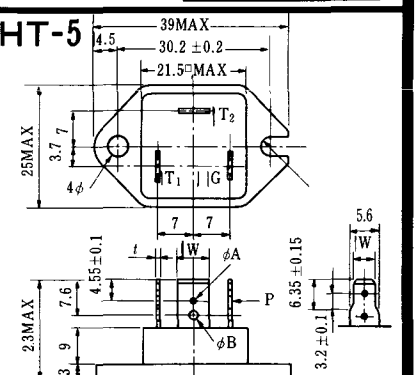

## HT-3




## HT-4



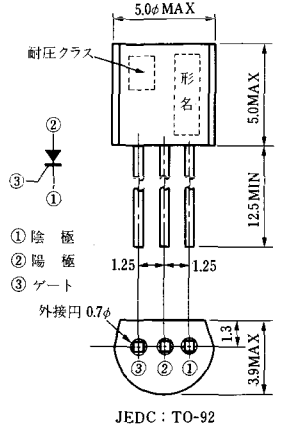

## HT-5



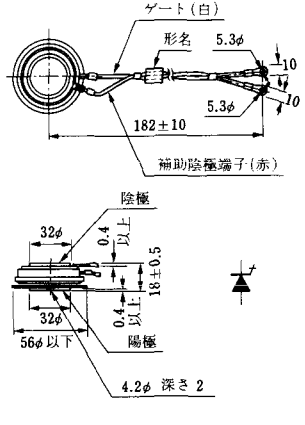

| TERMINAL | t | W | φA | φB |
|---|---|---|---|---|
| $T_1$ | 0.8±0.025 | 6.35±0.1 | $2.00^{+0.1}_{-0}$ | 2.4 |
| $T_2$ | 0.8±0.025 | 6.35±0.1 | $2.00^{+0.1}_{-0}$ | 2.4 |
| G | 0.5±0.025 | 4.75±0.1 | $1.55^{+0.1}_{-0}$ | 1.55 |

《寸法図単位：mm》

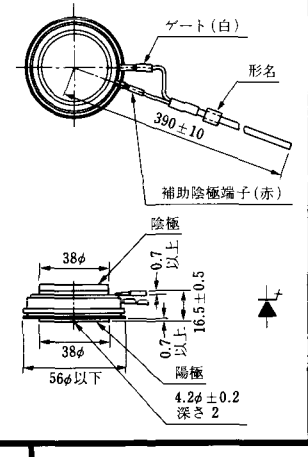
## M-1



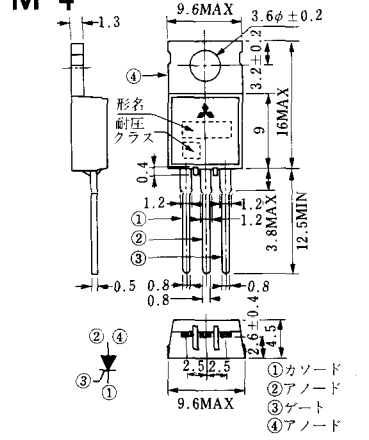

## M-2



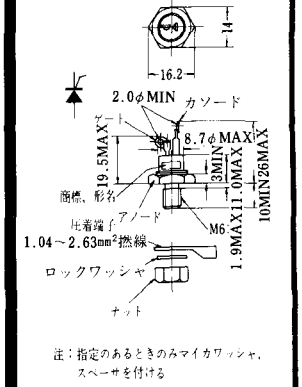

## M-3




## M-4

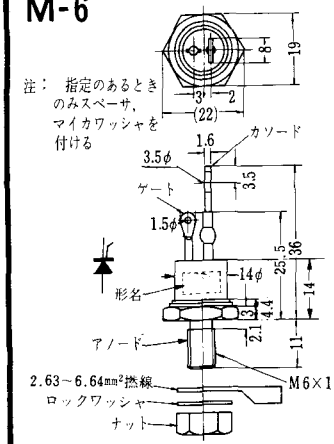



## M-5



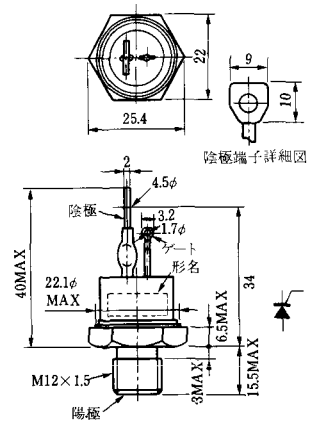

注：指定のあるときのみマイカワッシャ，スペーサを付ける

## M-6

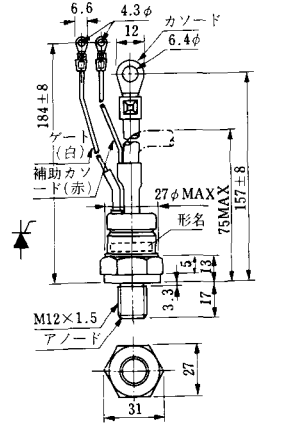



注：指定のあるときのみマイカワッシャ

## M-7

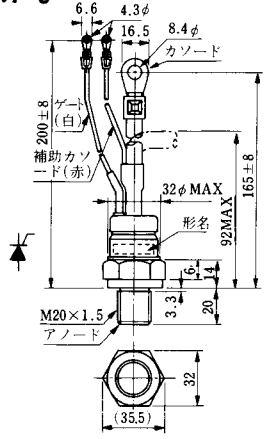



## M-8

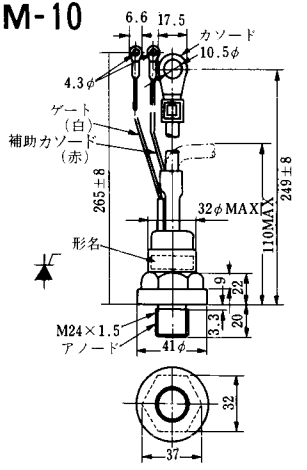



《寸法図単位：mm

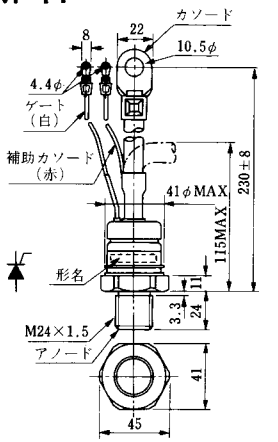
## M-9



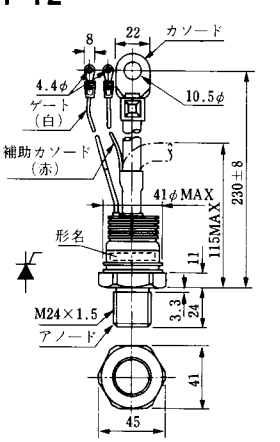

## M-10



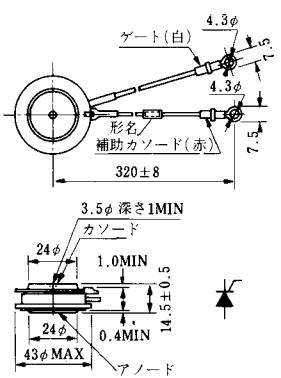

## M-11



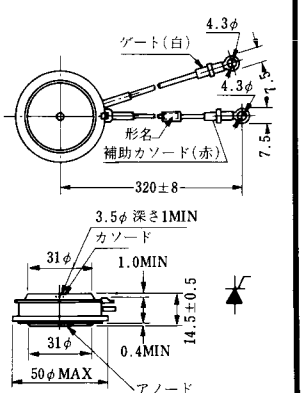

## M-12



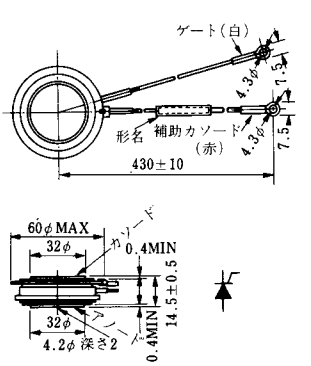

## M-13



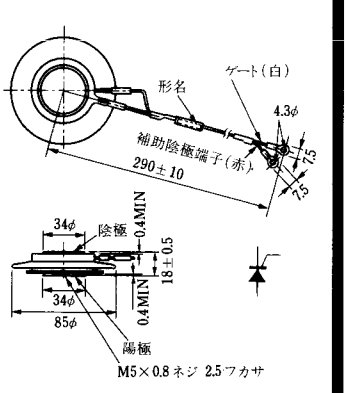

## M-14




## M-15

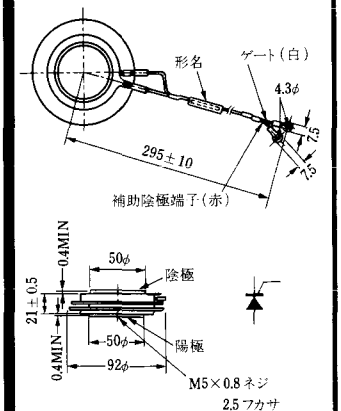



## M-16

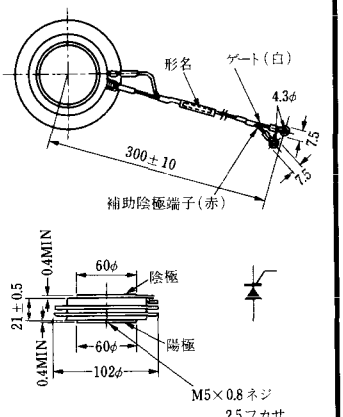



《寸法図単位：mm》

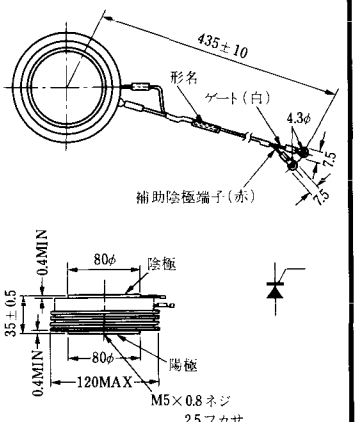
## M-17



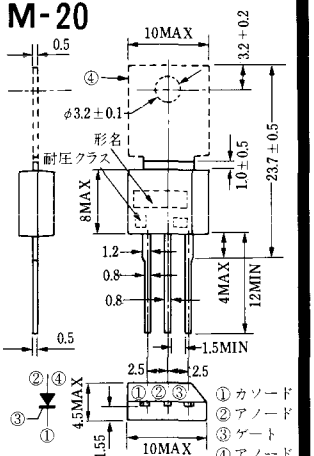

## M-18



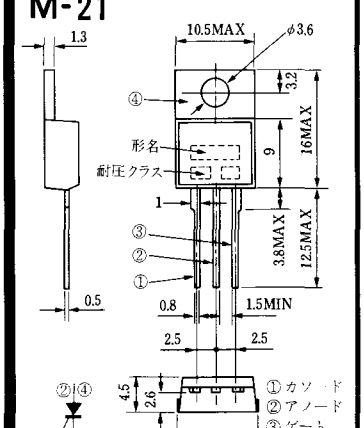

## M-19



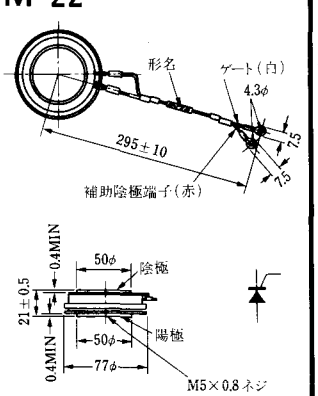

## M-20



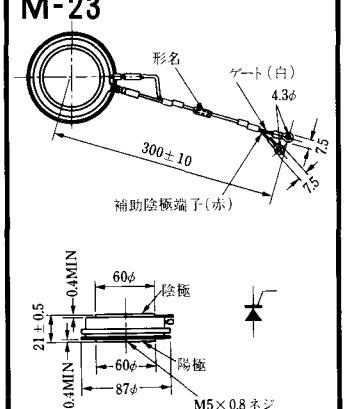

## M-21



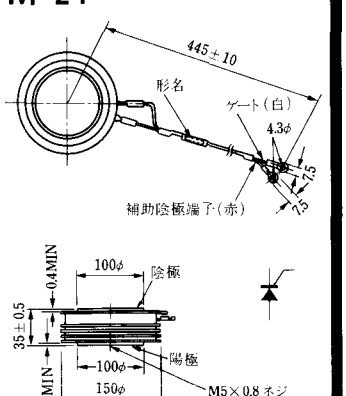

## M-22




## M-23

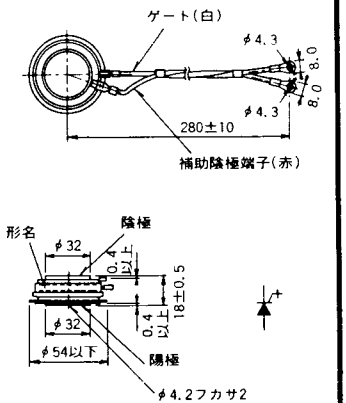



## M-24

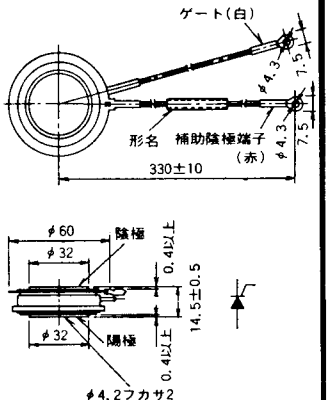



《寸法図単位：mm》

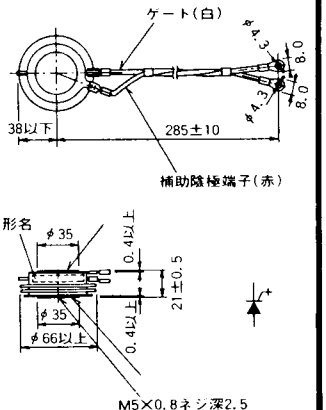
## M-25



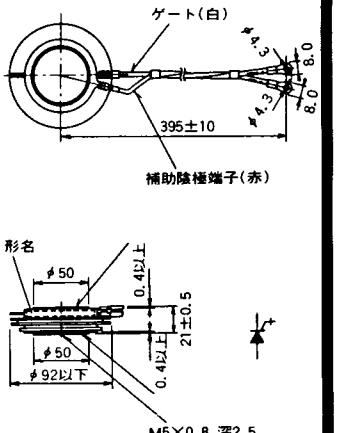

## M-26



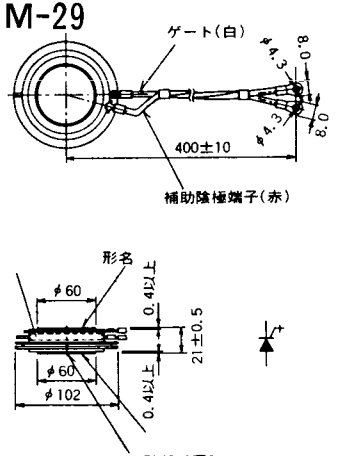

## M-27



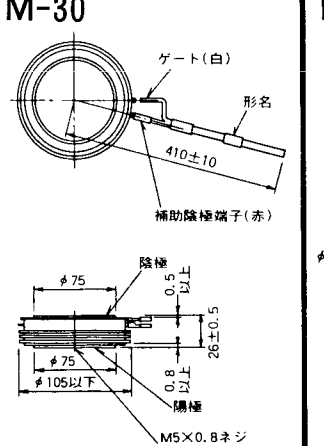

## M-28



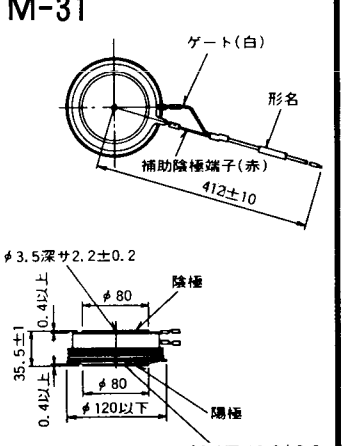

## M-29



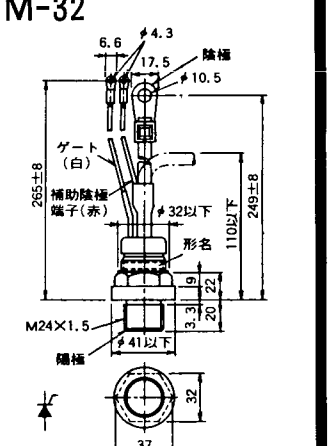

## M-30




## M-31

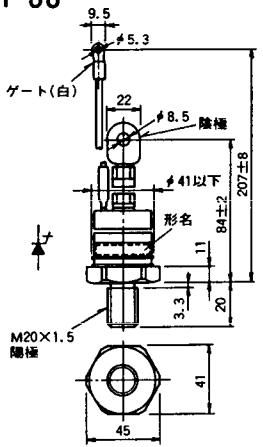



## M-32

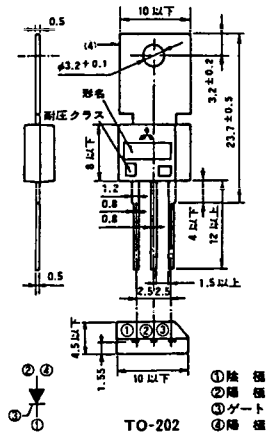



《寸法図単位：mm》

## M-33

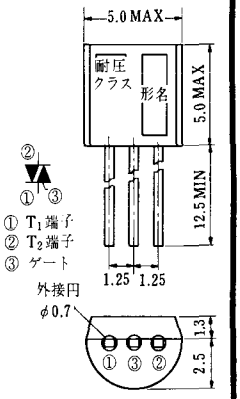



## M-34



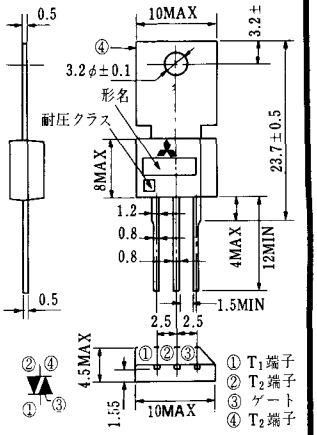

《寸法図単位:mm》

## MT-1

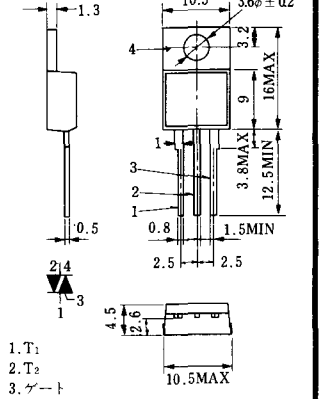



JEDC：TO-92

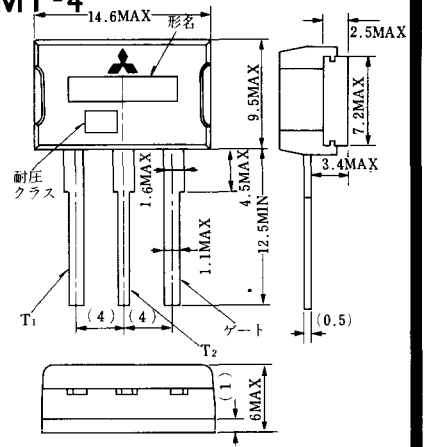
## MT-2



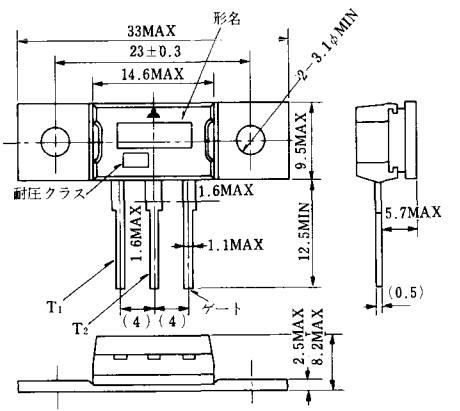

## MT-3



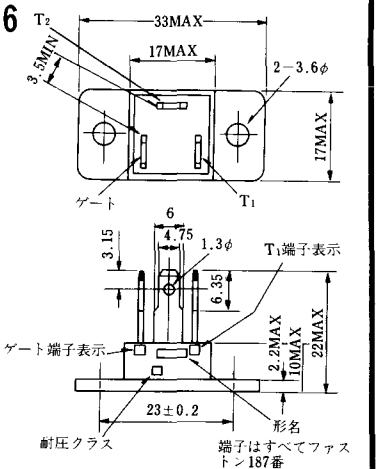

## MT-4



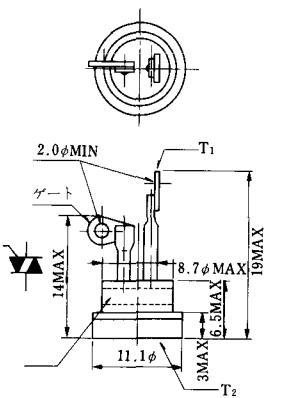

## MT-5




## MT-6

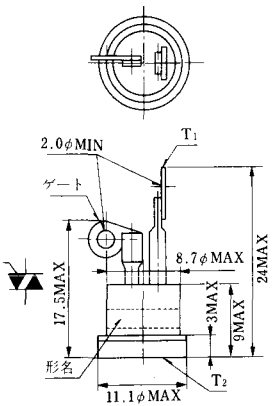



## MT-7

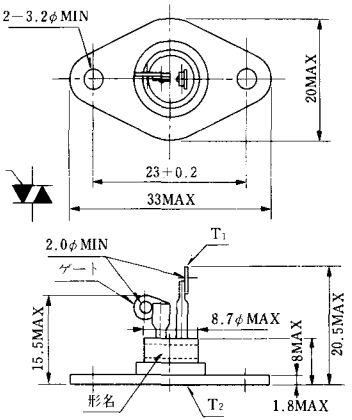



《寸法図単位：mm》

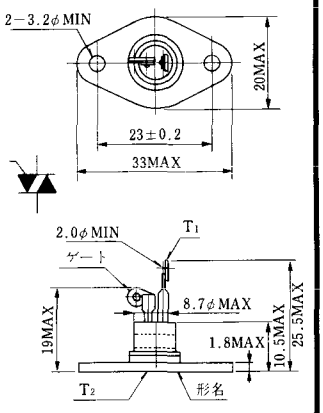
## MT-8



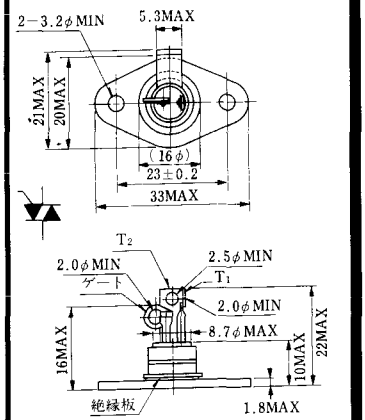

## MT-9



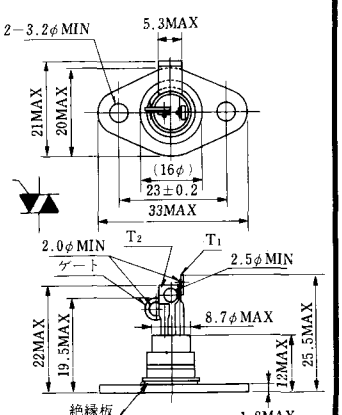

## MT-10



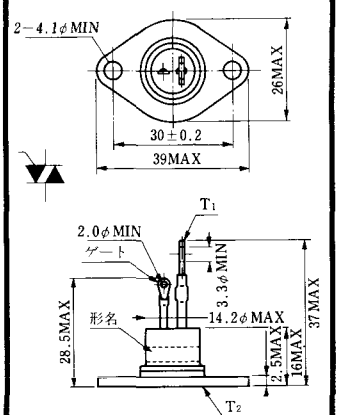

## MT-11



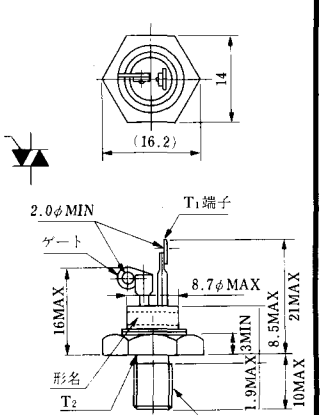

## MT-12



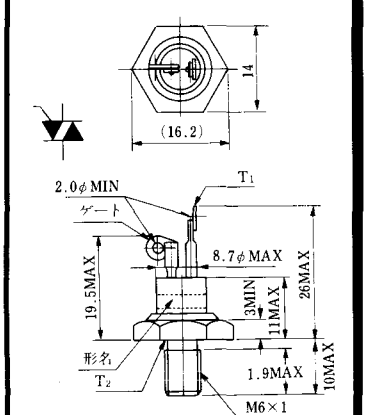

## MT-13




## MT-14

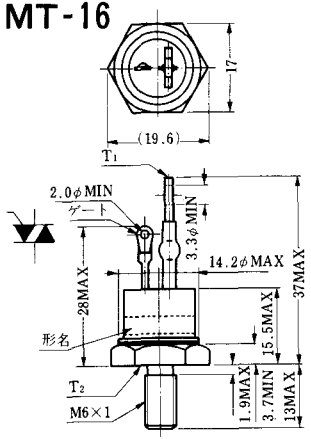



## MT-15

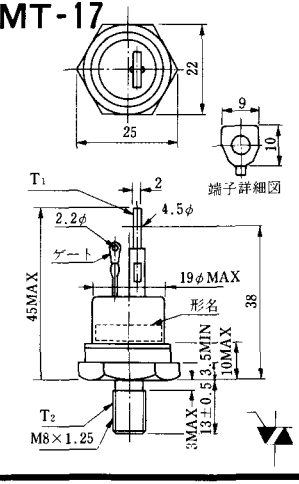



《寸法図単位：mm》

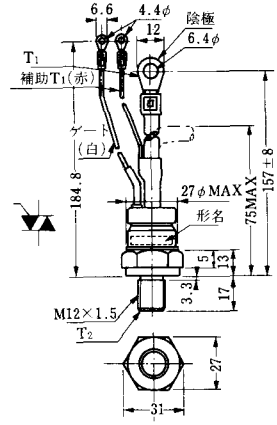
## MT-16



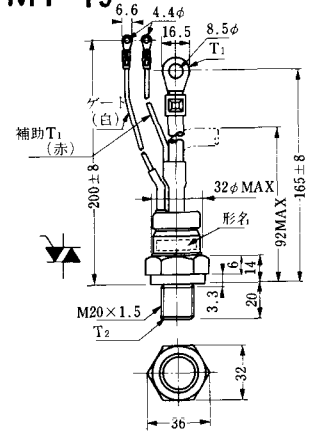

## MT-17



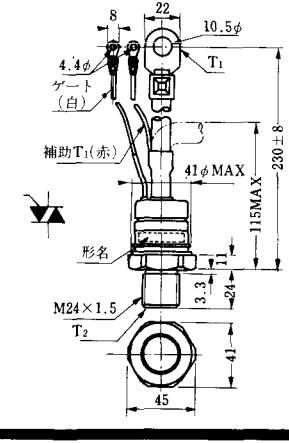

## MT-18



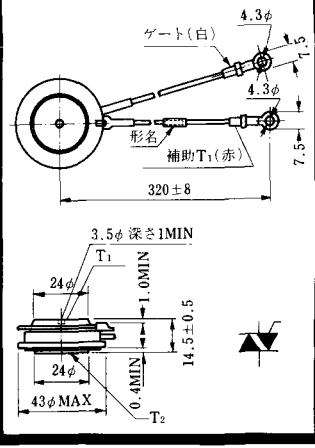

## MT-19



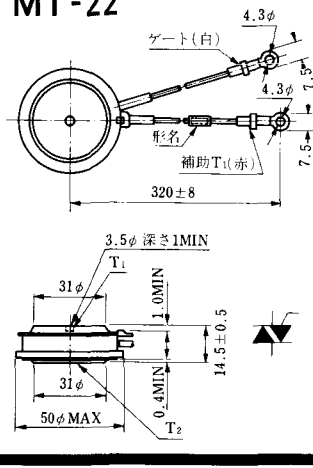

## MT-20



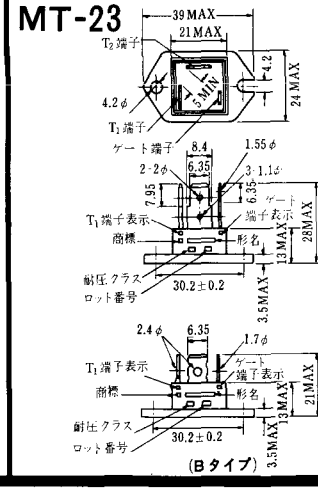

## MT-21




## MT-22

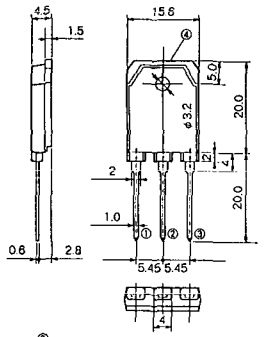



## MT-23




《寸法図単位：mm》

## MT-24

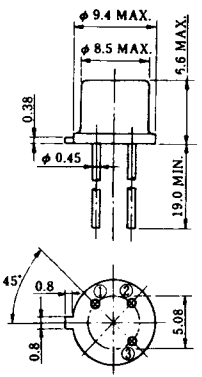


① $T_1$ 端子
② $T_2$ 端子
③ ゲート端子
④ $T_2$ 端子

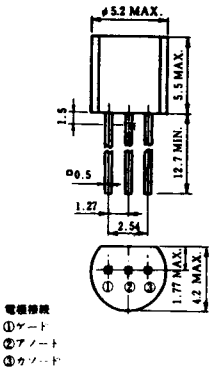
TO－3P

《寸法図単位:mm》

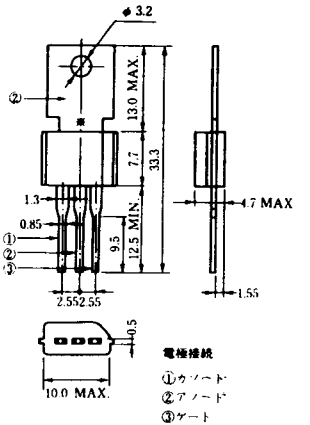
## N-1



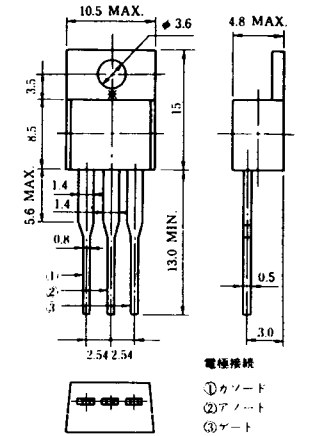

## N-2



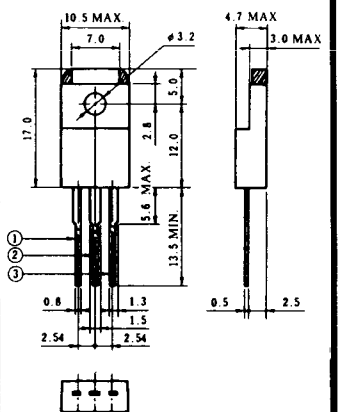

## N-3



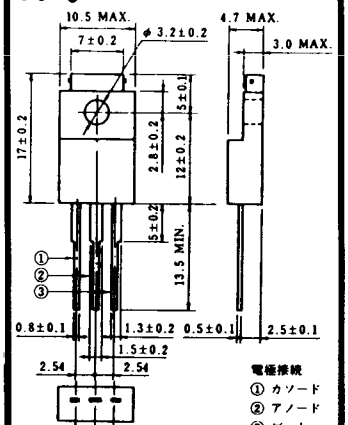

## N-4



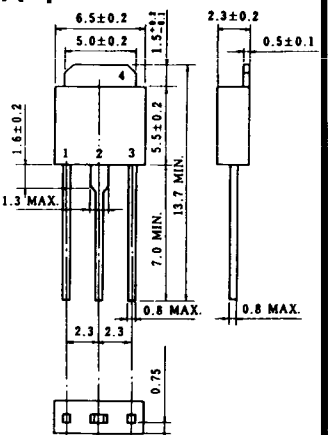

## N-5



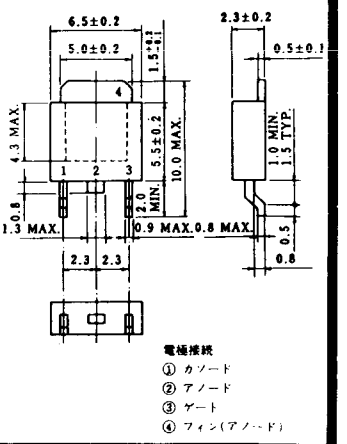

## N-6




## N-7

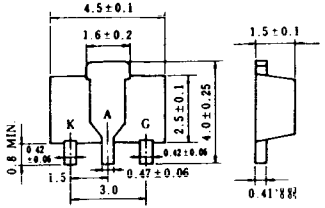



## N-8




〈寸法図単位：mm〉

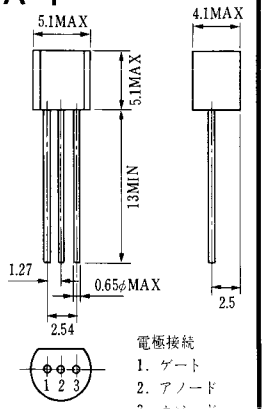
## N-9




電極接続
K：カソード
A：アノード
G：ゲート

〈寸法図単位：mm〉

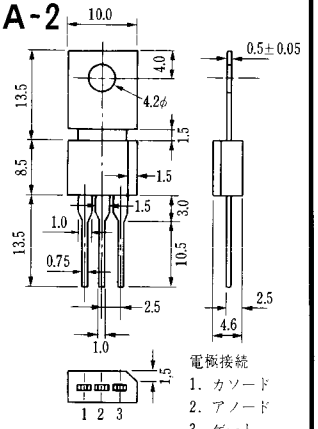
## NA-1




電極接続
1. ゲート
2. アノード
3. カソード

JEDEC：TO-92

## NA-2



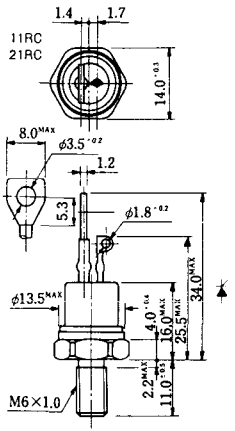

電極接続
1. カソード
2. アノード
3. ゲート

JEDEC：TO-202AA

《寸法図単位：mm》

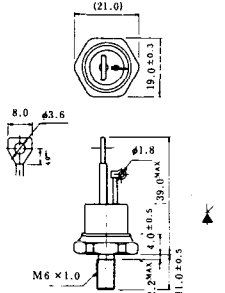
## NI-1

11RC
21RC



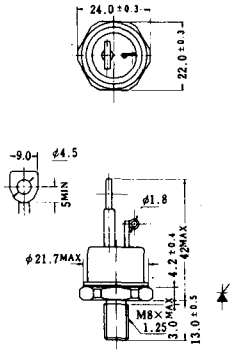
## NI-2

29RD



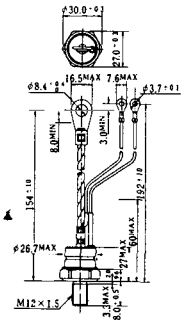
## NI-3

39RC
59RC
39RF
59RF



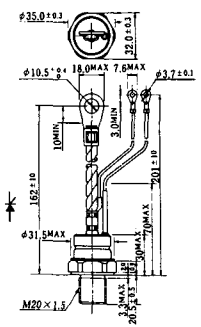
## NI-4

68RP, 88RP, 108RP, 68RS, 88RS, 78RT, 88RLD, 88RLE, 88RLF, 88RLG, 88RLH, 108RLE



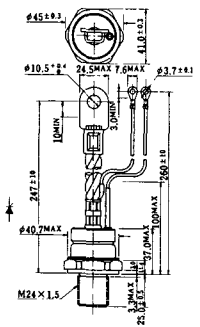
## NI-5

158RP, 208RP, 128RS, 178RS, 158RT, 178RLD, 178RLE, 178RLF, 178RLG, 178RLH, 208RLE



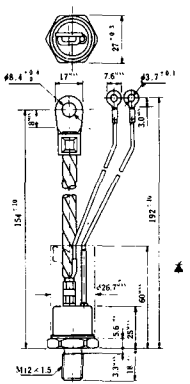
## NI-6

308RP, 408RP, 508RP, 278RS, 358RS, 258RT, 258RLD, 258RLG, 258RLH, 308RLE, 308RLF, 358RLE



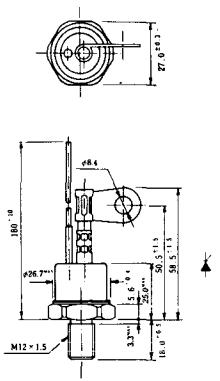
## NI-7

89RW「JL
129RW「JL



## NI-8

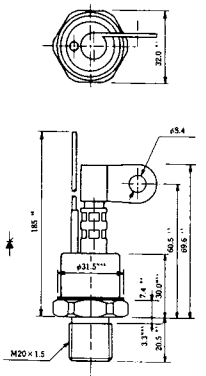
89RW
129RW



《寸法図単位:mm》

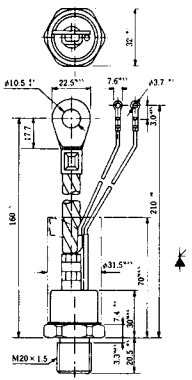
## NI-9

259RW
309RW



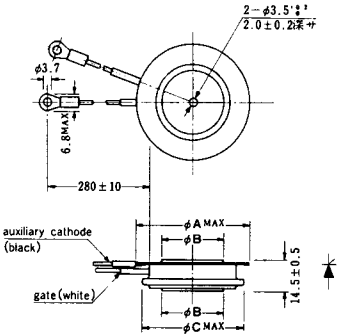
## NI-10

259RW「JL
309RW「JL



## NI-11

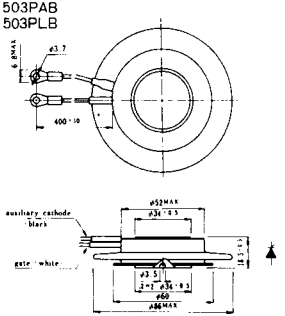
103PA
253PA
503PA
553PA
803PA
103PLE
103PLG
103PLH
203PLG
253PLE
253PLH
353PLG
403PLE
403PLH




| 型名 / 寸法 | 103PA, 103PLE 103PLG, 103PLH | 253PA, 203PLG 253PLE, 253PLH | 503PA, 553PA 353PLG, 403PLE 403PLH | 803PA |
|---|---|---|---|---|
| A | 40 | 46 | 55.5 | 55.5 |
| B | 16 | 22 | 30 | 32 |
| C | 36 | 42 | 50.5 | 50.5 |

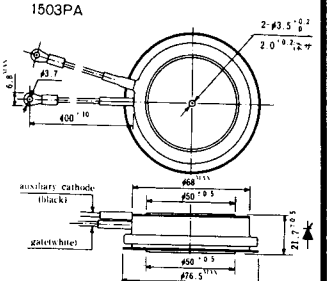
## NI-12

403PAB
503PAB
503PLB



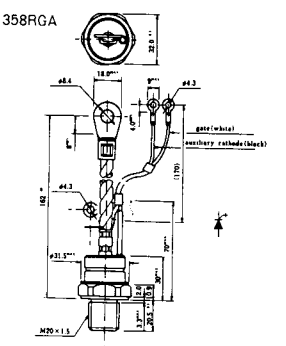

## NI-13

1003PA
1003PAB
1003PLF
1003PLH
1503PA



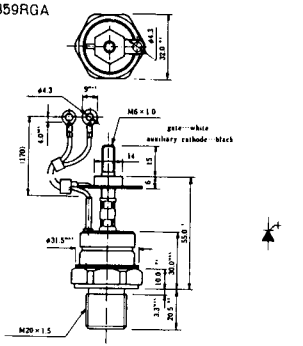

## NI-14

358RGA




## NI-15

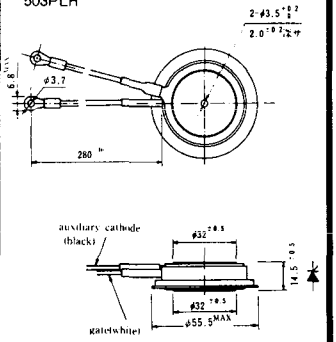
359RGA




《寸法図単位:mm》

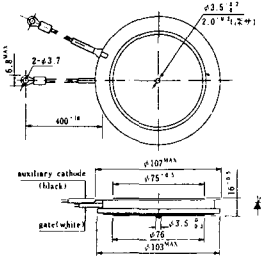
## NI-16

503PLF
503PLH



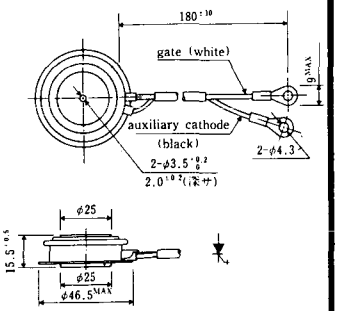

## NI-17

3003PA



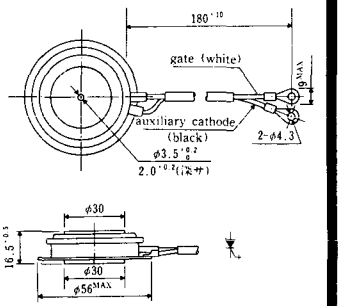

## NI-18

353PGA「」E



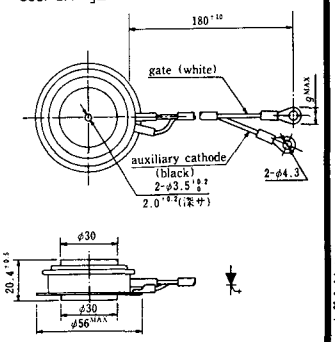

## NI-19

603PGA, 603PGA「」A, 803PGA



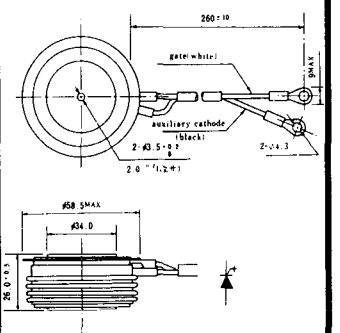

## NI-20

603PGA「」E



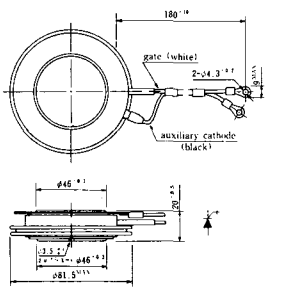

## NI-21

1001PGB「」E



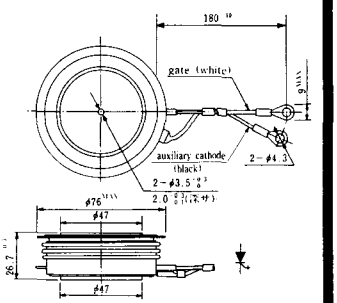

## NI-22

1201PGA, 1201PGA「」A, 1401PGA




## NI-23

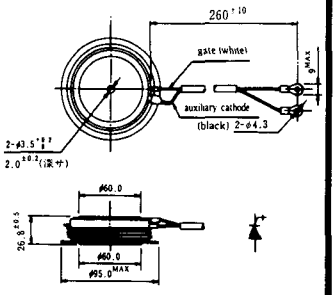
1201PGA「」E




《寸法図単位:mm》

## NI-24

2001PGBT JE

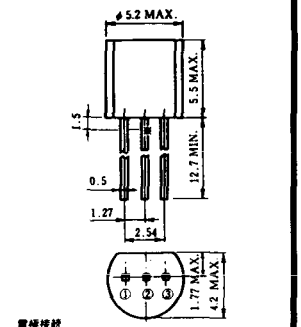



## NI-25

## NI-26

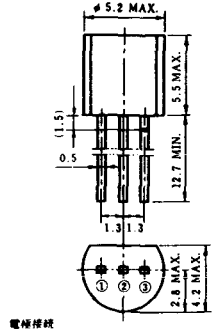
《寸法図単位:mm》

## NT-1



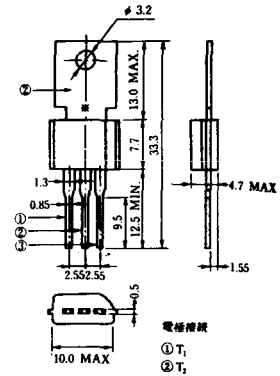

電極接続
①$T_1$
②ゲート
③$T_2$

## NT-2



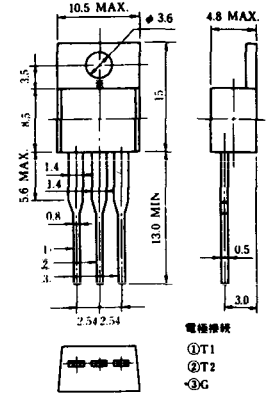

電極接続
①$T_1$
②ゲート
③$T_2$

## NT-3



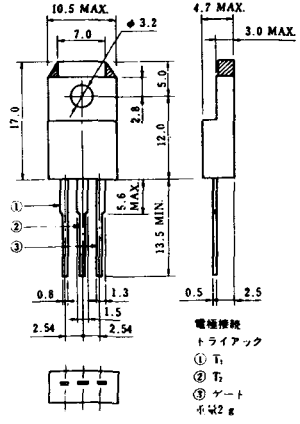

電極接続
①$T_1$
②$T_2$
③ゲート

## NT-4



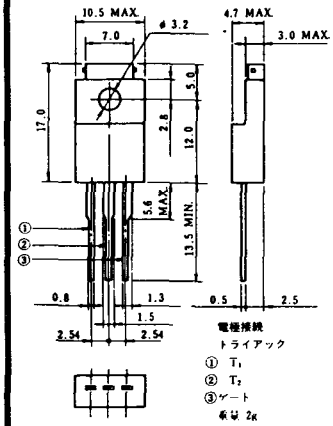

電極接続
①T1
②T2
③G

## NT-5



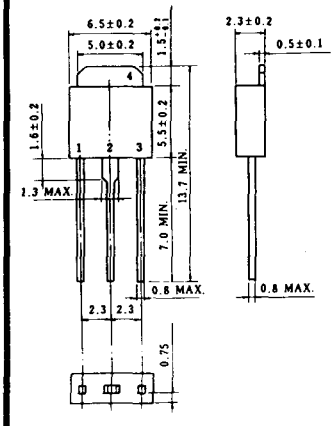

電極接続
トライアック
① $T_1$
② $T_2$
③ ゲート
本体2 g

## NT-6

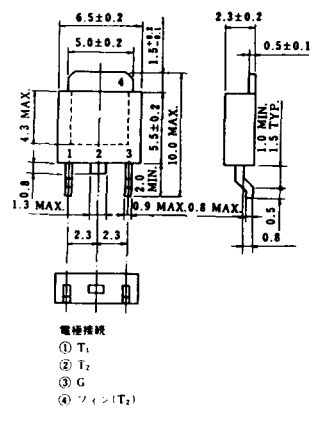



電極接続
トライアック
① $T_1$
② $T_2$
③ゲート
本体 2g

## NT-7



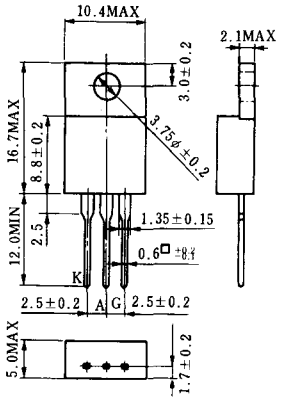

## NT-8



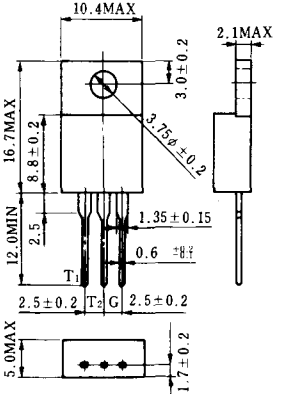

電極接続
① $T_1$
② $T_2$
③ G
④ フィン($T_2$)

《寸法図単位：mm》

## S-1

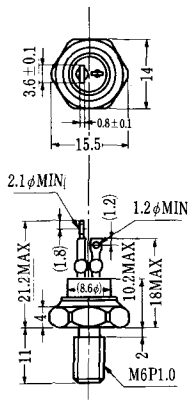



## ST-1

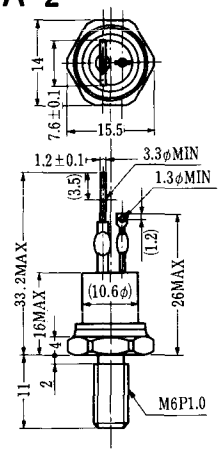



《寸法図単位：mm》

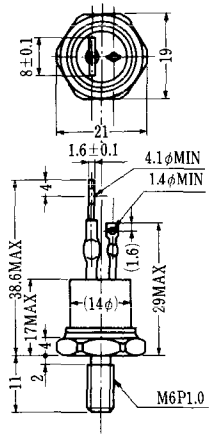
## SA-1



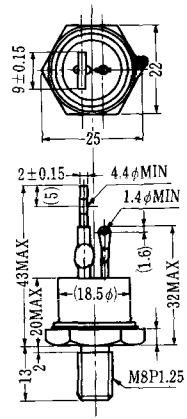

## SA-2



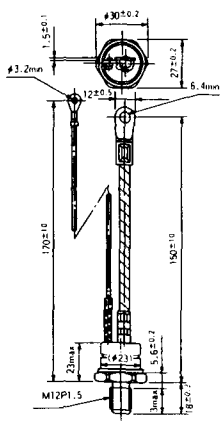

## SA-3



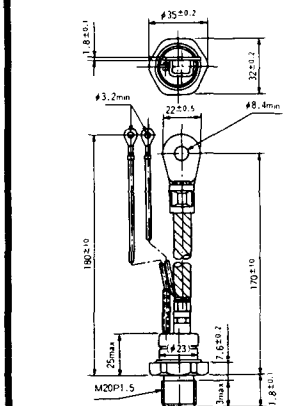

## SA-4



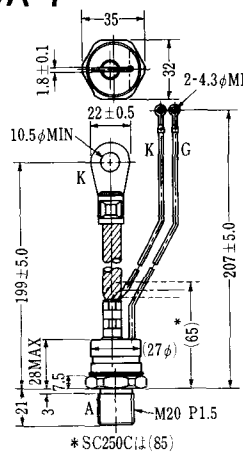

## SA-5



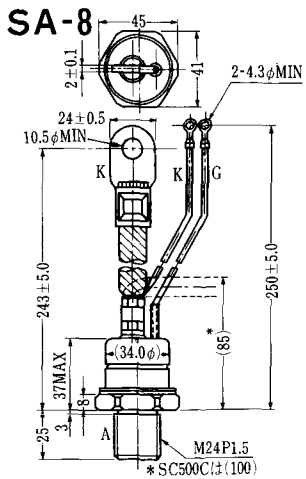

## SA-6




## SA-7

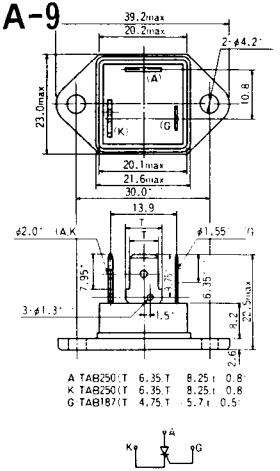



## SA-8

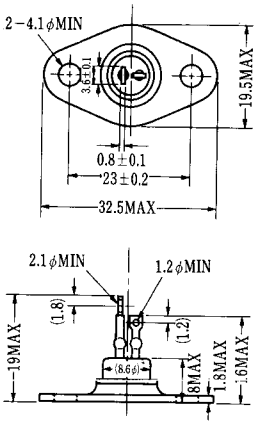



《寸法図単位:mm》

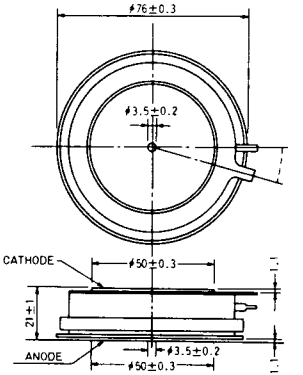
## SA-9



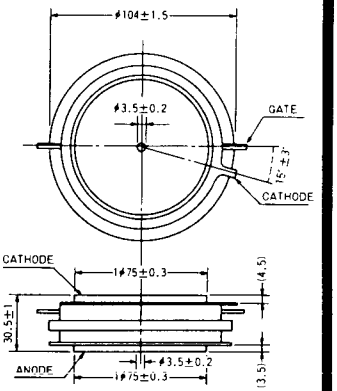

## SA-10




## SA-11

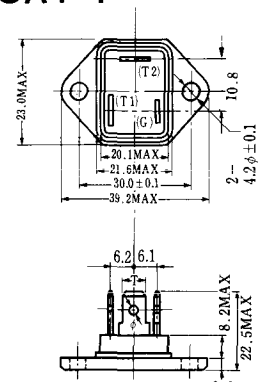



## SA-12



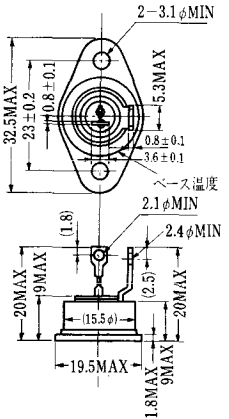

《寸法図単位:mm》

## SAT-1

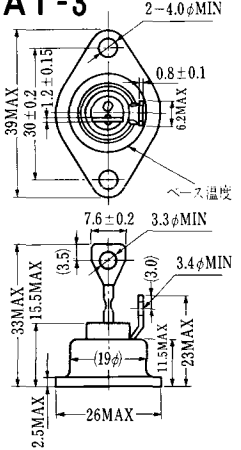



T1端子：ファストン250(T=6.35, t=0.8, φ=1.65)
T2端子：ファストン250(T=6.35, t=0.8, φ=1.65)
G 端子：ファストン187(T=4.75, t=0.5, φ=1.3)

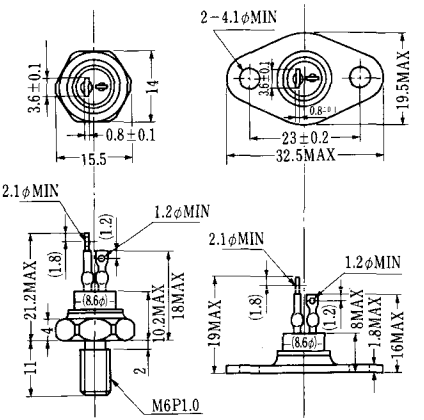
## SAT-2



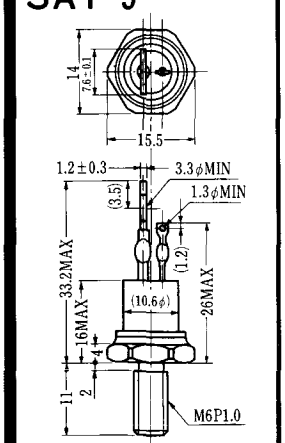

## SAT-3



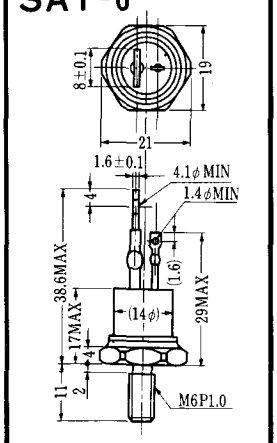

## SAT-4



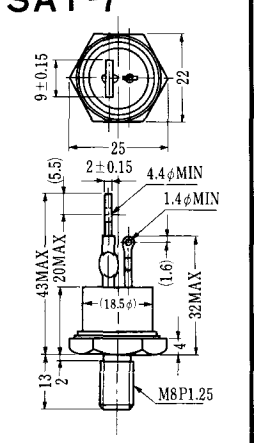

## SAT-5



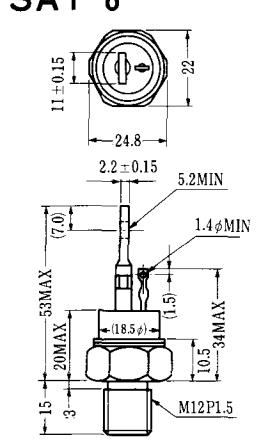

## SAT-6



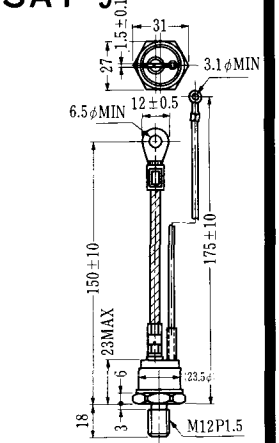

## SAT-7




## SAT-8

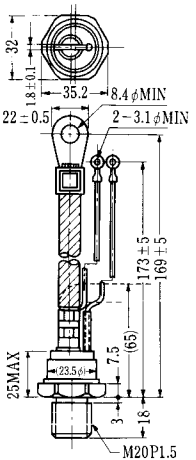



## SAT-9

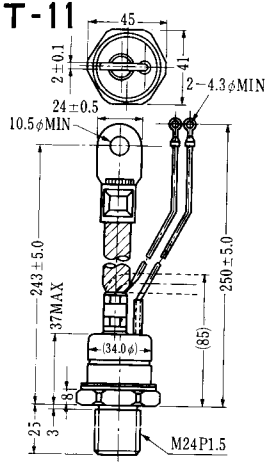



《寸法図単位：mm》

## SAT-10

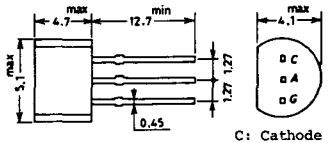



## SAT-11



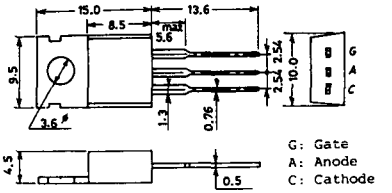

《寸法図単位：mm》

## SY-1(1096A)



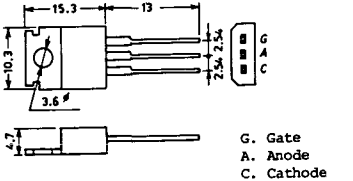

C: Cathode
A: Anode
G: Gate

## SY-2(1151)



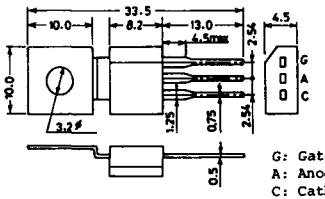

G: Gate
A: Anode
C: Cathode

## SY-3(1104)




G. Gate
A. Anode
C. Cathode

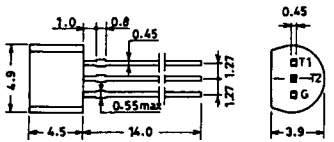
## SY-4(1150)




G: Gate
A: Anode
C: Cathode

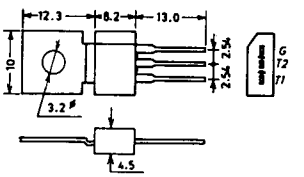
《寸法図単位:mm》

## 1097A

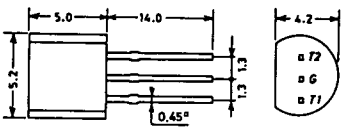



G: Gate

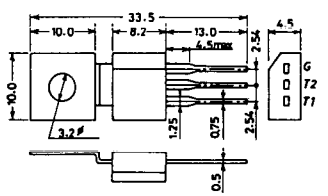
## 1102



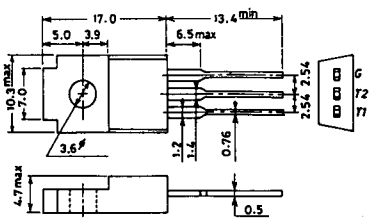

## 1141



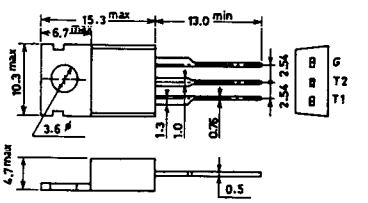

## 1142



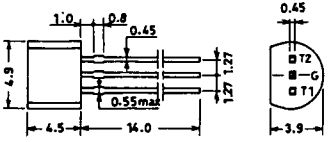

## 1144




## 1155



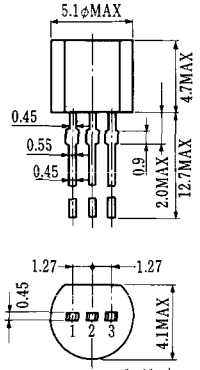

## 1192A




G: Gate

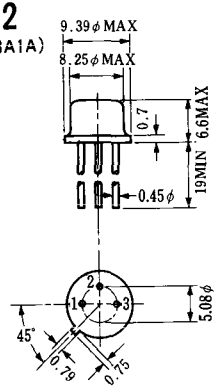
《寸法図単位:mm》

## T-1 (13-5A1A)



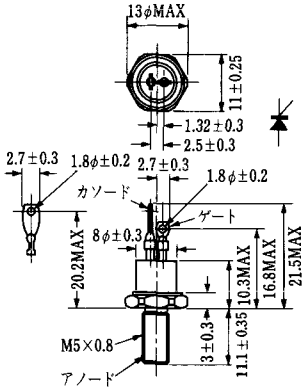

1 ゲート
2 アノード
3 カソード

## T-2 (13-8A1A)

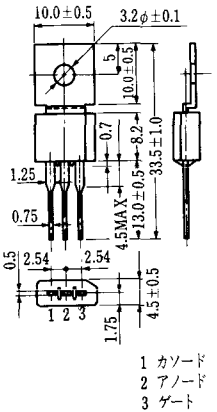



1. カソード
2. ゲート
3. アノード(ケース)

## T-3 (13-8C1A)

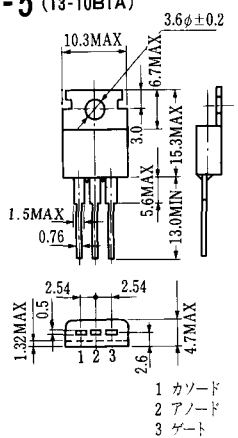



## T-4 (13-10A1A)



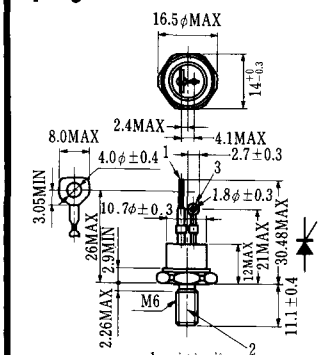

1 カソード
2 アノード
3 ゲート

## T-5 (13-10B1A)



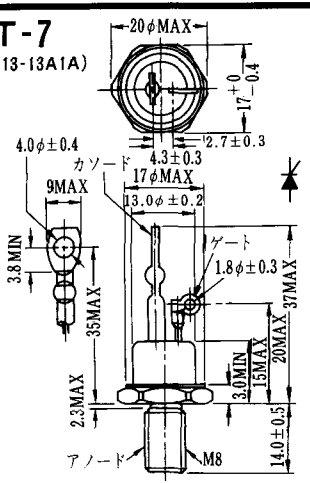

1 カソード
2 アノード
3 ゲート

## T-6 (13-11D1A)

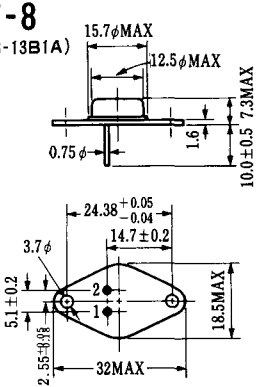



1 カソード
2 アノード
3 ゲート

## T-7 (13-13A1A)



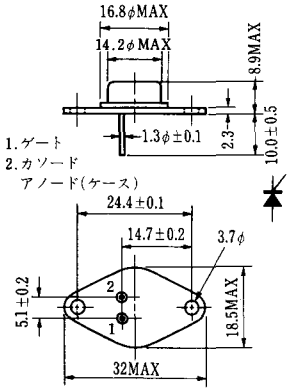

## T-8 (13-13B1A)



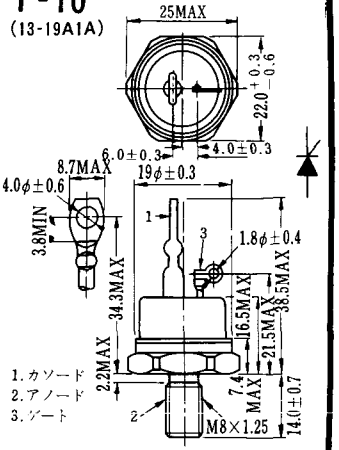

1. ゲート
2. カソード
アノード(ケース)

《寸法図単位：mm

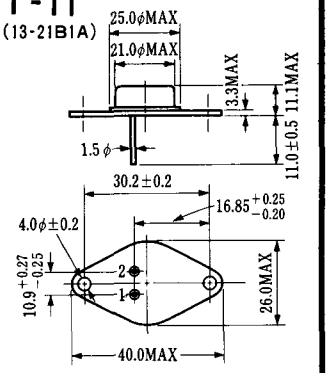
## T-9 (13-14A1A)



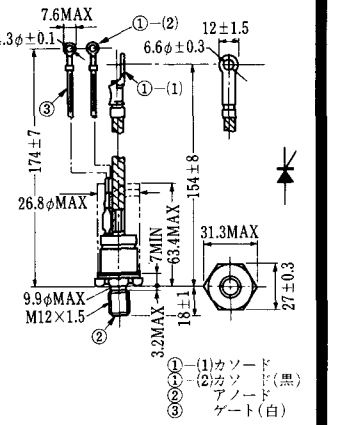

## T-10 (13-19A1A)



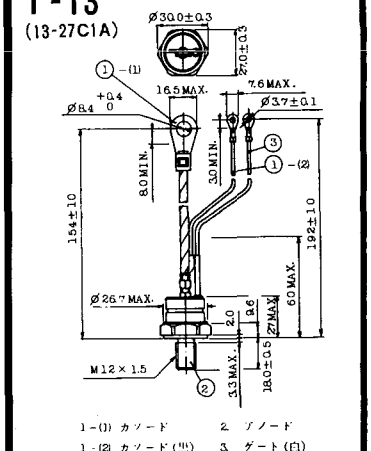

## T-11 (13-21B1A)



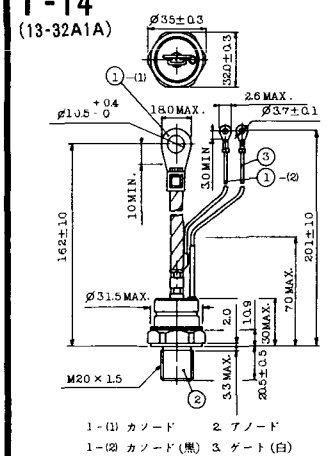

## T-12 (13-27B1B)



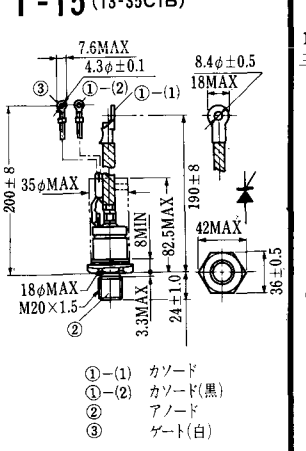

## T-13 (13-27C1A)



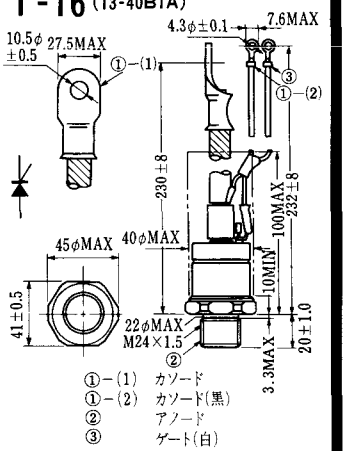

## T-14 (13-32A1A)




## T-15 (13-35C1B)

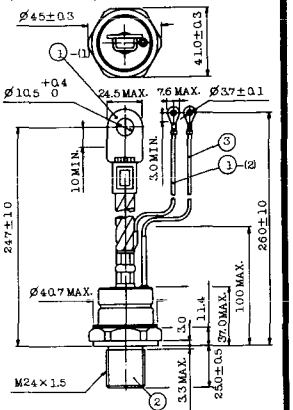



## T-16 (13-40B1A)



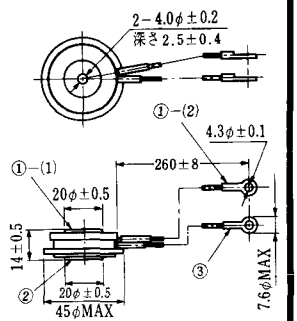

《寸法図単位：mm》

## T-17 (13-42A1A)



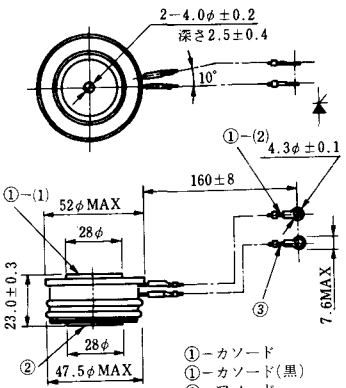

1-(1) カソード　2. アノード
1-(2) カソード(黒)　3. ゲート(白)

## T-18 (13-45D1A)



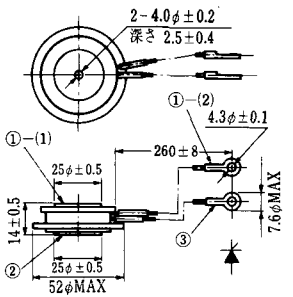

①-(1) カソード
①-(2) カソード(黒)
②　アノード
③　ゲート(白)

## T-19 (13-52B1A)



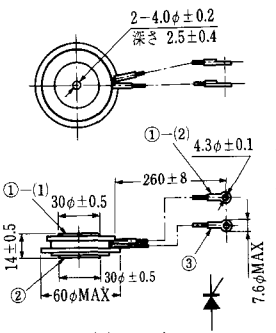

①-カソード
①-カソード(黒)
②　アノード
③　ゲート(白)

## T-20 (13-52C1A)



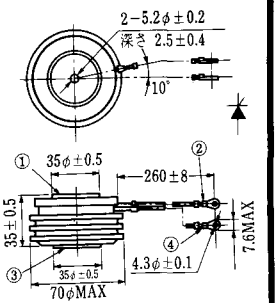

①-(1) カソード
①-(2) カソード(黒)
②　アノード
③　ゲート(白)

## T-21 (13-60A1A)



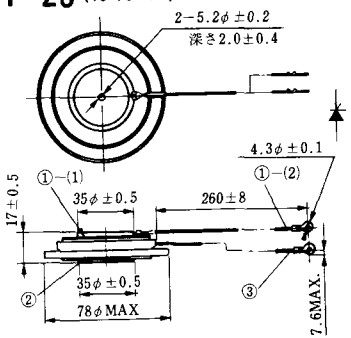

1-(1) カソード
1-(2) カソード(黒)
2　アノード
3　ゲート(白)

## T-22 (13-70C1A)



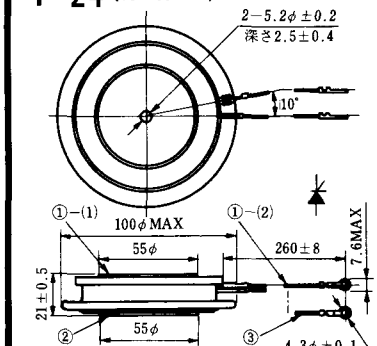

① カソード(1)
② カソード(2)(黒)
③ アノード
④ ゲート(白)

## T-23 (13-78A1A)




①-(1) カソード
①-(2) カソード(黒)
②　アノード
③　ゲート(白)

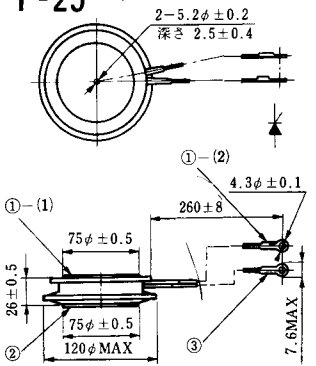
## T-24 (13-100C1A)




①-(1) カソード
①-(2) カソード(黒)
②　アノード
③　ゲート(白)

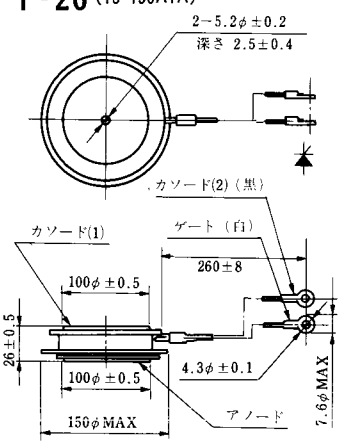
《寸法図単位：mm

## T-25 (13-120A2A)



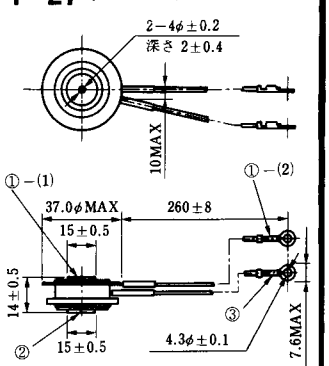

①−(1) カソード
①−(2) カソード(黒)
② アノード
③ ゲート(白)

## T-26 (13-150A1A)



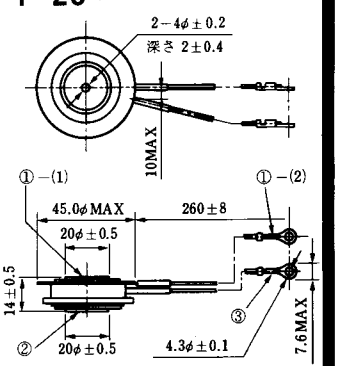

①−(1) カソード
①−(2) カソード(赤)
② アノード
③ ゲート(白)

## T-27 (13-37A1A)



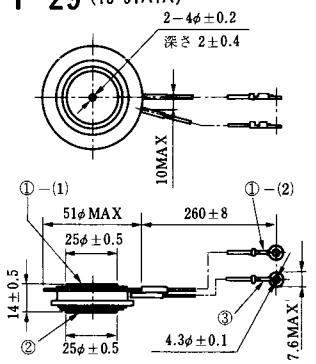

①−(1) カソード
①−(2) カソード(赤)
② アノード
③ ゲート(白)

## T-28 (13-45E1A)



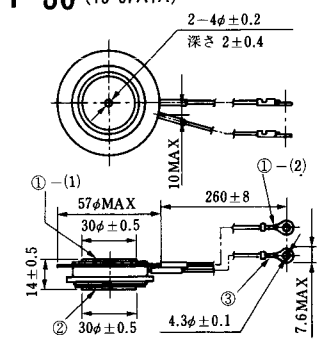

①−(1) カソード
①−(2) カソード(赤)
② アノード
③ ゲート(白)

## T-29 (13-51A1A)



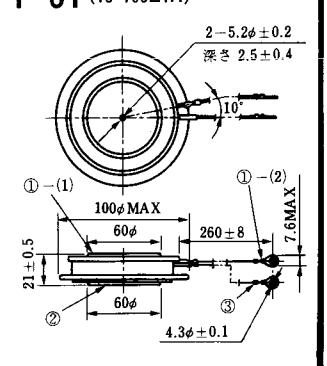

①−(1) カソード
①−(2) カソード(赤)
② アノード
③ ゲート(白)

## T-30 (13-57A1A)



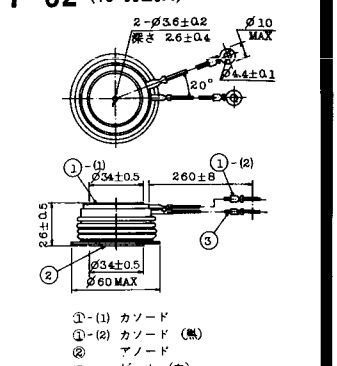

①−(1) カソード
①−(2) カソード(赤)
② アノード
③ ゲート(白)

## T-31 (13-100E1A)




①−(1) カソード
①−(2) カソード(黒)
② アノード
③ ゲート(白)

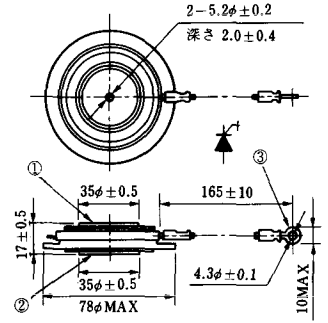
## T-32 (13-60E3A)




①-(1) カソード
①-(2) カソード (黒)
② アノード
③ ゲート (白)

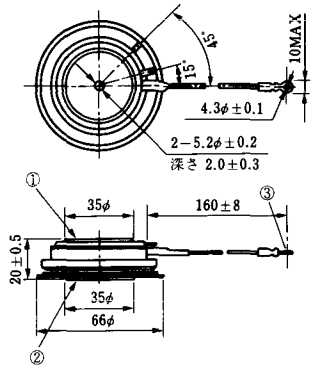
《寸法図単位：mm》

## T-33 (13-78B1A)



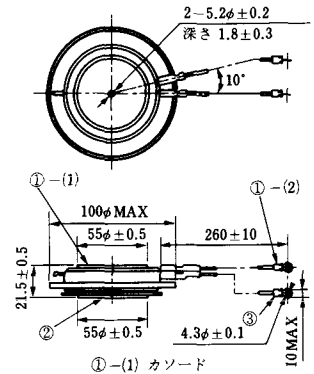

① カノード
② アノード
③ ゲート

## T-34 (13-66A1A)



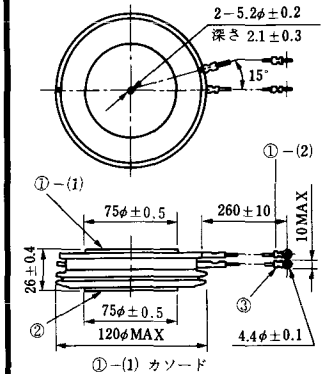

① カソード
② アノード
③ ゲート

## T-35 (13-100D1A)



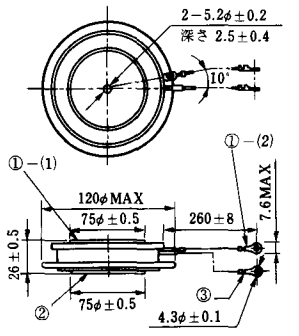

①−(1) カソード
①−(2) カソード(黒)
② アノード
③ ゲート(白)

## T-36 (13-120E1A)



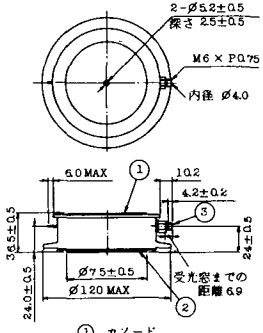

①−(1) カソード
①−(2) カソード(黒)
② アノード
③ ゲート(白)

## T-37 (13-120A1A)



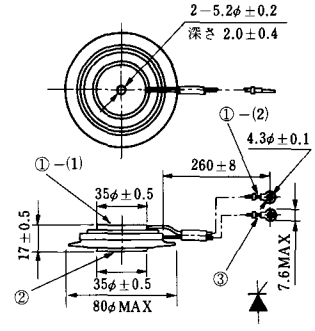

①−(1) カソード
①−(2) カソード(黒)
② アノード
③ ゲート(白)

## T-38 (13-120C1A)



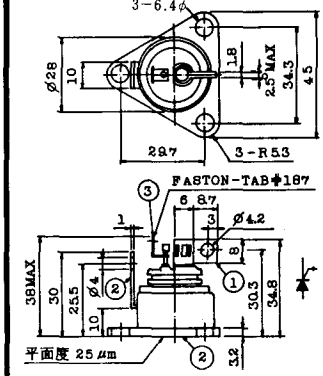

① カソード
② アノード
③ ゲート

## T-39 (13-80B1A)




①−(1) カソード
①−(2) カソード(黒)
② アノード
③ ゲート(白)

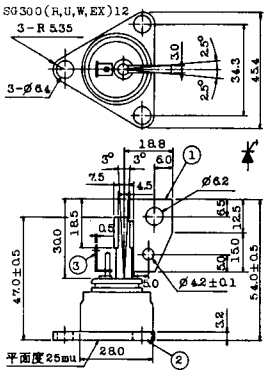
## T-40 (13-28A1A)




1. カソード
2. アノード
3. ゲート

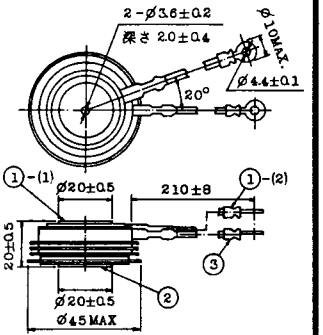
《寸法図単位：mm

## T-41 (13-28A2A)



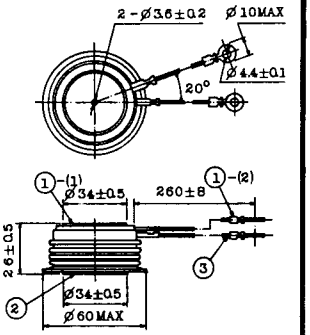

1. カソード
2. アノード
3. ゲート

## T-42 (13-45F1A)



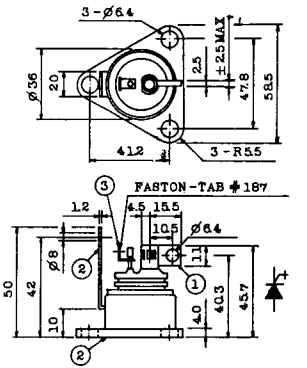

①-(1) カソード
①-(2) カソード(黒)
② アノード
③ ゲート(白)

## T-43 (13-60E2A)



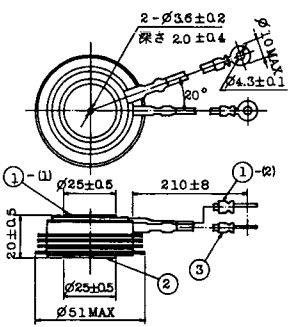

①-(1) カソード
①-(2) カソード(黒)
② アノード
③ ゲート(白)

## T-44 (13-36A1A)



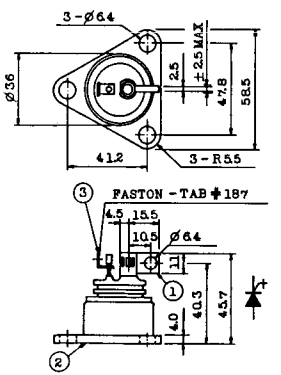

1. カソード
2. アノード
3. ゲート

## T-45 (13-51B1A)



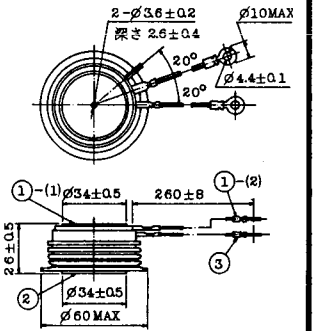

①-(1) カソード
①-(2) カソード (黒)
② アノード
③ ゲート (白)

## T-46 (13-36B1A)



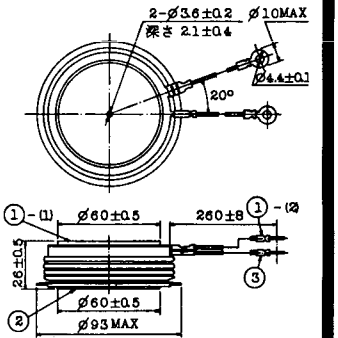

1. カソード
2. アノード
3. ゲート

## T-47 (13-60E1A)




①-(1) カソード
①-(2) カソード(黒)
② アノード
③ ゲート(白)

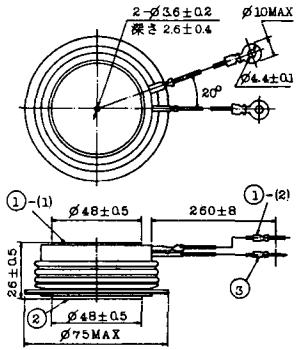
## T-48 (13-93C1A)




①-(1) カソード
①-(2) カソード(黒色)
② アノード
③ ゲート(白色)

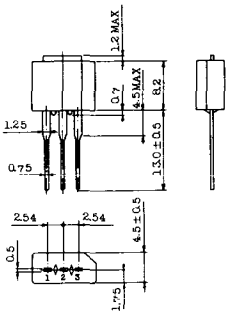
《寸法図単位：mm》

## T-49 (13-75A1A)



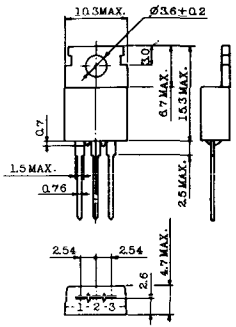

1-(1) カソード
1-(2) カソード（黒）
2. アノード
3. ゲート（白）

## T-50 (13-10A3A)



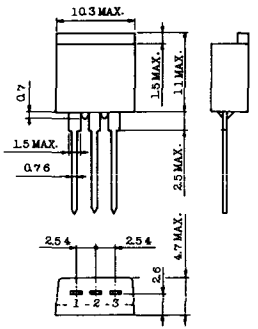

1. カソード
2. アノード
3. ゲート

## T-51 (13-10D1A)



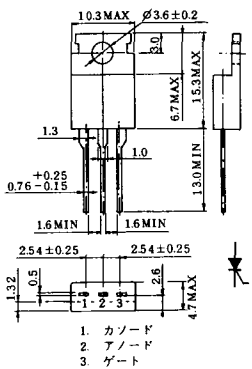

1. カソード
2. アノード
3. ゲート

## T-52 (13-10D2A)



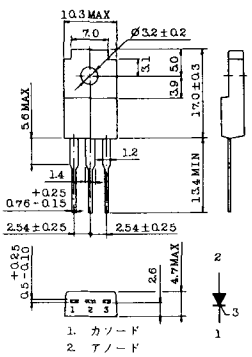

1. カソード
2. アノード
3. ゲート

## T-53 (13-10E1B)



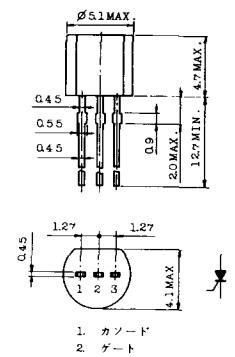

1. カソード
2. アノード
3. ゲート

## T-54 (13-10F1B)



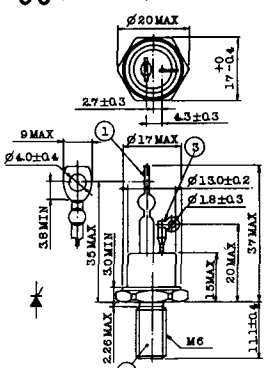

1. カソード
2. アノード
3. ゲート

## T-55 (13-5A1D)




1. カソード
2. ゲート
3. アノード

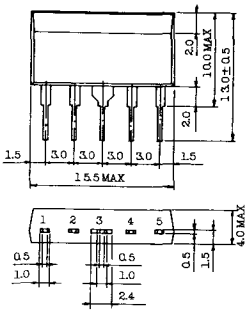
## T-56 (13-13C1A)




1. カソード
2. アノード
3. ゲート

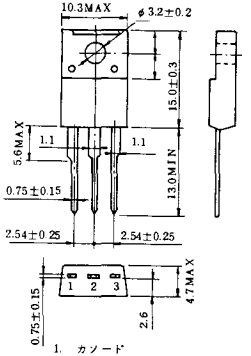
《寸法図単位：mm》

## T-57 (12-16C1A)



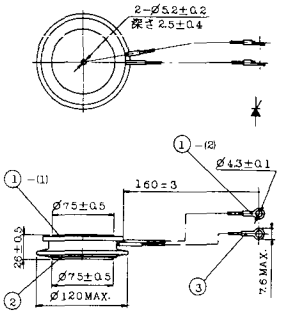

1. アノード（主）
2. ゲート（主）
3. カソード（共通）
4. ゲート（補助）
5. アノード（補助）

## T-58 (13-10H1B)



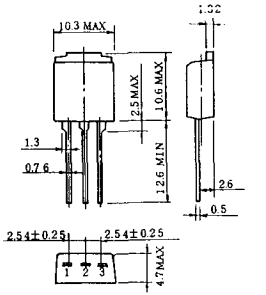

1. カソード
2. アノード
3. ゲート

## T-59 (13-120A1A)



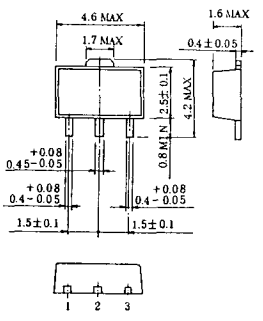

1-(1) カソード
1-(2) カソード(黒)
2. アノード
3. ゲート(白)

## T-60



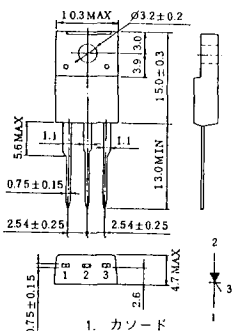

1. カソード
2. アノード
3. ゲート

## T-61 (13-5B1A)



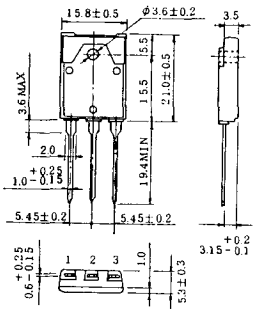

1. ゲート
2. アノード
3. カソード

## T-62 (13-10H1A)




1. カソード
2. アノード
3. ゲート

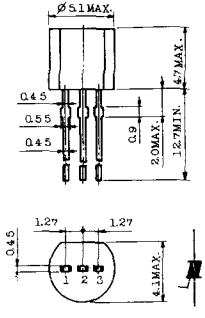
## T-63 (13-16A1B)




1. カソード
2. アノード
3. ゲート

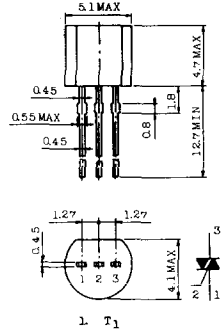
《寸法図単位:mm》

## TT-1



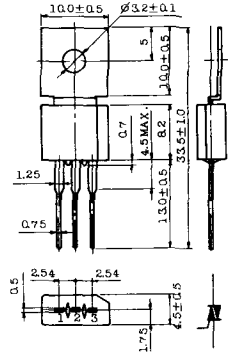

1. ゲート
2. $T_2$
3. $T_1$

## TT-2



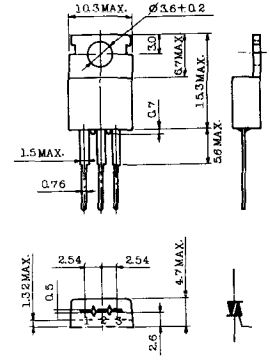

1. $T_1$
2. ゲート
3. $T_2$

## TT-3



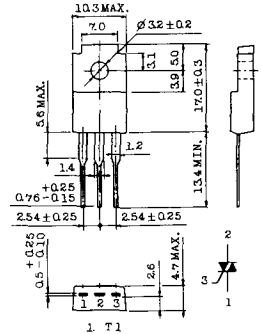

1. $T_1$
2. $T_2$
3. ゲート

## TT-4



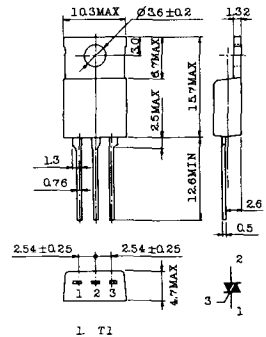

1. $T_1$
2. $T_2$
3. ゲート

## TT-5



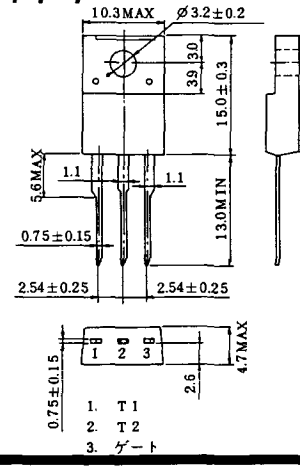

1. T1
2. T2
3. ゲート

## TT-6



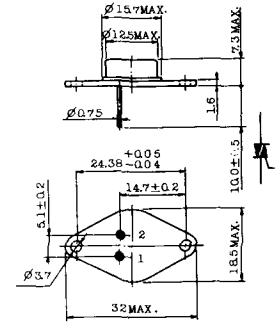

1. T1
2. T2（放熱板）
3. ゲート

## TT-7




1. T1
2. T2
3. ゲート

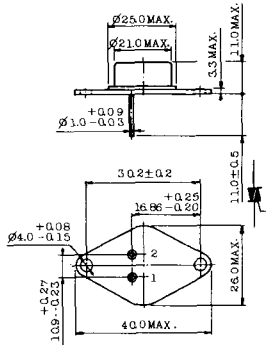
## TT-8




1. ゲート
2. $T_1$
   $T_2$（ケース）

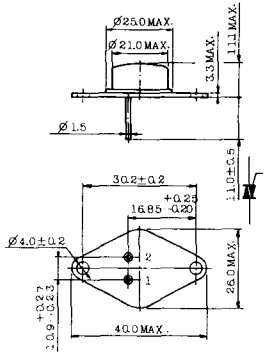
〈寸法図単位：mm

## TT-9



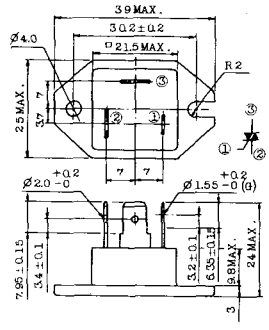

1. ゲート
2. $T_1$
3. $T_2$（ケース）

## TT-10



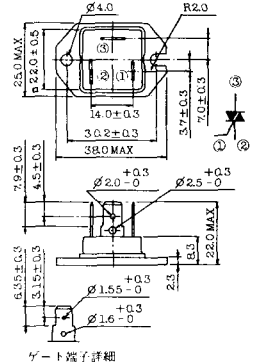

1. ゲート
2. $T_1$
3. $T_2$（ケース）

## TT-11



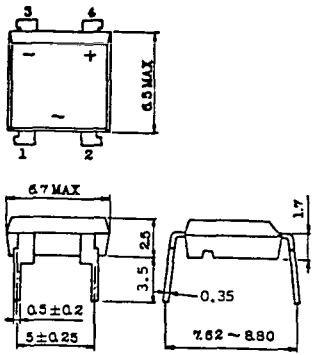

1. ゲート（ファストン端子 #187）
2. $T_1$（〃 #250）
3. $T_2$（〃 #250）

## TT-12



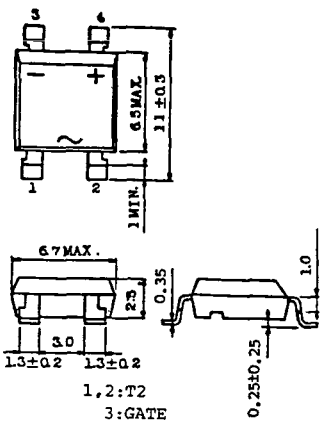

① ゲート（ファストン端子 #187）
② $T_1$（〃 #250）
③ $T_2$（〃 #250）

## TT-13



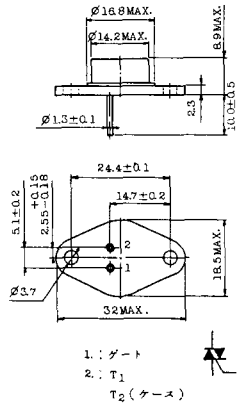

1,2:T2
3:GATE
4:T1

## TT-14



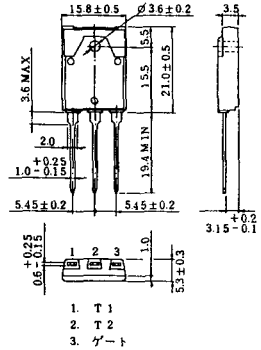

1,2:T2
3:GATE
4:T1

## TT-15 (13-14A1B)




1.：ゲート
2.：$T_1$
$T_2$（ケース）

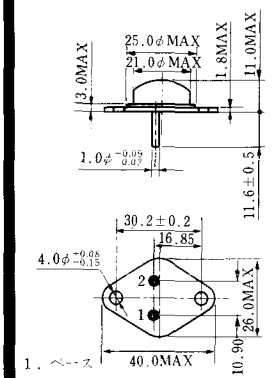
## TT-16 (13-16A1A)




1. $T_1$
2. $T_2$
3. ゲート

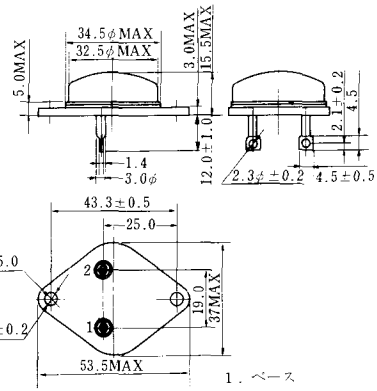
《寸法図単位：mm》

## TS-1



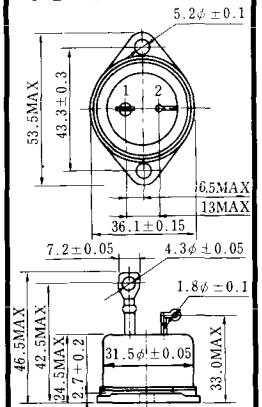

1．ベース
2．エミッタ
コレクタ(ケース)

## TS-2



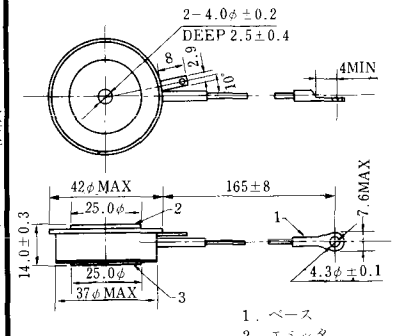

1．ベース
2．エミッタ
コレクタ(ケース)

## TS-3



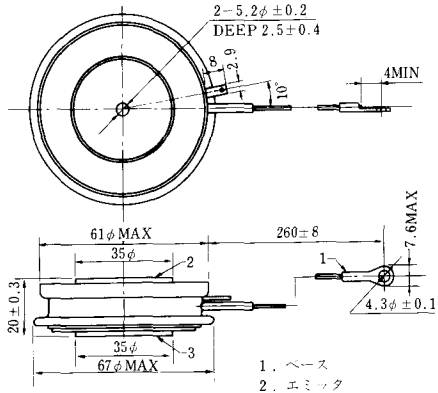

1．エミッタ 2．ベース
コレクタ(ケース)

## TS-4



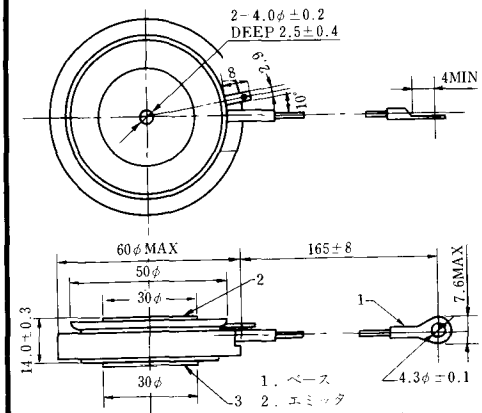

1．ベース
2．エミッタ
3．コレクタ(ケース)

## TS-5



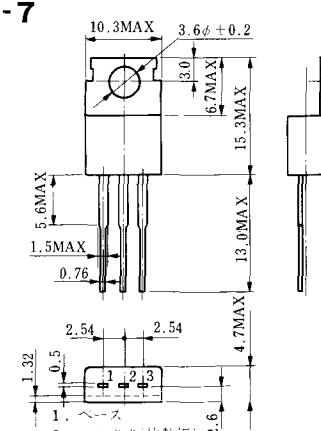

1．ベース
2．エミッタ
3．コレクタ(ケース)

## TS-6




1．ベース
2．エミッタ
3．コレクタ(ケース)

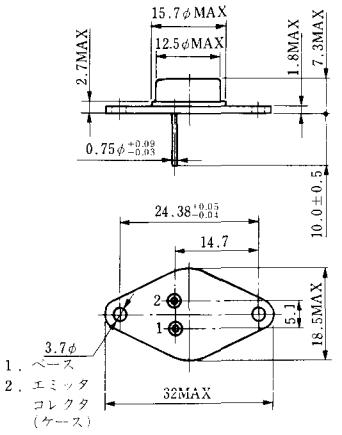
## TS-7




1．ベース
2．コレクタ(放熱板)
3．エミッタ

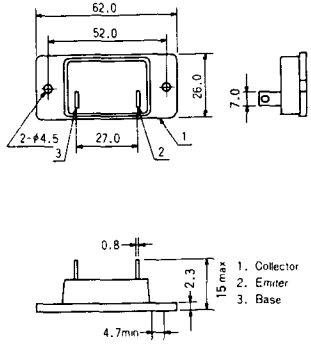
《寸法図単位：mm》

## TS-8

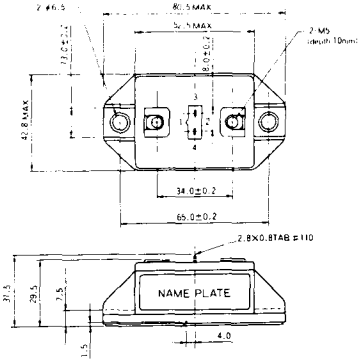

15.7φMAX
12.5φMAX
2.7MAX
1.8MAX
7.3MAX
0.75φ +0.09 −0.03
10.0±0.5
24.38 +0.05 −0.01
14.7
2
1
5.1
18.5MAX
3.7φ
1．ベース
2．エミッタ
コレクタ
（ケース）
32MAX

《寸法図単位：mm》

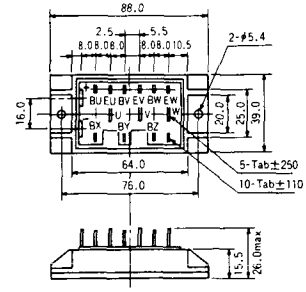
## S-62A1A



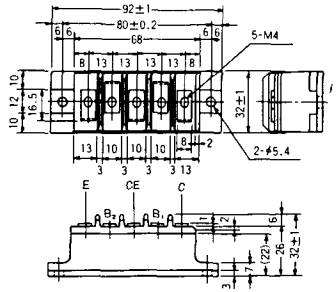

## S-80A1A



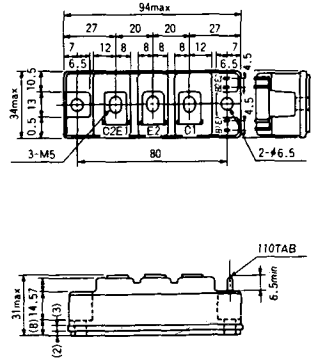

## S-88D1A



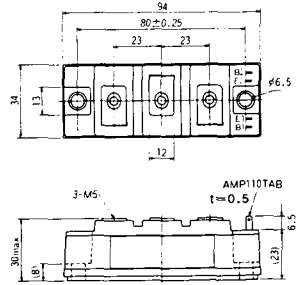

## S-92B1A




## S-94B1A

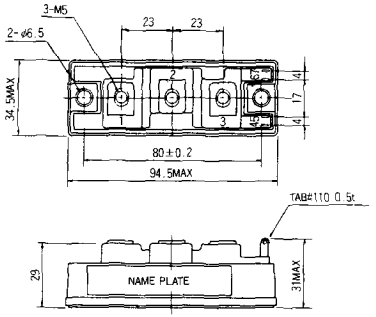



## S-94B1B

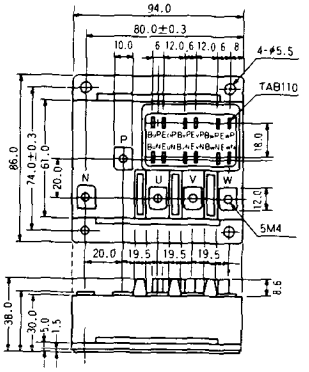



《寸法図単位：mm》

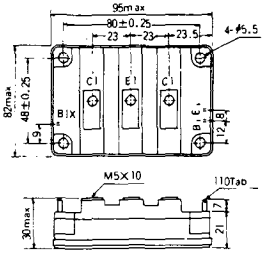
## S-94B2A



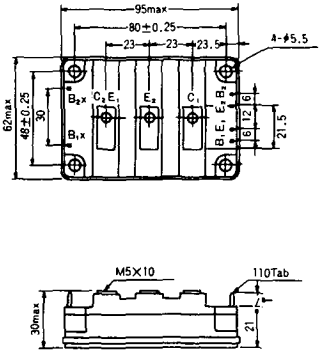

## S-94D1A



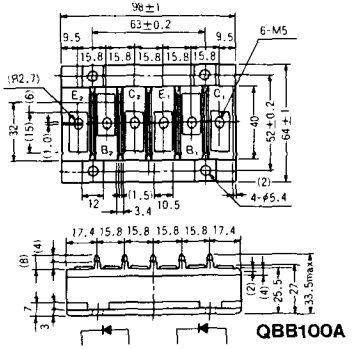

## S-95A1A



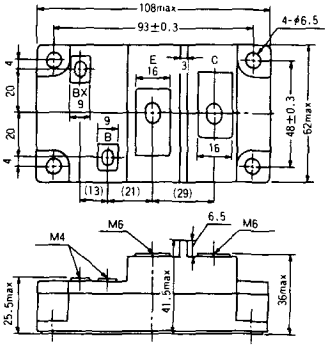

## S-95B1A




## S-98B1B

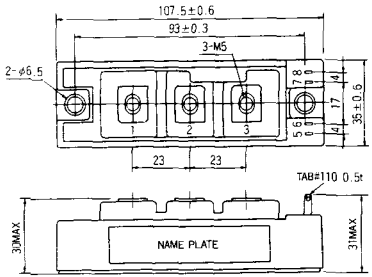



## S-108A2A

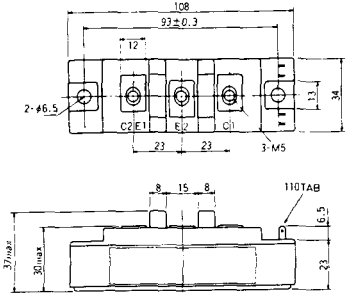



《寸法図単位：mm》

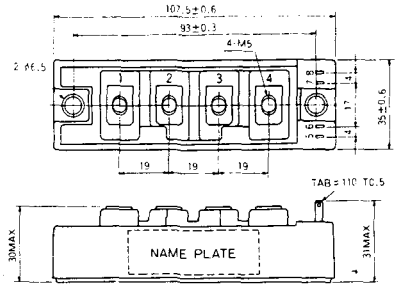
## S-108B1A



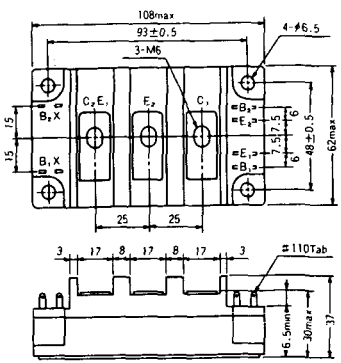

## S-108B1B



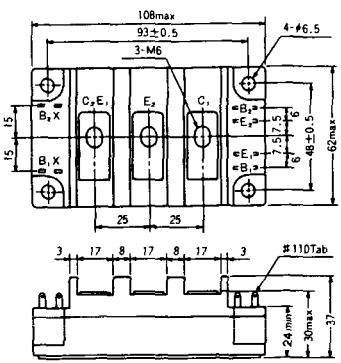

## S-108B1C




## S-108B2A

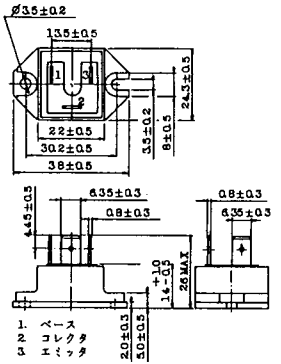



## S-108B2B

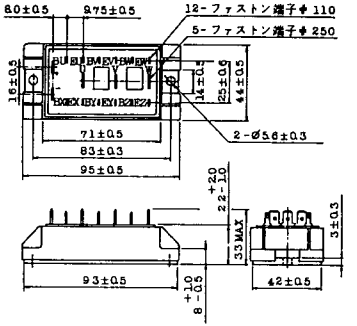



〈寸法図単位:mm〉

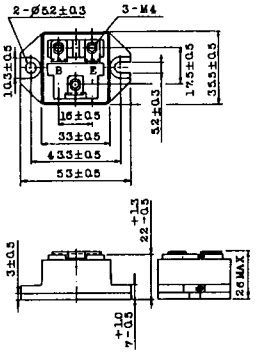
## 2-22B1A



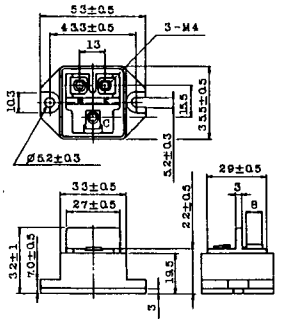

## 2-27A4A



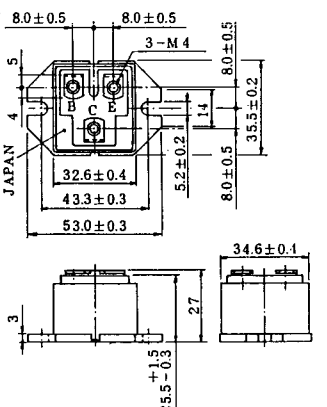

## 2-33C1A



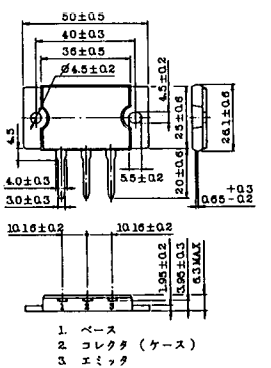

## 2-33D1A




## 2-33F1A

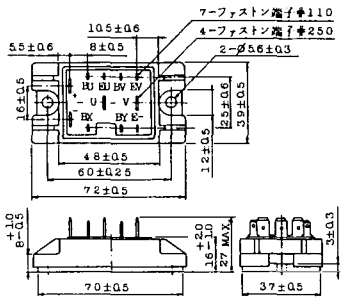



## 2-37A1A

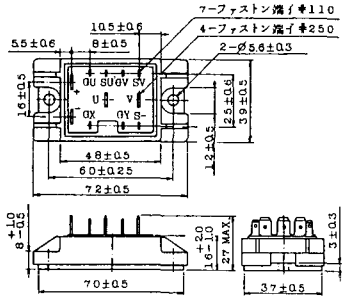



《寸法図単位：mm》

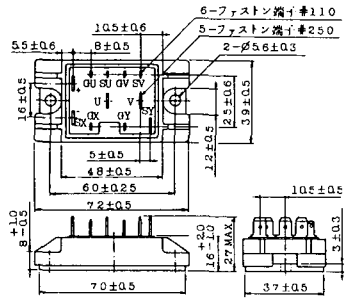
## 2-48A3A



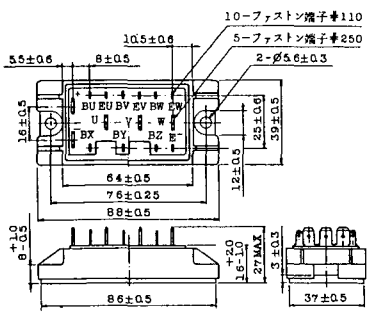

## 2-48A3B



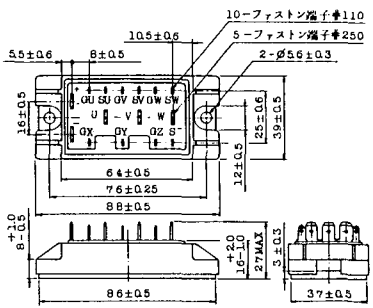

## 2-48A4A



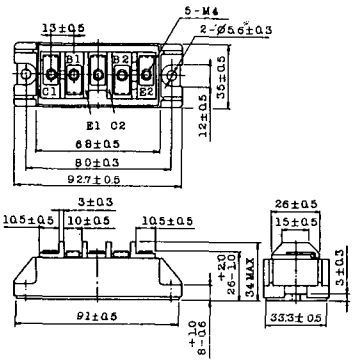

## 2-64A2A




## 2-64A2B

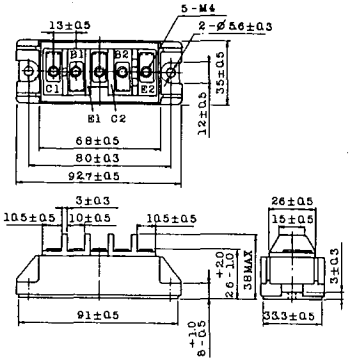



## 2-68A2A

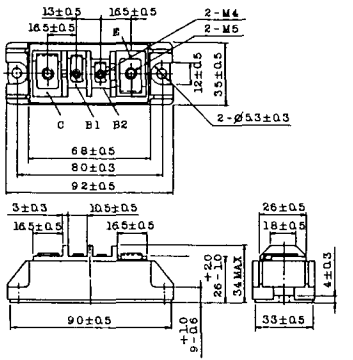



《寸法図単位：mm》

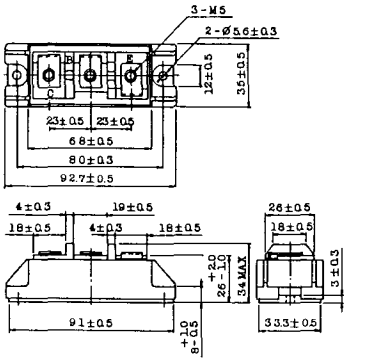
## 2-68B2A



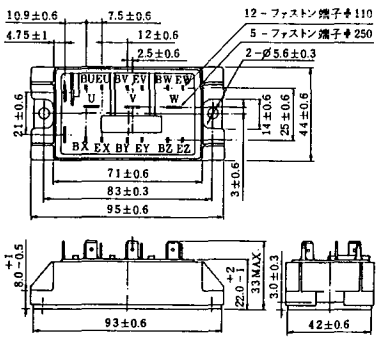

## 2-68C1A



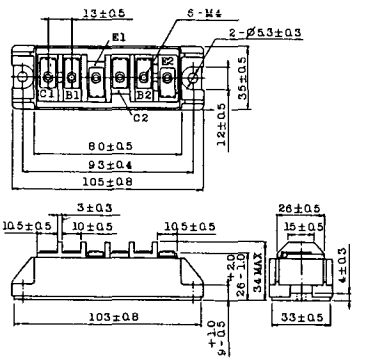

## 2-68D2A



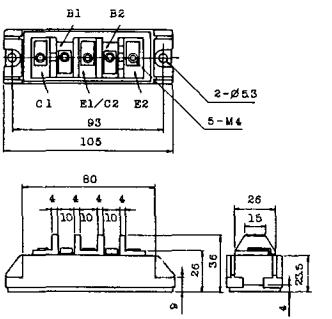

## 2-72A3A




## 2-80A1A

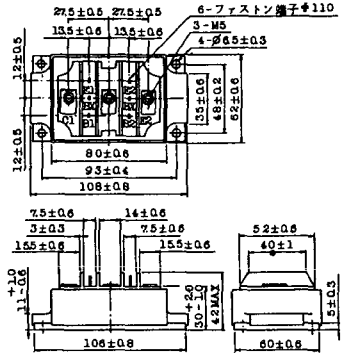



## 2-80B1A

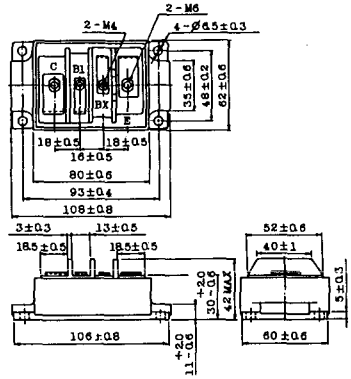



《寸法図単位：mm》

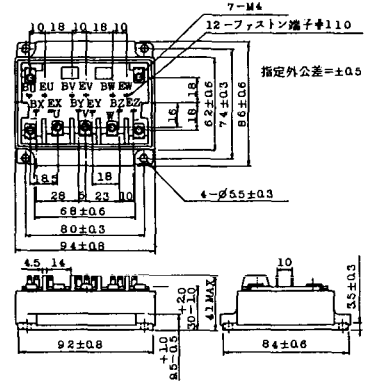
## 2-80C1A



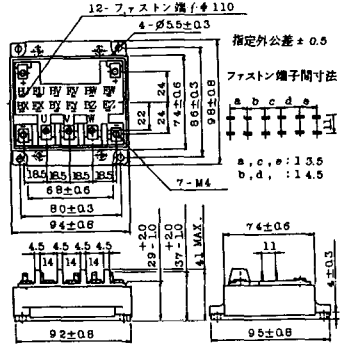

## 2-80D2A



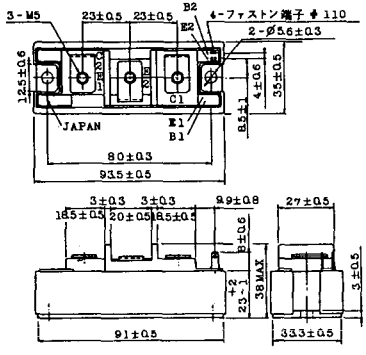

## 2-94A2A



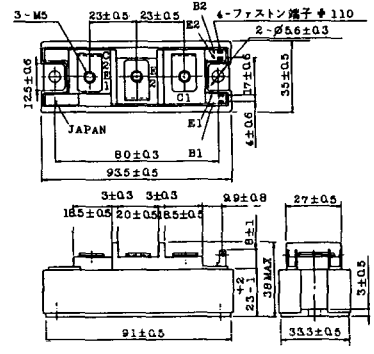

## 2-94B1A




## 2-94C2A

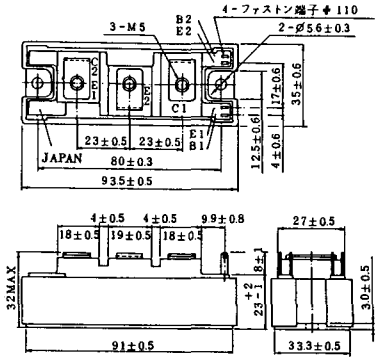



## 2-94C3A

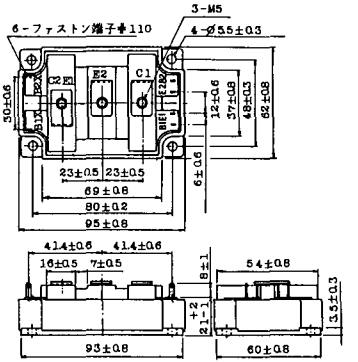



《寸法図単位：mm》

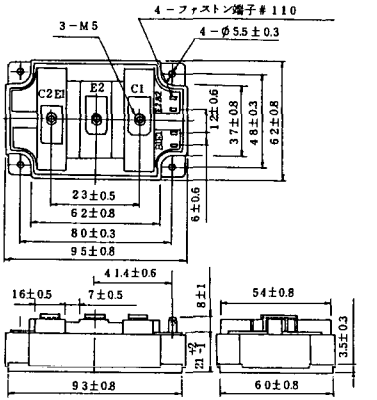
## 2-94D1A



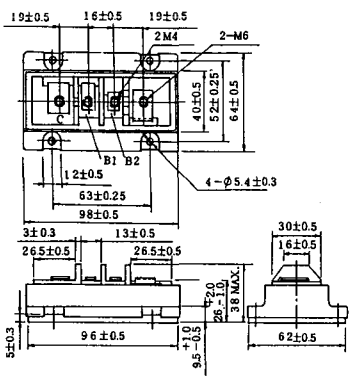

## 2-96A3A



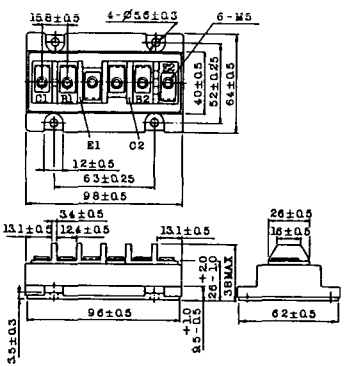

## 2-96A4A



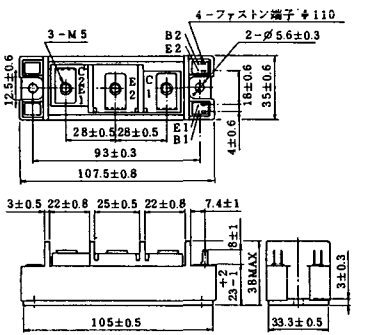

## 2-98B1A




## 2-98C2A

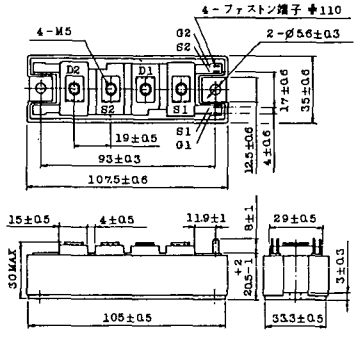



## 2-108A2A

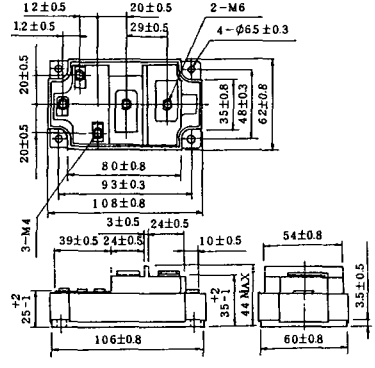



《寸法図単位：mm》

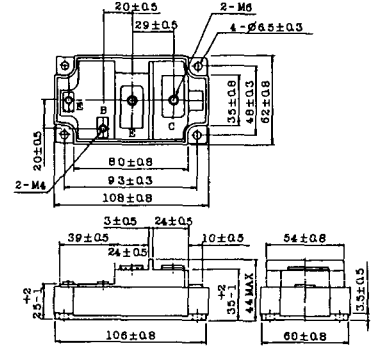
## 2-108B1A



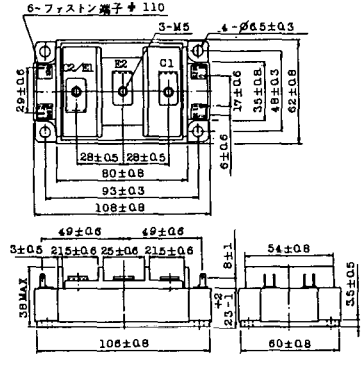

## 2-109A3A



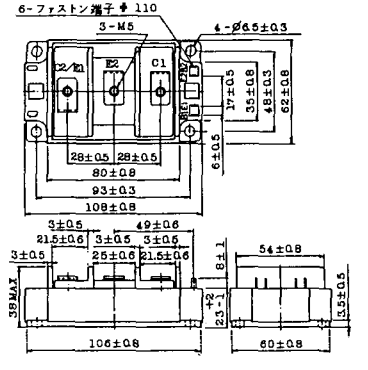

## 2-109A4A




## 2-109B3A



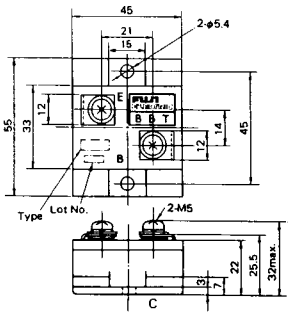

## 2-109B4A




《寸法図単位：mm》

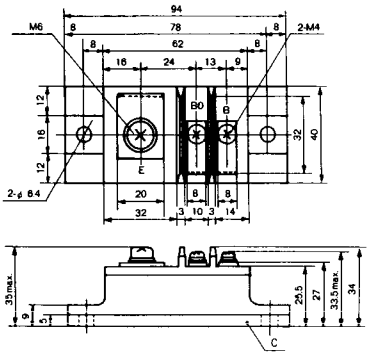
## BBT-II

BBTII
1D200A-020



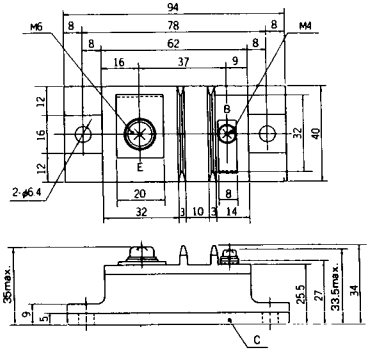

## BBT-III

BBTIII
ETN31-055
ETM36-030
ETN36-030
ETN35-030



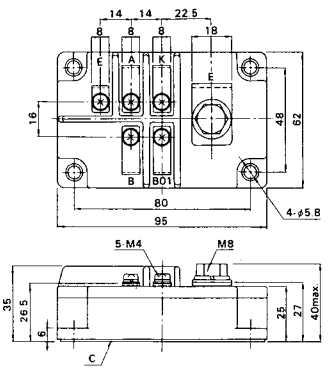

## BBT-III

BBTIII
ETN01-055
ET1257



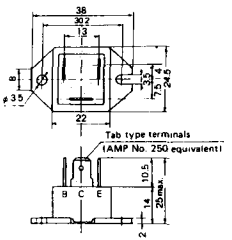

## BBT-IV

BBTIV
1D500A-030

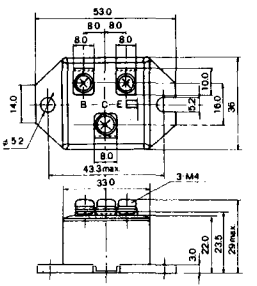



《寸法図単位:mm》

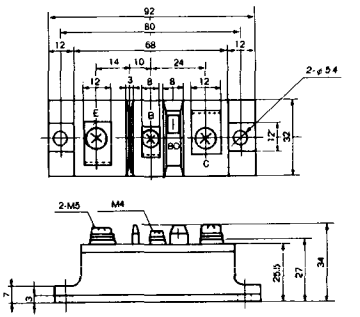
## M-101



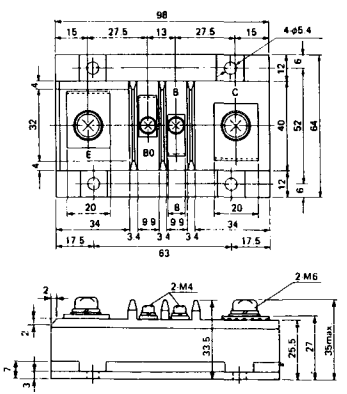

## M-102



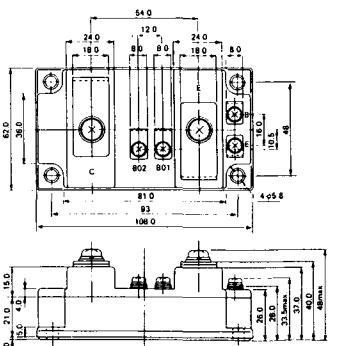

## M-103



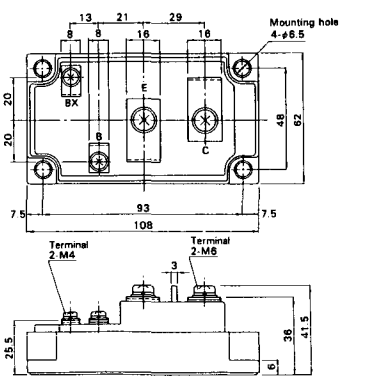

## M-104




## M-105

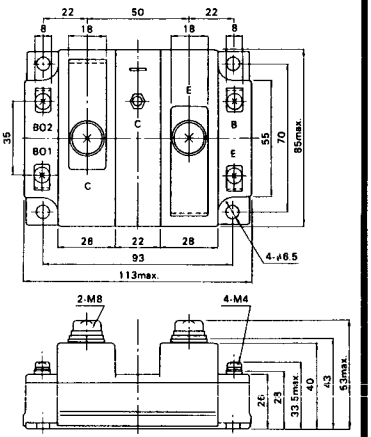


## M-106

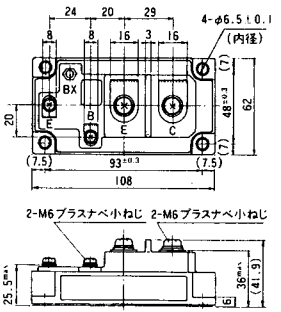



《寸法図単位：mm》

## M-107

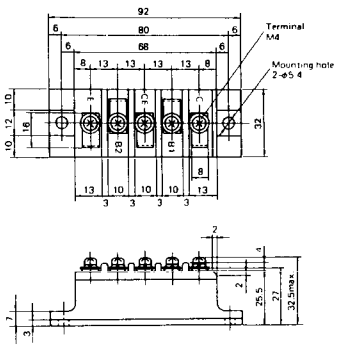



## M-116

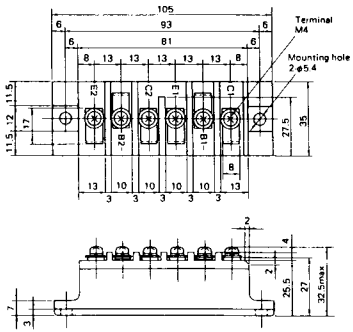



《寸法図単位：mm》

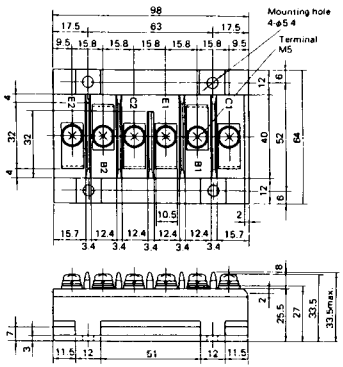
## M-201



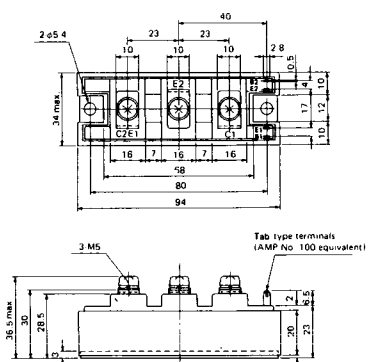

## M-202



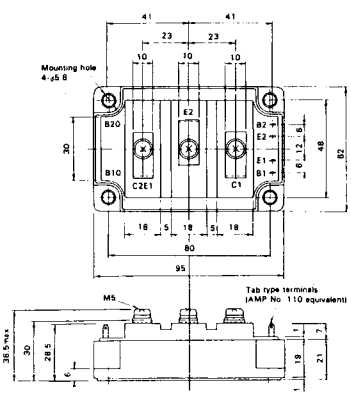

## M-203



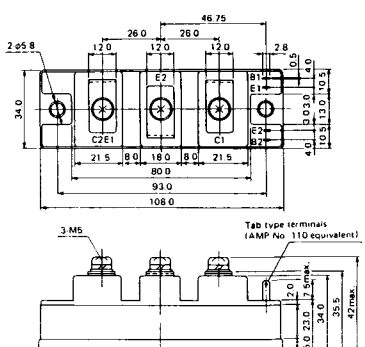

## M-204




## M-205

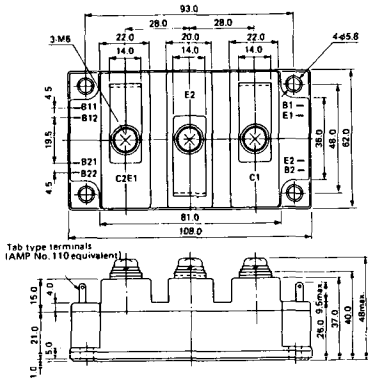



## M-206

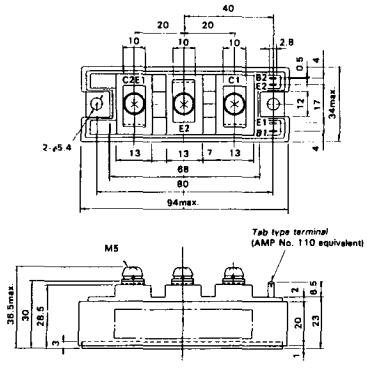



《寸法図単位：mm》

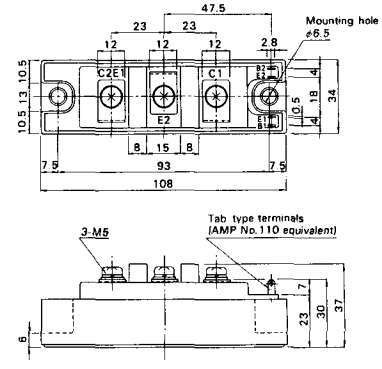
## M-207



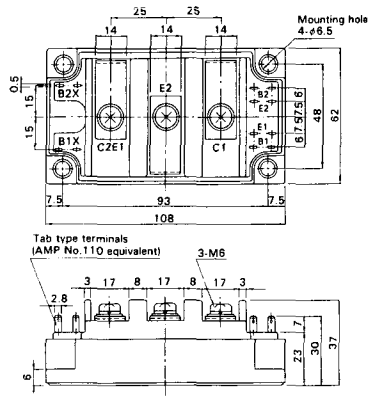

## M-208



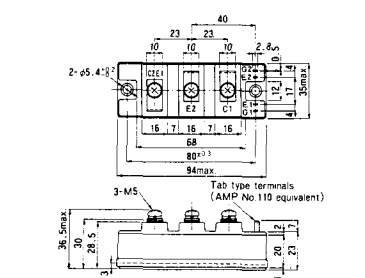

## M-209



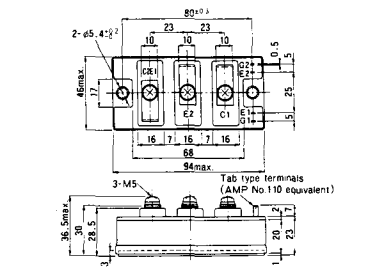

## M-210




## M-211

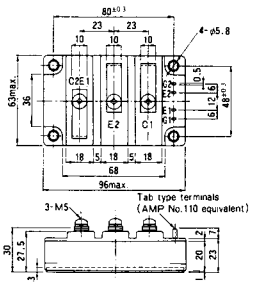



## M-212



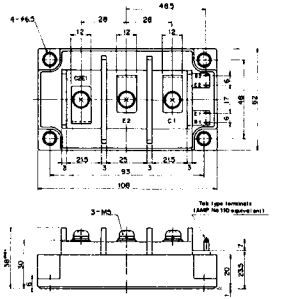

《寸法図単位：mm》

## M-213

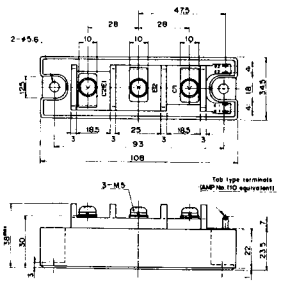



## M-214

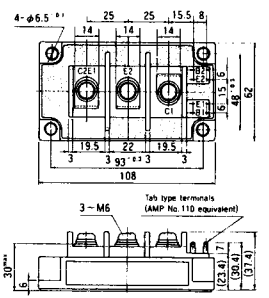
## M-215



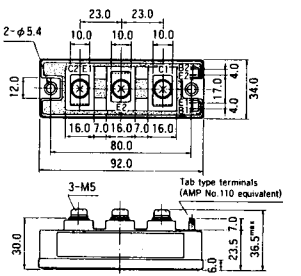

## M-216




## M-217

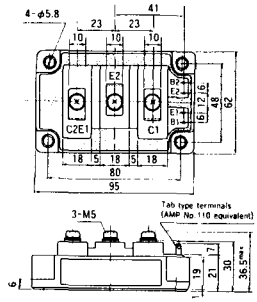



## M-218



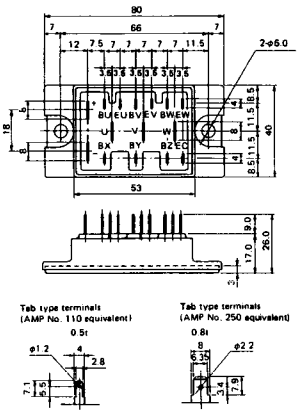

《寸法図単位:mm》

# M-219

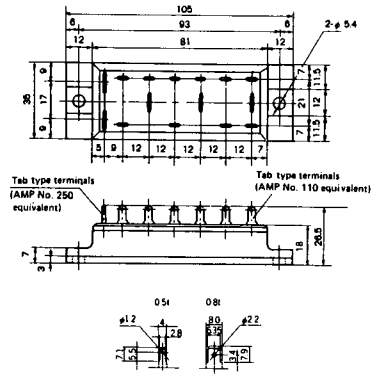



〈寸法図単位:mm〉

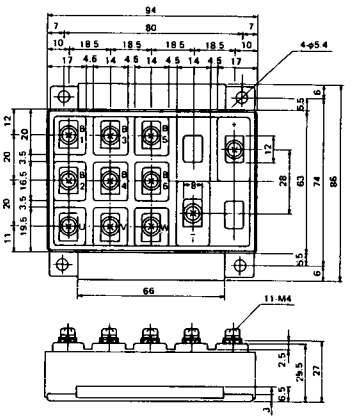
## M-601



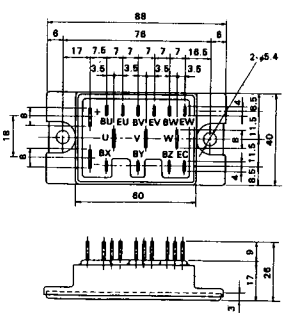

## M-602



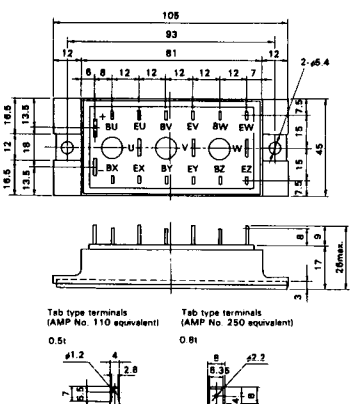

## M-603



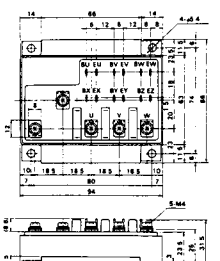

## M-604




## M-605

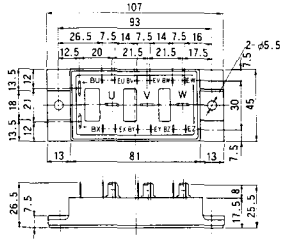



## M-606

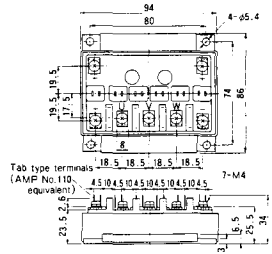



《寸法図単位：mm》

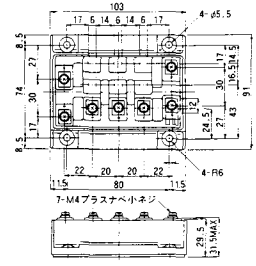
## M-607



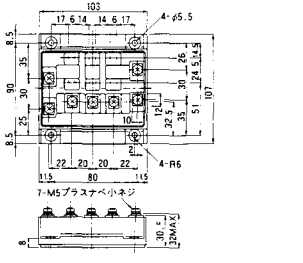

## M-608



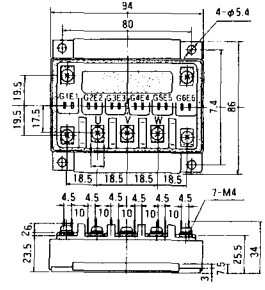

## M-609




## M-610

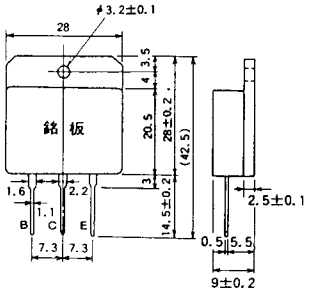



## M-616

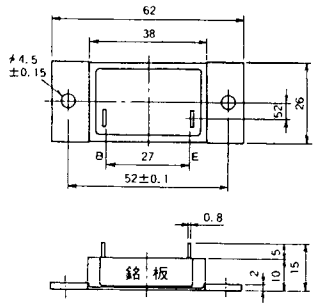



《寸法図単位:mm》

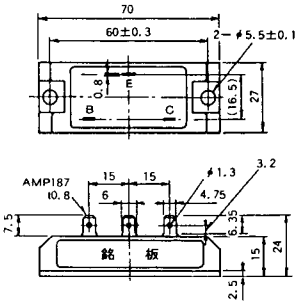
## M-1A1A



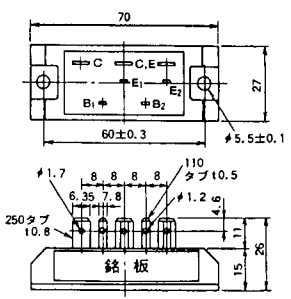

## M-2A1A



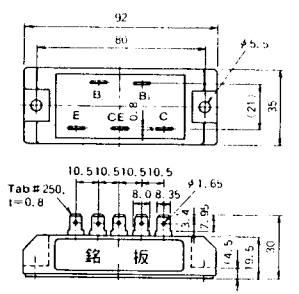

## M-2B1A



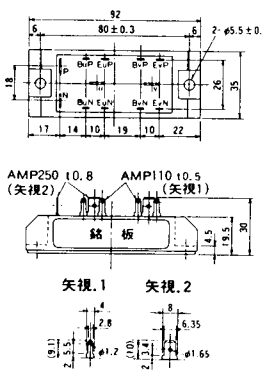

## M-2B2A




## M-2C2A

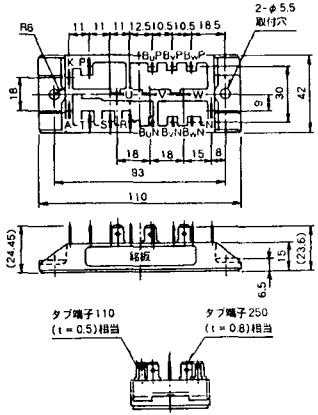



## M-2D4A

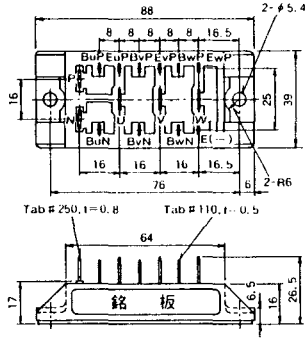



〈寸法図単位:mm〉

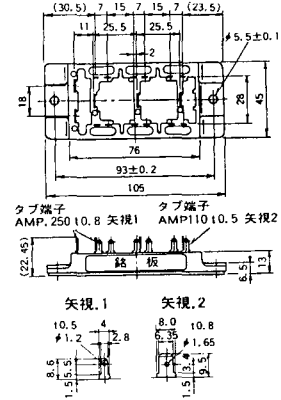
## M-2E6A



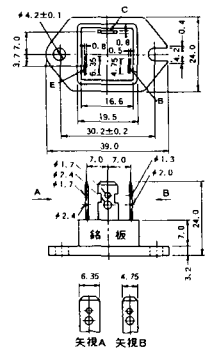

## M-2F6A



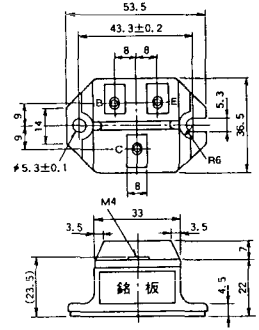

## M-2G6A



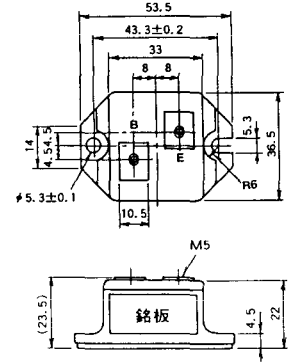

## M-3A1A




## M-3B1A

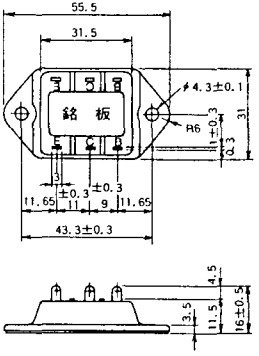



## M-3B1B

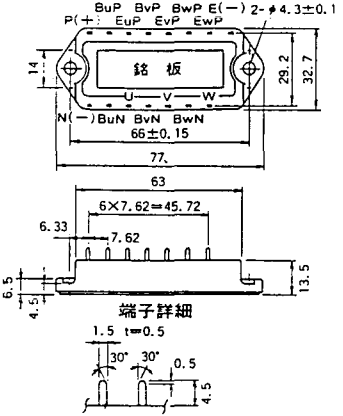



《寸法図単位:mm》

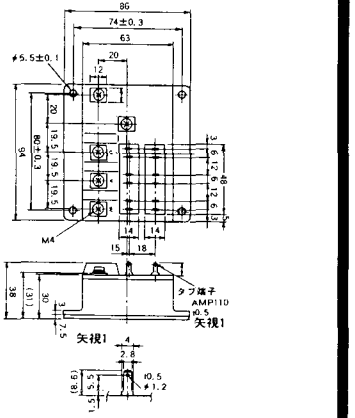
## M-3C1A



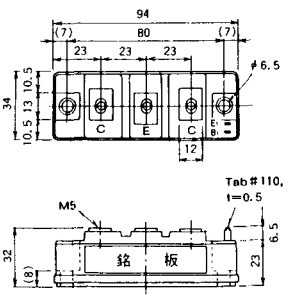

## M-3D6A



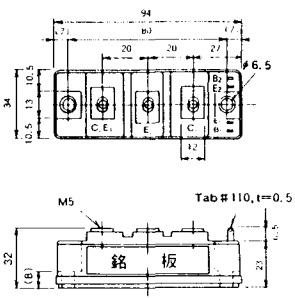

## M-3E6A



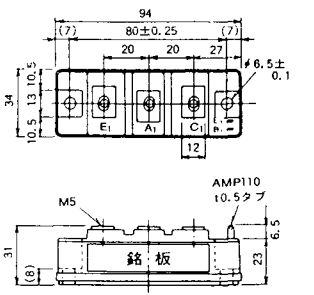

## M-4A1A




## M-4A2A

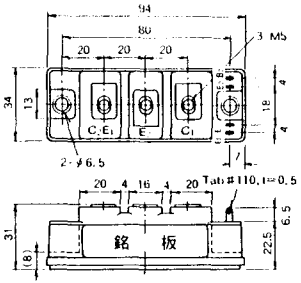



## M-4A1B

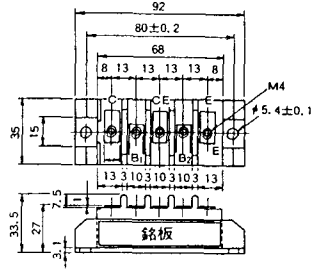



《寸法図単位:mm》

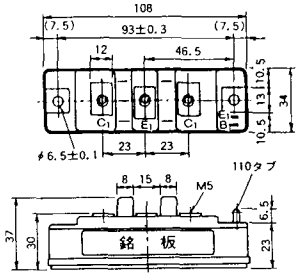
## M-4A2B



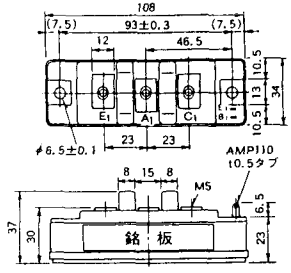

## M-4B2A



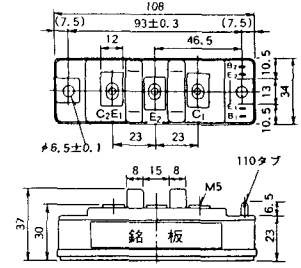

## M-5A1A



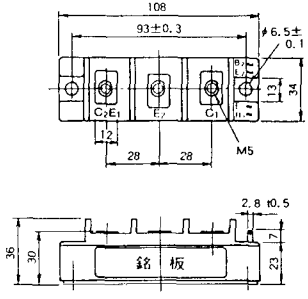

## M-5A1B




## M-5A2A

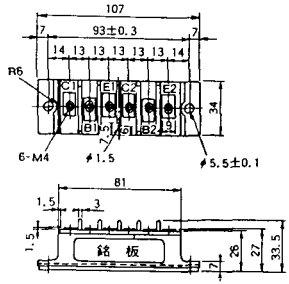



## M-5B2A

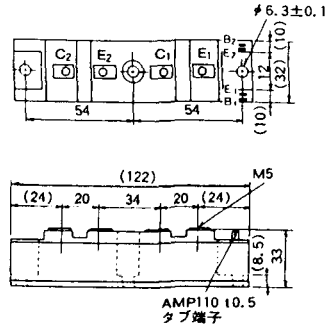



《寸法図単位:mm》

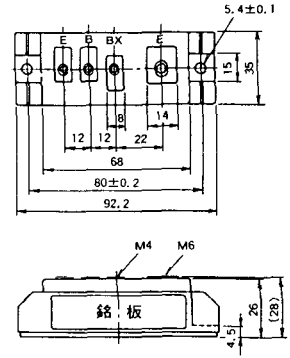
## M-5C2A



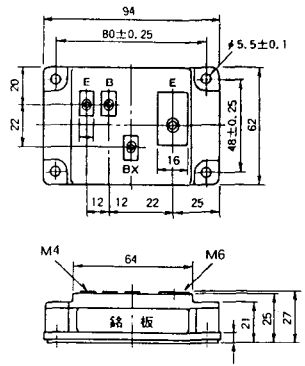

## M-5D2A



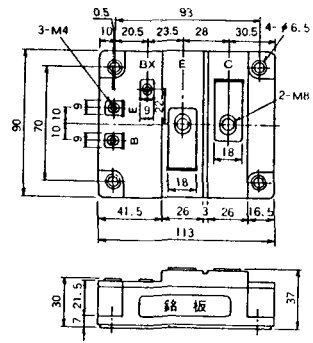

## M-6A1A



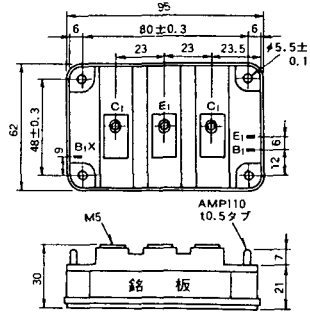

## M-7A1A




## M-7B1A

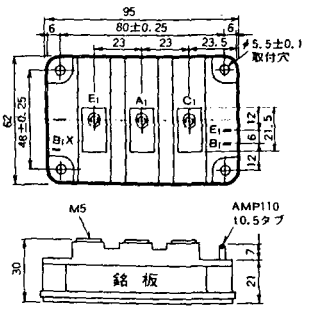



## M-8A1A

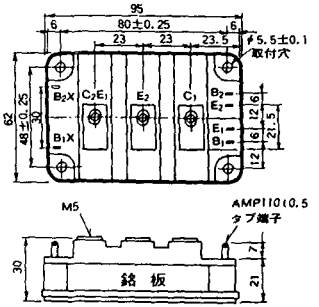



《寸法図単位:mm》

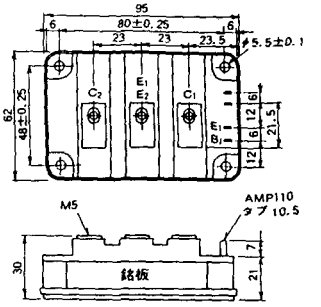
## M-8A1B



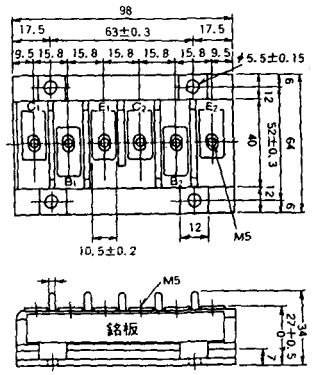

## M-8A2A



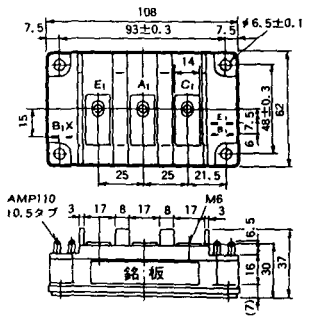

## M-8A2B



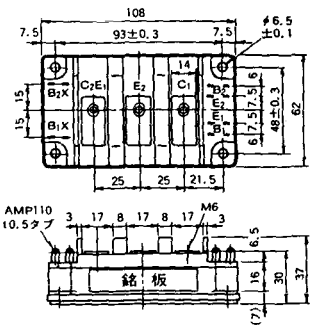

## M-8B2A




## M-9A1A

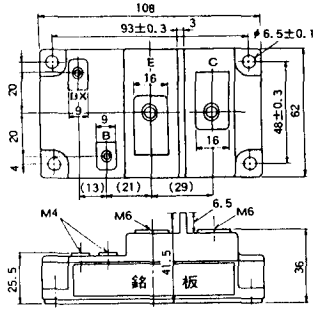



## M-9A2A

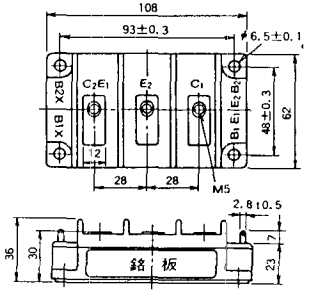



〈寸法図単位:mm〉

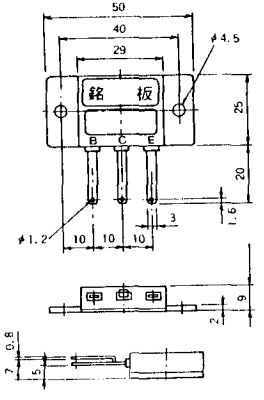
## M-9B1A



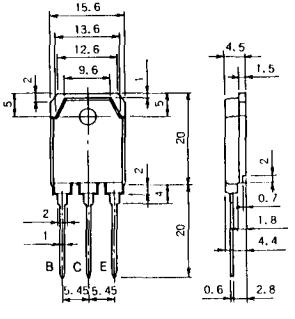

## M-9C2A



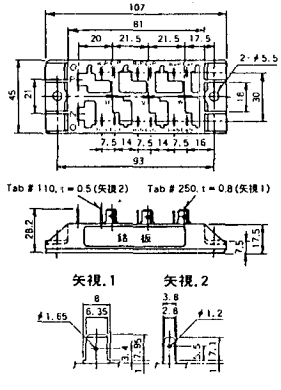

## M-1A1B



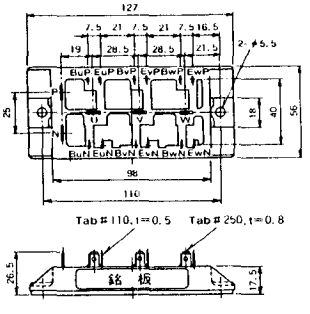

## M-1A1C




## M-2E6B

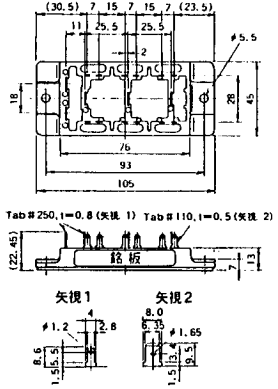



## M-2E6C

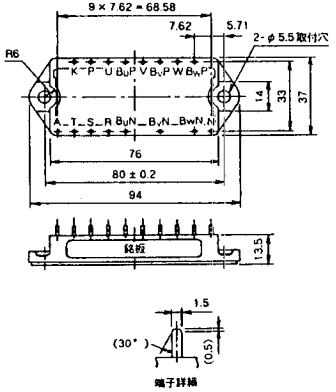



《寸法図単位:mm》

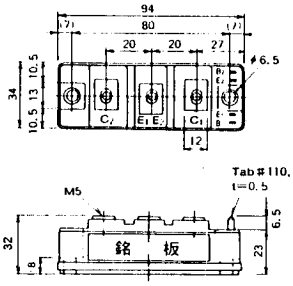
## M-2G6B



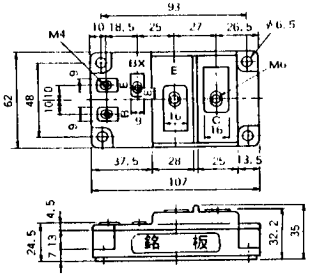

## M-3D6B



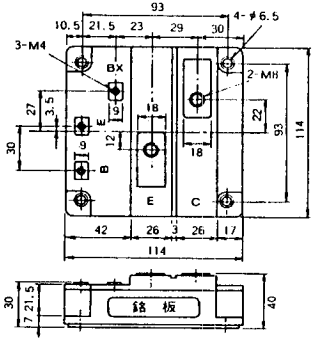

## M-4A2C



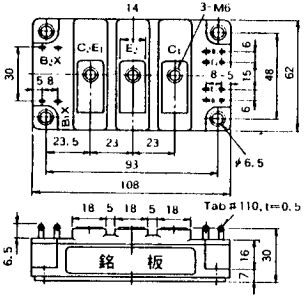

## M-7A1B




## M-7C1A

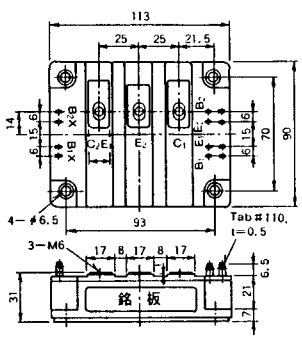



## M-8A2C

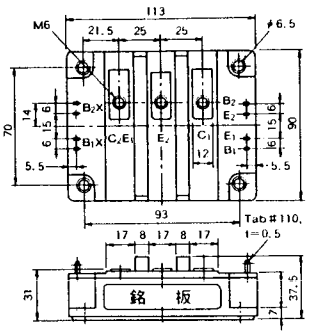



《寸法図単位：mm》

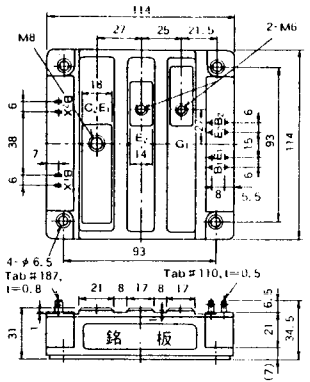
## M-10A2A



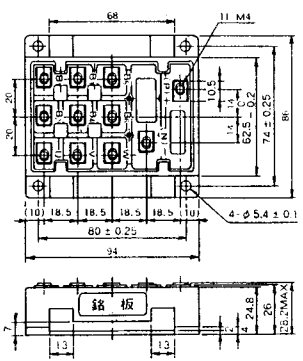

## M-10A2B



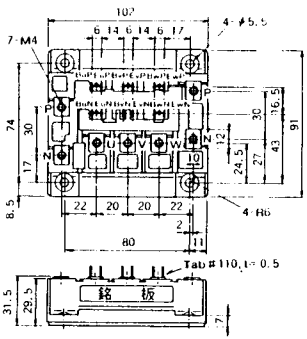

## M-11A2A



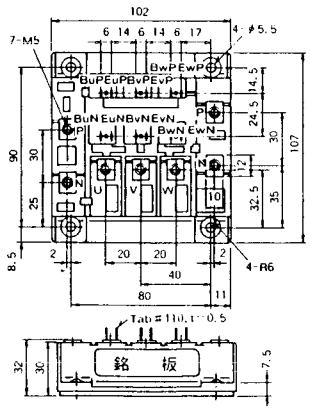

## M-12A6A




## M-12B6A

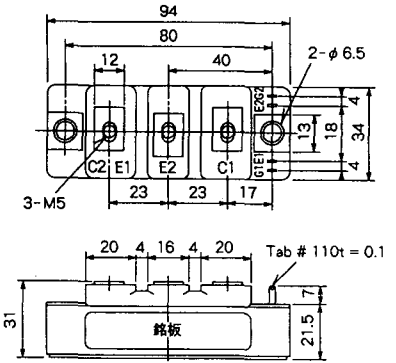



## M-12B6B

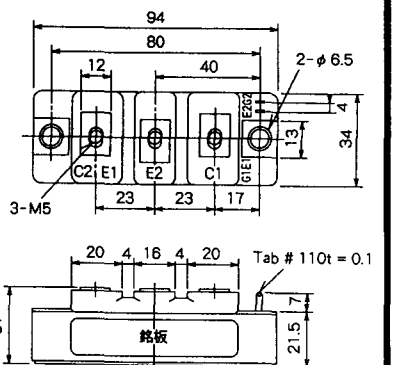



《寸法図単位：mm》

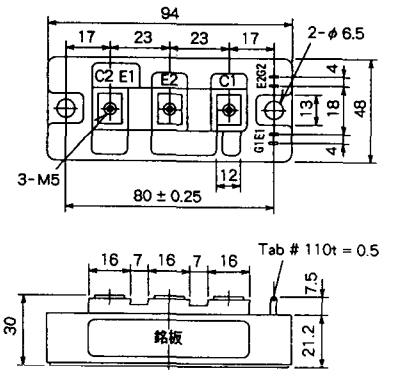
## M-4A2D



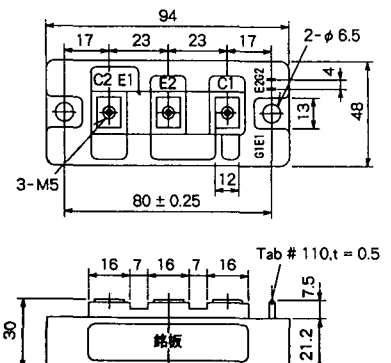

## M-4A2E



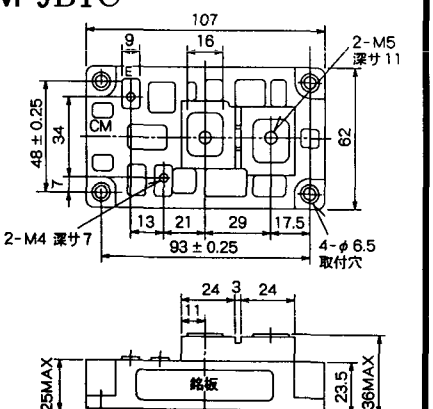

## M-4C2A



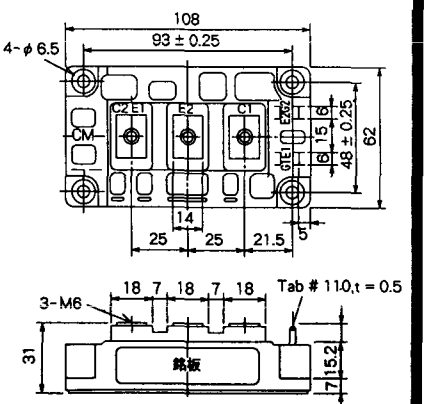

## M-4C2B




## M-9B1C

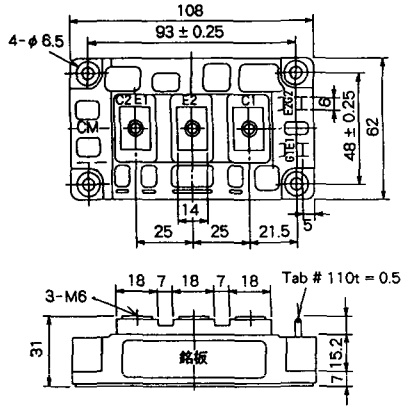



## M-9D2A

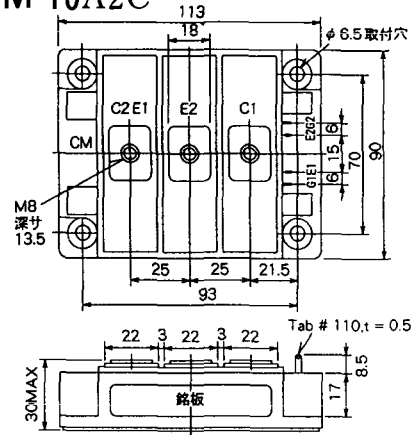



《寸法図単位：mm》

## M-9D2B

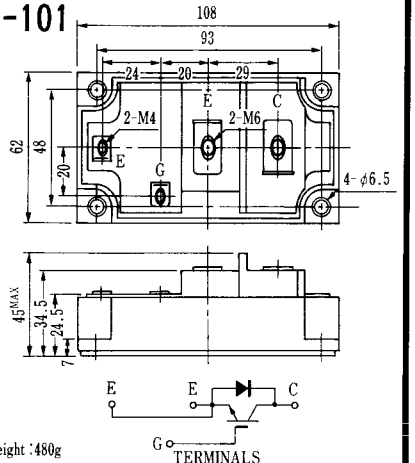



## M-10A2C




《寸法図単位：mm》

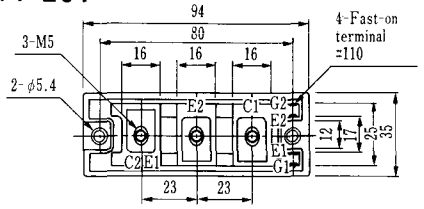
## H-101

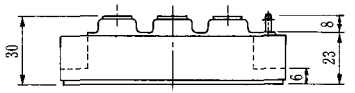


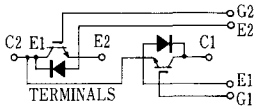

Weight :480g

《寸法図単位:mm》

## H-201

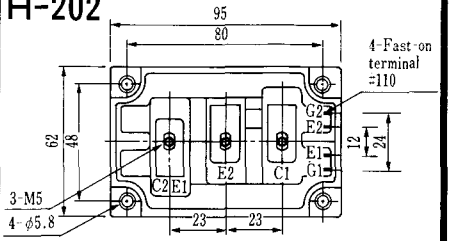


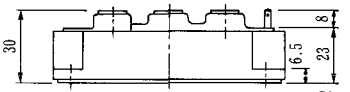



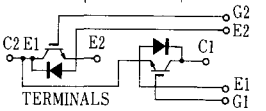




Weight:200g

## H-202



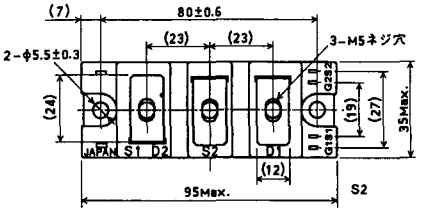



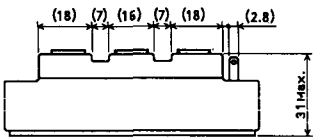




Weight:360g

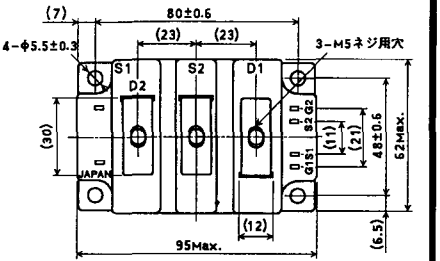
《寸法図単位:mm》

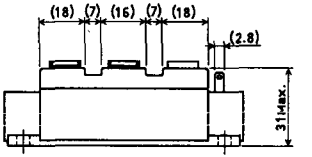
## LF-J



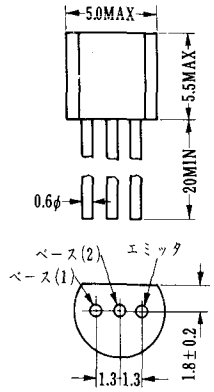

## LF-K



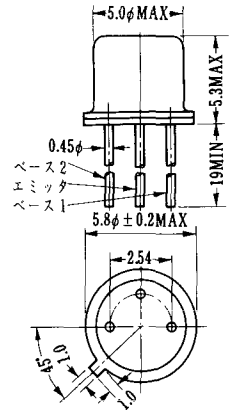




《寸法図単位：mm》

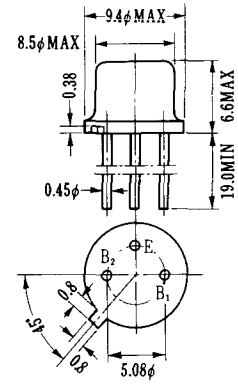
## U-1



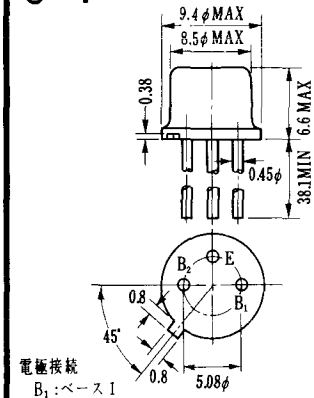

## U-2




## U-3

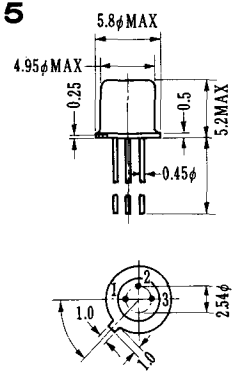



## U-4



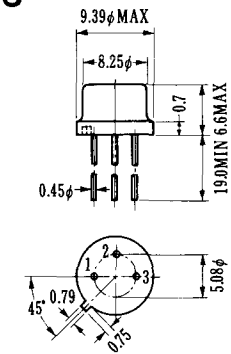

電極接続
$B_1$：ベースI
$B_2$：ベース2
E：エミッタ

## U-5



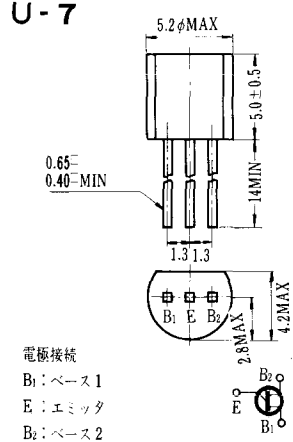

1. BASE 1
2. EMITTER
3. BASE 2 (CASE)

## U-6



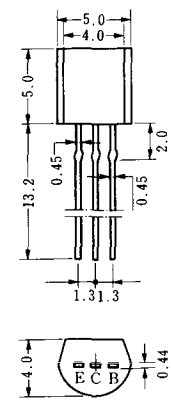

1. BASE(2)
2. EMITTER
3. BASE(1)

## U-7




電極接続
$B_1$：ベース1
E：エミッタ
$B_2$：ベース2

## U-8




〈寸法図単位：mm〉