

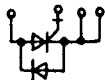
GTO モジュール

MGNG00B

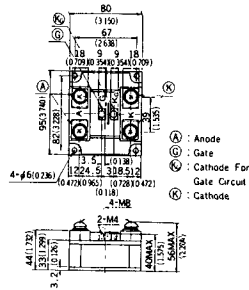
■接続図

日 立

- フリーホイール・ダイオード内蔵
- 絶縁形 (主端子-ケース間 2500V)



■外形図



■最大定格

記号	MGNG00B12	単位
$V_{RRM}$		V
$V_{DRM}$	1200	V
$I_{TQ}$	600	A
$I_{TAV}$		A
$I_{TRMS}$	200	A
$I_{TSM}$	1400 (50Hz/60Hz, 正弦半波 1 サイクル波高値)	A
$I^2 \cdot t$	1470	A <sup>2</sup> S
$di/dt$	300 ( $V_D = \% V_{DRM}$ )	A/ $\mu$ S
$P_{GM}$	108	W
$P_{GAV}$	36	W
$V_{GRM}$	15	V
$I_{GFM}$		A
$T_j$	-40 ~ +125	°C
$T_{HR}$	-40 ~ +125	°C

■電気的特性

記号	測定条件	最小	標準	最大	単位
$I_{HRM}$					mA
$I_{DRM}$	$T_c = 25^\circ\text{C}, V_D = V_{DRM}$			2	mA
$V_{FM}$	$T_c = 25^\circ\text{C}, I_{TM} = 600\text{A}$			2.6	V
$V_{GT}$	$T_c = 25^\circ\text{C}, V_D = 24\text{V}$			1.5	V
$I_{GT}$	$R_L = 2\Omega$			1000	mA
$V_{GD}$					V
$I_{GD}$					mA
$V_{GQ}$					V
$I_{GQ}$					A
$dv/dt$	$T_c = 125^\circ\text{C}, V_D = \% V_{DRM}$	1000			V/ $\mu$ S
$I_H$	$T_c = 25^\circ\text{C}, V_D = 24\text{V}$		8		A
$t_{gr}$	$I_T = 600\text{A}, V_D = \% V_{DRM}, T_c = 25^\circ\text{C}$		4	6	$\mu$ S
$t_{eq}$	$I_T = 600\text{A}, V_D = \% V_{DRM}, T_c = 25^\circ\text{C}$		6	8	$\mu$ S
$R_{th}$	接合部-ケース間	0.13	0.15		°C/W

MGNG00C

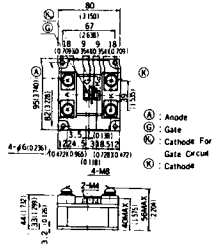
■接続図

日 立

- フリーホイール・ダイオード内蔵
- 絶縁形 (主端子-ケース間 AC3500V 1分間)



■外形図



■最大定格

記号	MGNG00C16	単位
$V_{RRM}$		V
$V_{DRM}$	1600 ( $V_{GR} = 5\text{V}$ or $R_{GK} \leq 300\Omega$ )	V
$I_{TRM}$	600 ( $V_D = 1100\text{V}$ , オーバシュート電圧=200V, $C_S = 1.0\mu\text{F}$ , $L_S \leq 0.1\mu\text{H}$ )	A
$I_{TRMS}$	200 ( $T_c = 60^\circ\text{C}$ , 単相半波)	A
$I_{TSM}$	1400 (50Hz, 正弦半波 1 サイクル)	A
$I^2 \cdot t$	1470 ( $t = 1.5 \sim 10\text{ms}$ )	A <sup>2</sup> S
$di/dt$	300 ( $I_{GP} = 16\text{A}$ , $dig/dt = 8\text{A}/\mu\text{s}$ , ゲート・パルス幅=10 $\mu\text{s}$ , $V_D = 1100\text{V}$ )	A/ $\mu$ S
$P_{GFM}$	108	W
$P_{GFAV}$	60	W
$P_{GRM}$	6000	W
$P_{GRAV}$	18	W
$V_{GRM}$	15	V
$T_j$	125	°C
$T_{HR}$	-40 ~ 125	°C

■電気的特性 ( $T_c = 25^\circ\text{C}$ )

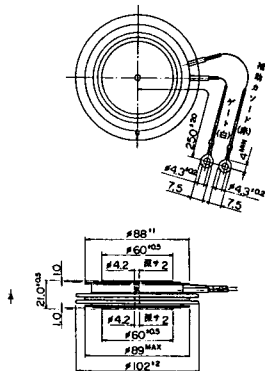
記号	測定条件	最小	標準	最大	単位
$I_{DRM}$	$V_D = V_{DRM}, R_{GK} = 300\Omega$			5	mA
$V_{TM}$	$I_{TM} = 600\text{A}$			2.9	V
$V_{GT}$	$V_D = 24\text{V}, R_L = 2\Omega$			1.5	V
$I_{GT}$	$T_c = 125^\circ\text{C}, V_D = 1100\text{V}, V_{GR} = 5\text{V}$	1000		1.0	A
$dv/dt$	$T_c = 125^\circ\text{C}, V_D = 1100\text{V}, V_{GR} = 5\text{V}$	1000			V/ $\mu$ S
$I_H$	$V_D = 24\text{V}$		8.0		A
$I_L$	$V_D = 24\text{V}$		12.0		A
$t_{gr}$	$V_D = 1100\text{V}, I_{TM} = 600\text{A}$ $I_{GP} = 16\text{A}$		4.0	6.0	$\mu$ S
$t_{eq}$	$V_D = 1100\text{V}, I_{TM} = 600\text{A}$ $C_S = 1.0\mu\text{F}$		6.0	8.0	$\mu$ S
$Q_{GQ}$	$E_{soff} = 12\text{V}, T_c = 125^\circ\text{C}$	600	900		$\mu$ C
$R_{th}$	接合部-ケース間			0.15	°C/W



FD-9

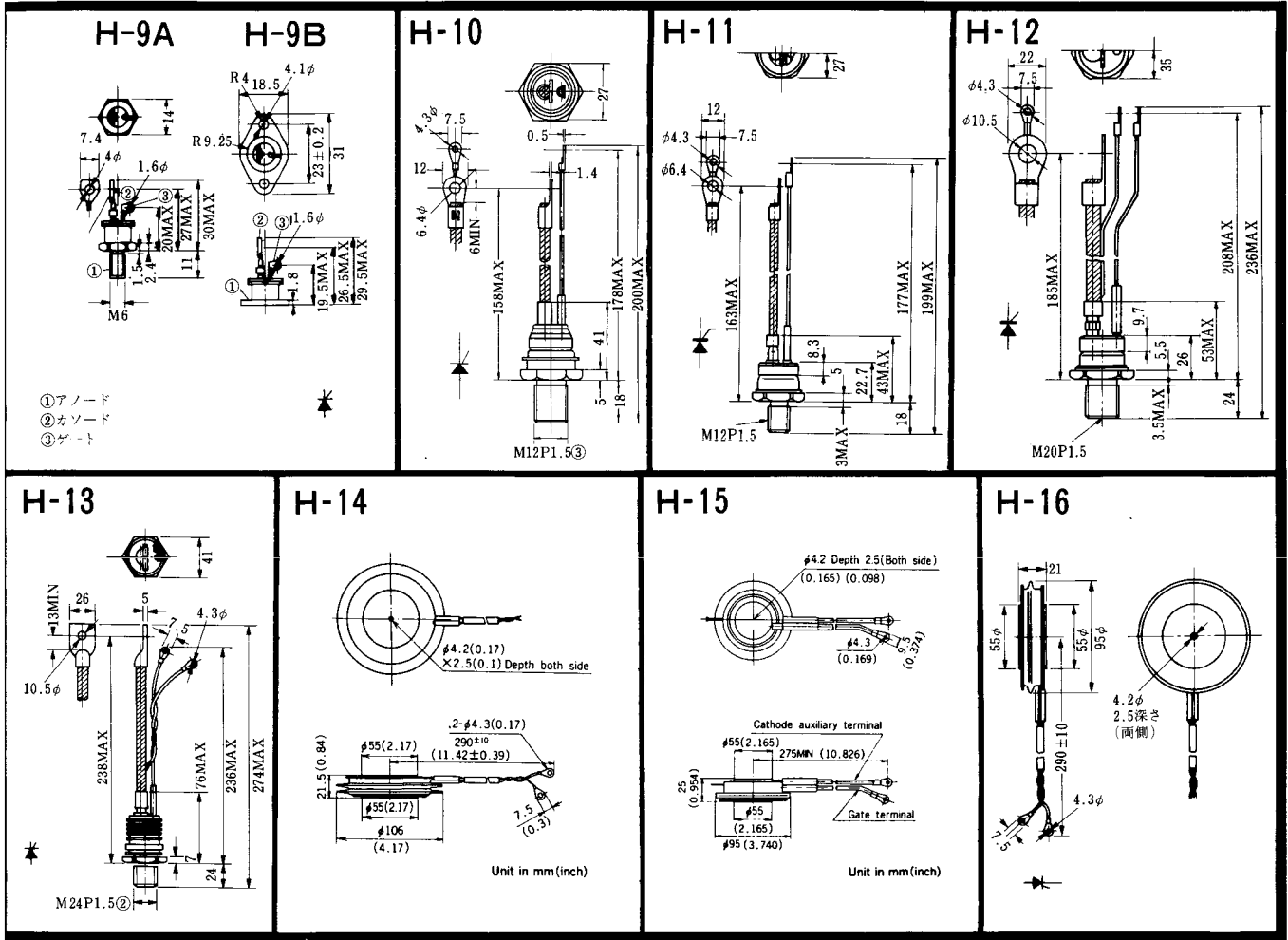


FD-10

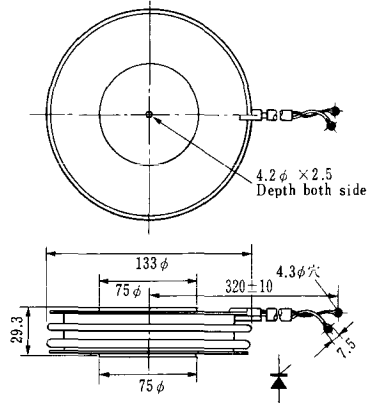


FD-12

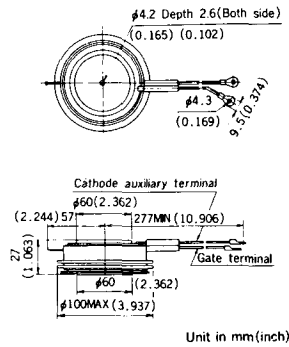




### H-17

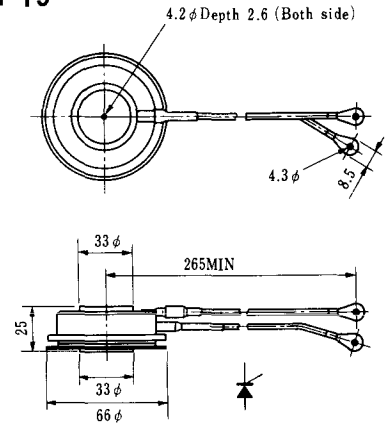


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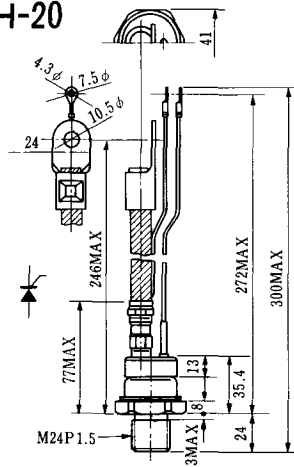


Unit in mm (inch)

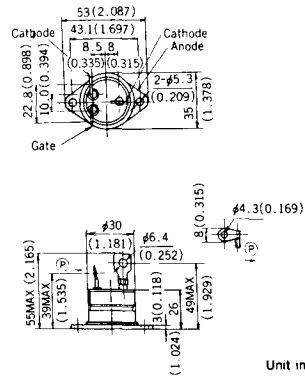
### H-19



### H-20

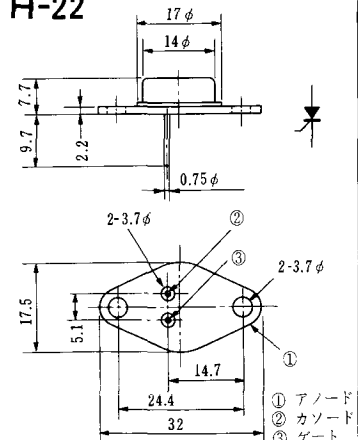


### H-21



Unit in mm (inch)

### H-22

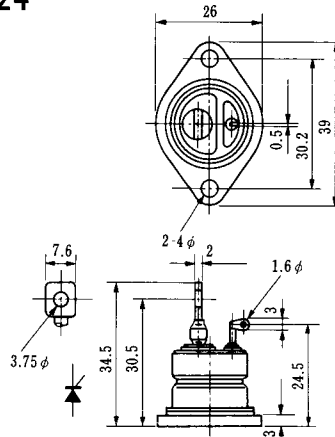


① アノード  
② カソード  
③ ゲート

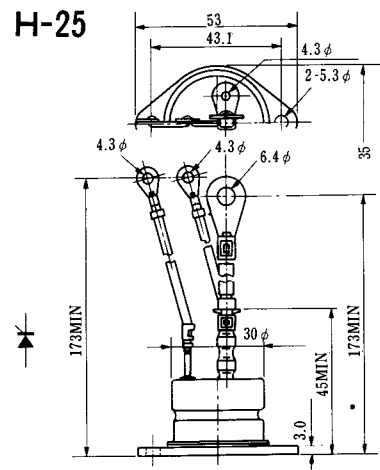
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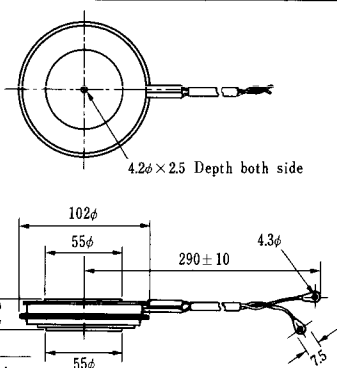
### H-24



### H-25

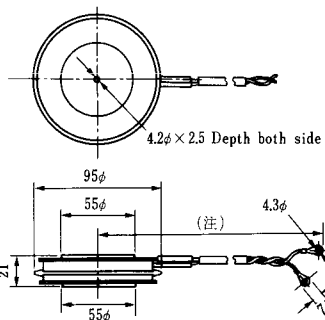


### H-26



Type	Direction of polarity
CA12	

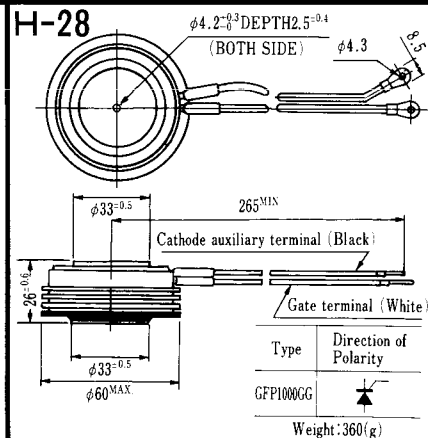
### H-27



Type	Direction of polarity
CF11V	

(注) CC11V : 400 ± 10  
CF11V : 250 ± 10

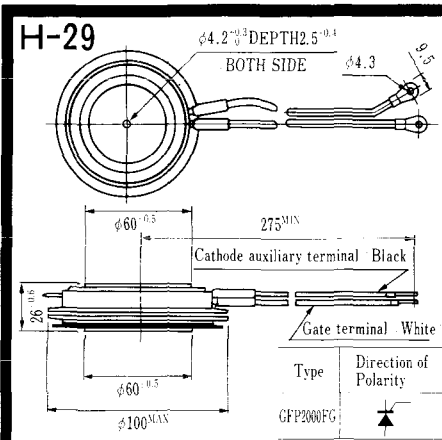
### H-28



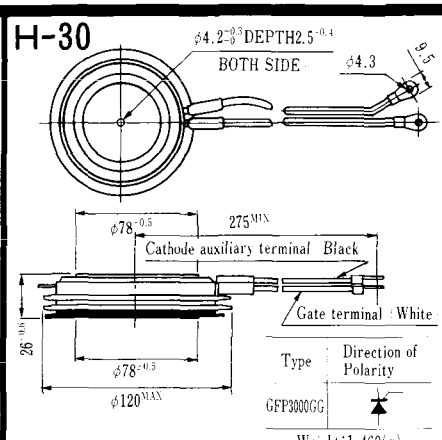
Type	Direction of Polarity
GFP100GG	

Weight: 360(g)

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



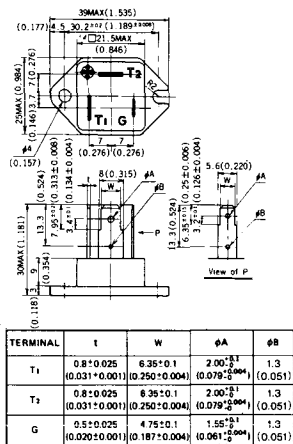
Note : The thickness is a dimension in press at the rated mounting force. Weight: 870(g)



Note : The thickness is a dimension in press at the rated mounting force. Weight: 1,460(g)

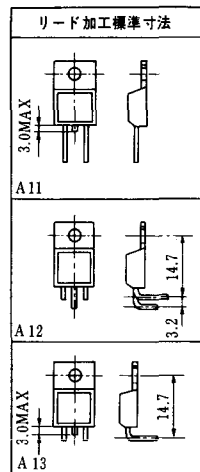
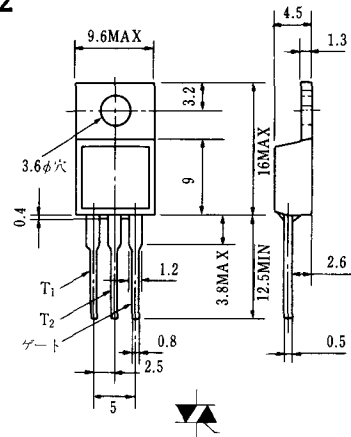


# HT-1

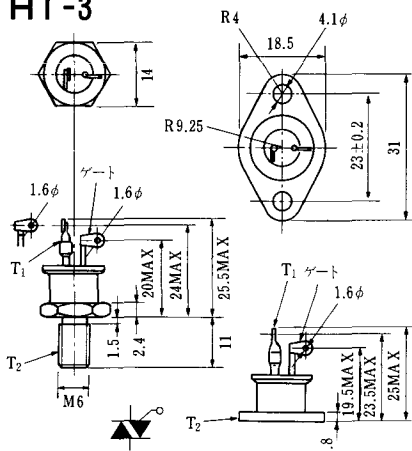


Unit in mm (inch)

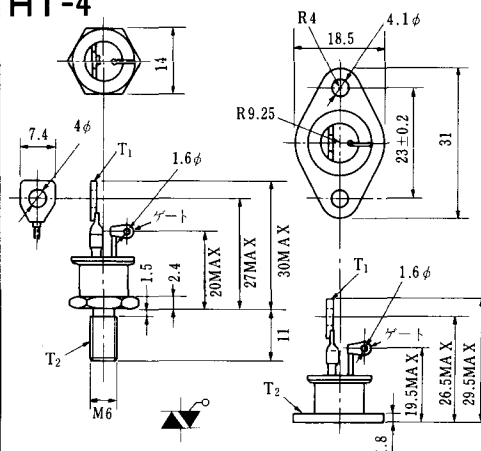
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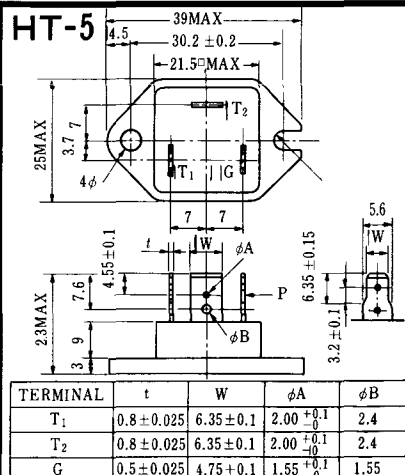
# HT-3



# HT-4



# HT-5



### M-1



### M-2



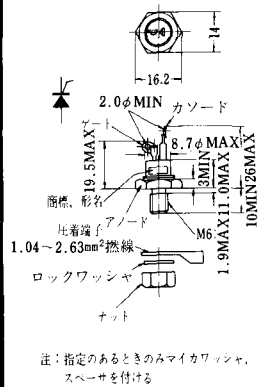
### M-3



### M-4



### M-5



### M-6



### M-7



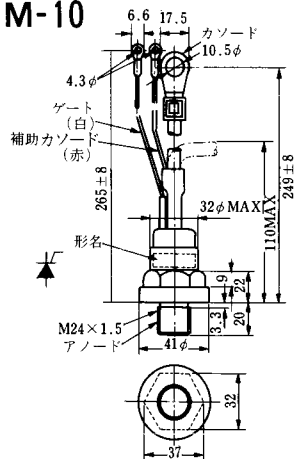
### M-8



M-9



M-10



M-11



M-12



M-13



M-14



M-15



M-16





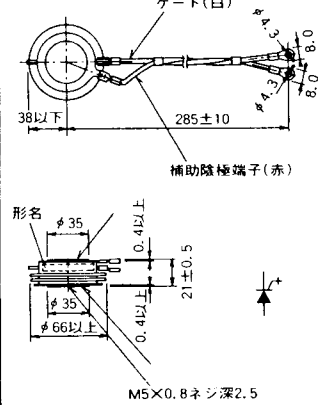
M-25



M-26



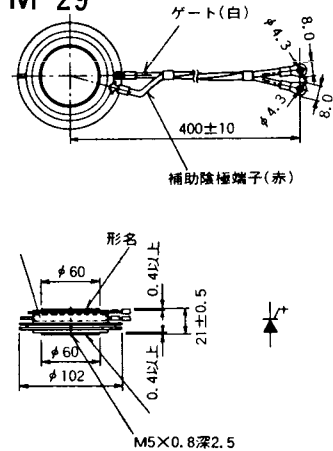
M-27



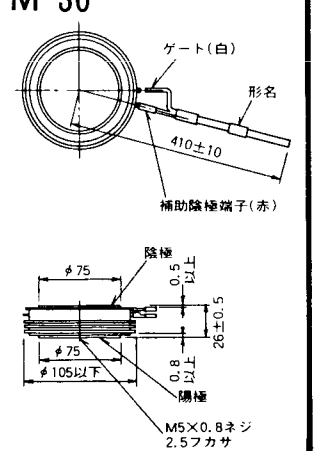
M-28



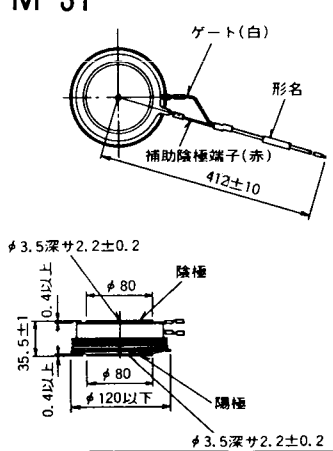
M-29



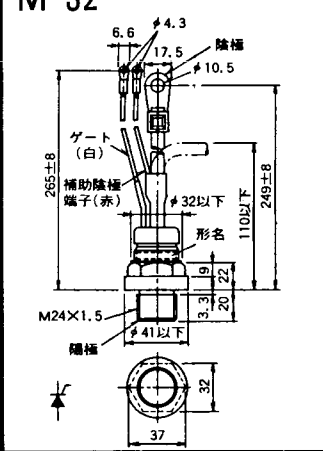
M-30



M-31



M-32



### M-33



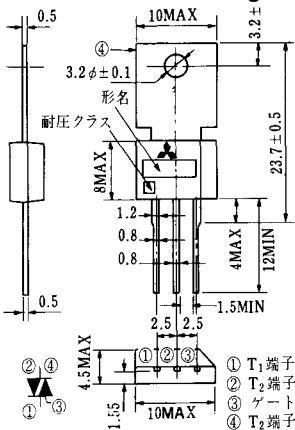
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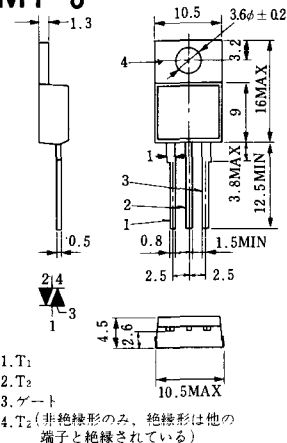
### MT-1



### MT-2



### MT-3



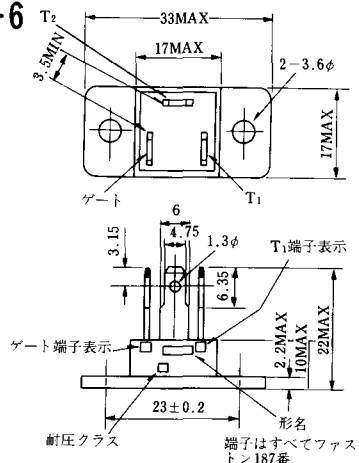
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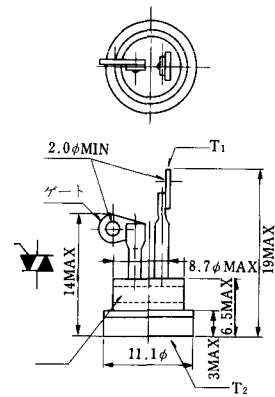
### MT-5



### MT-6



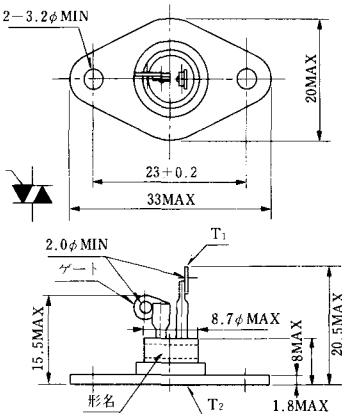
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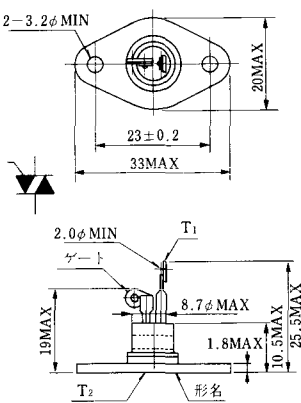
MT-8



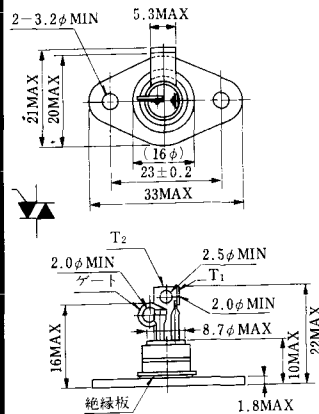
MT-9



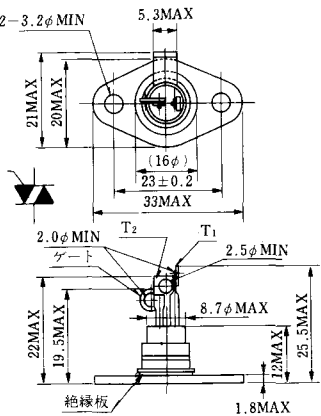
MT-10



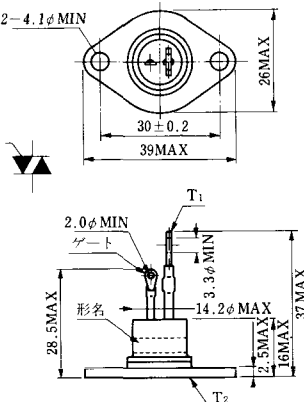
MT-11



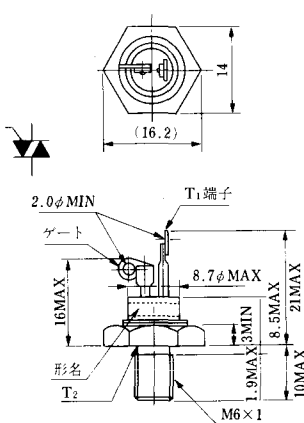
MT-12



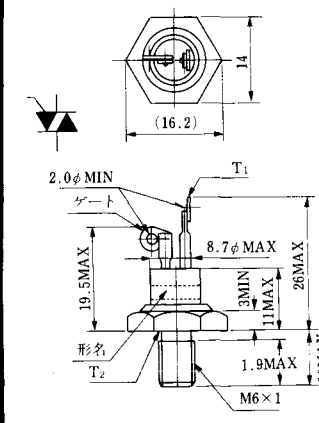
MT-13



MT-14

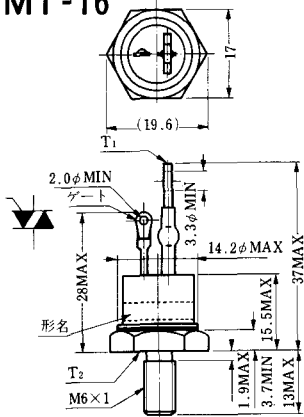


MT-15

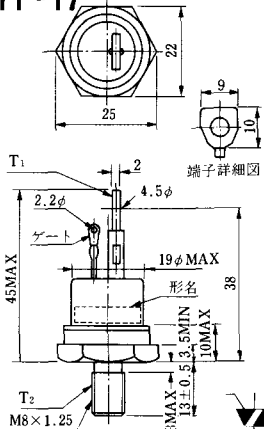




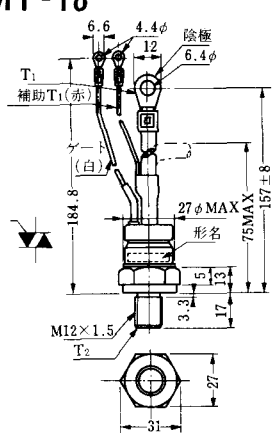
MT-16



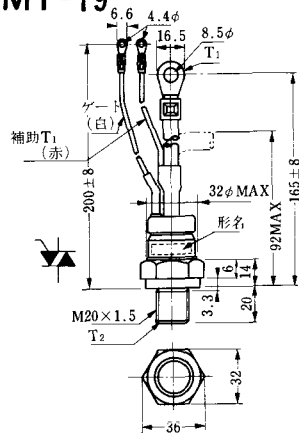
MT-17



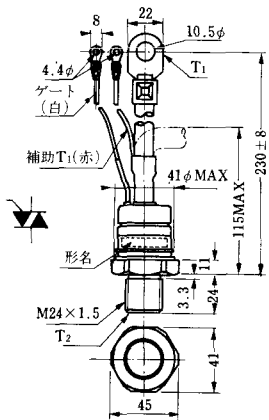
MT-18



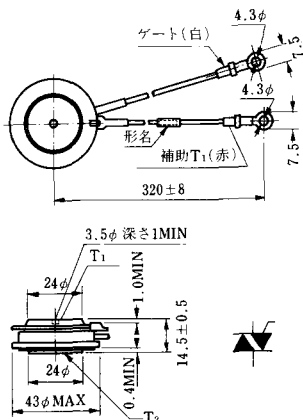
MT-19



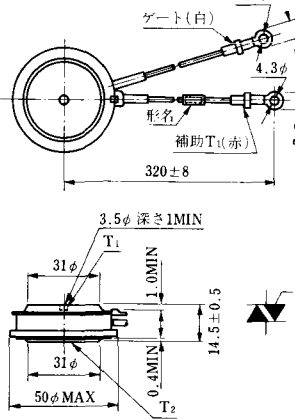
MT-20



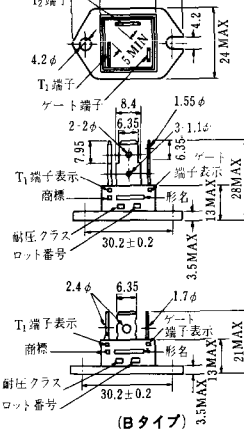
MT-21



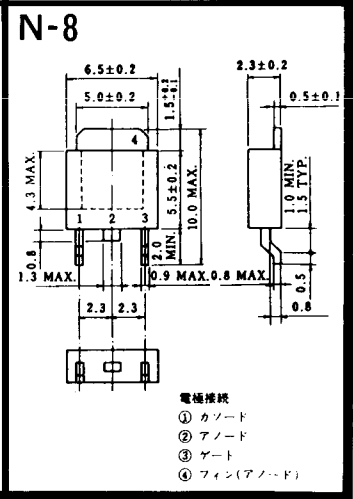
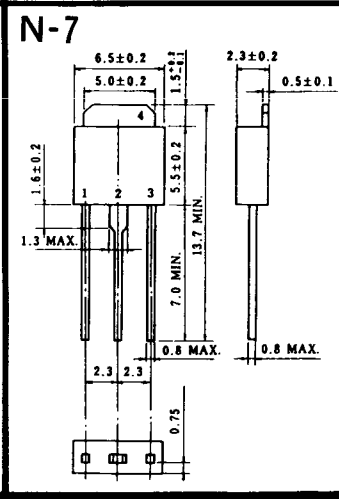
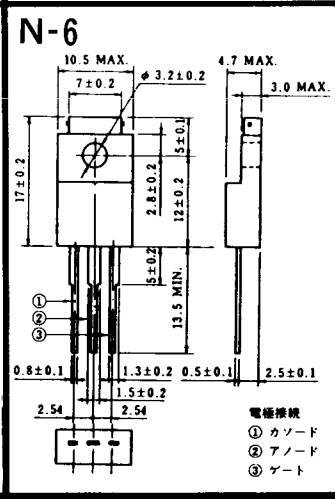
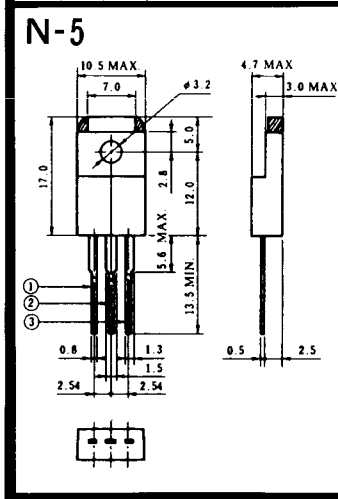
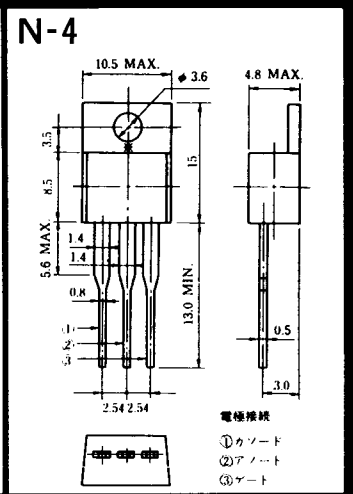
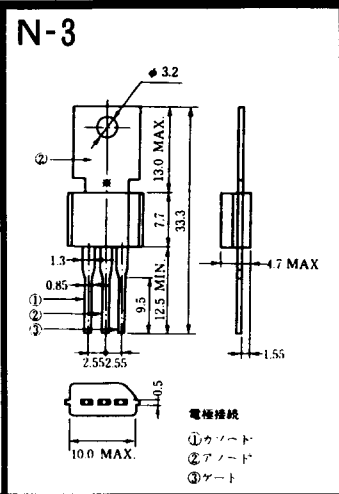
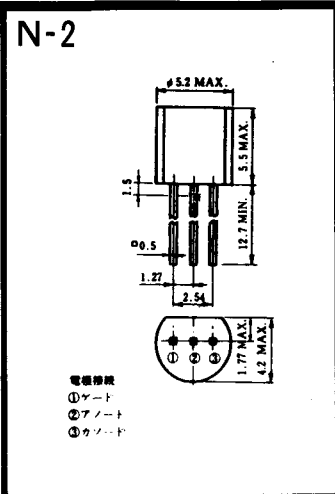
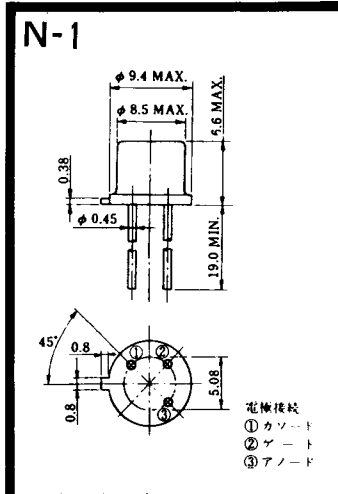
MT-22



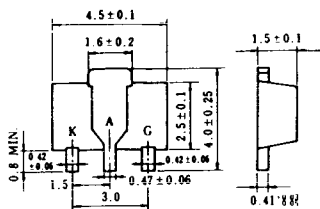
MT-23







N-9



電極接続

K : カソード

A : アノード

G : ゲート

### NA-1

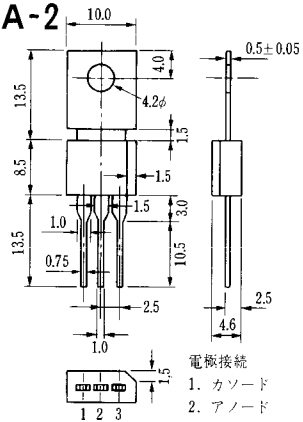


電極接続

1. ゲート
2. アノード
3. カソード

JEDEC: TO-92

### NA-2

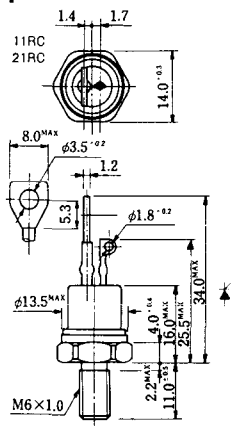


電極接続

1. カソード
2. アノード
3. ゲート

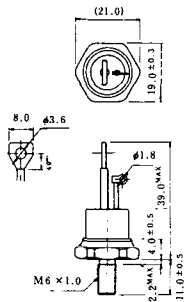
JEDEC: TO-202AA

### NI-1



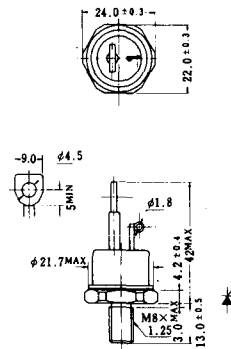
### NI-2

29RD



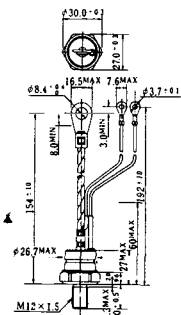
### NI-3

39RC  
59RC  
39RF  
59RF



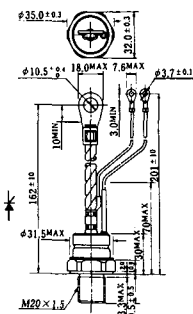
### NI-4

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



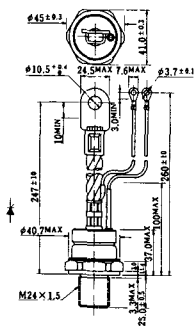
### NI-5

158RP, 208RP, 128RS, 178RS,  
156RT, 178RLD, 178RLE,  
178RLF, 178RLG, 178RLH,  
208RLE



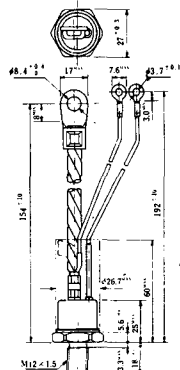
### NI-6

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



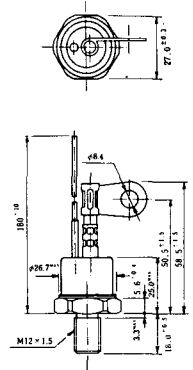
### NI-7

89RW<sub>JL</sub>  
129RW<sub>JL</sub>

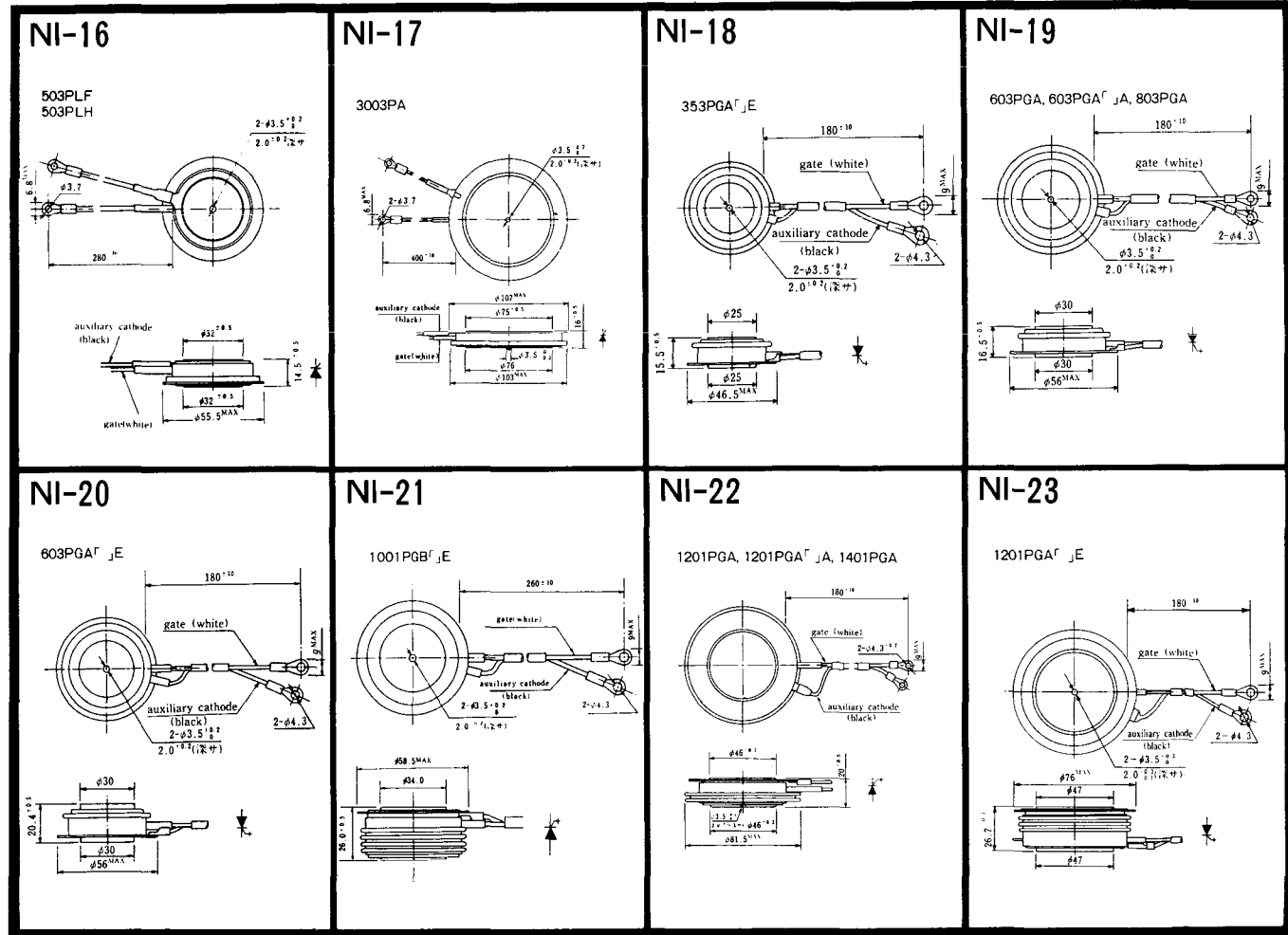


### NI-8

89RW  
129RW









NI-24

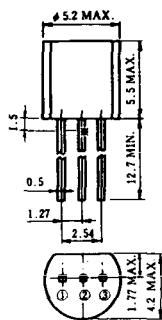
2001PGB<sup>r</sup> JE



NI-25

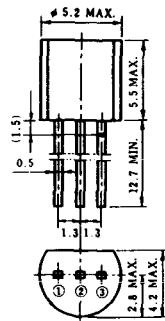
NI-26

### NT-1



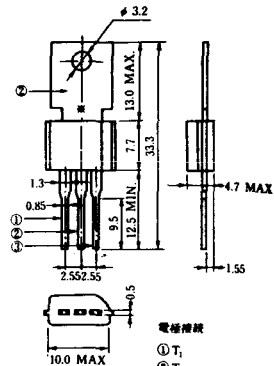
電極接続  
① T<sub>1</sub>  
② ゲート  
③ T<sub>2</sub>

### NT-2



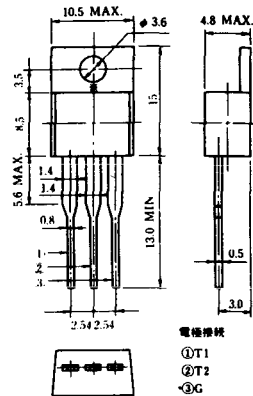
電極接続  
① T<sub>1</sub>  
② ゲート  
③ T<sub>2</sub>

### NT-3



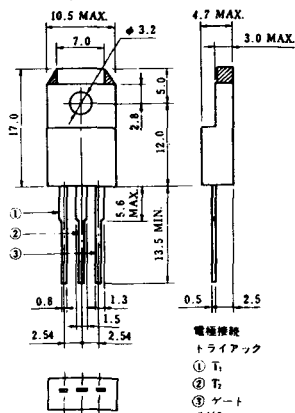
電極接続  
① T<sub>1</sub>  
② T<sub>2</sub>  
③ ゲート

### NT-4



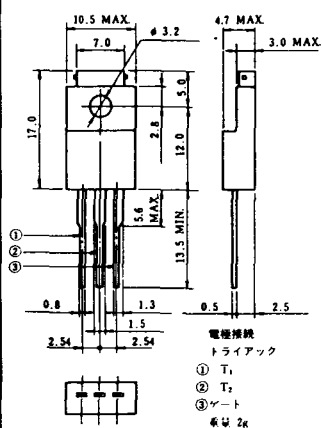
電極接続  
① T<sub>1</sub>  
② T<sub>2</sub>  
③ G

### NT-5



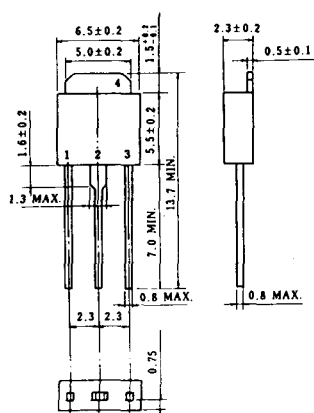
電極接続  
トライアック  
① T<sub>1</sub>  
② T<sub>2</sub>  
③ ゲート  
④ G

### NT-6

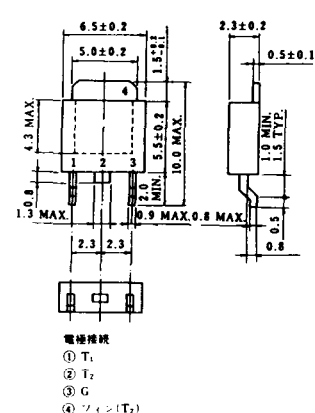


電極接続  
トライアック  
① T<sub>1</sub>  
② T<sub>2</sub>  
③ ゲート  
④ G

### NT-7

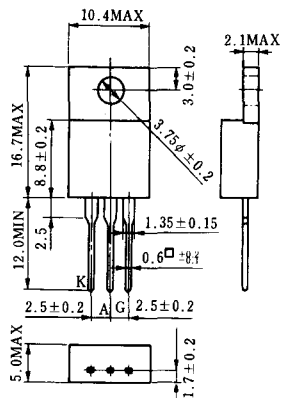


### NT-8

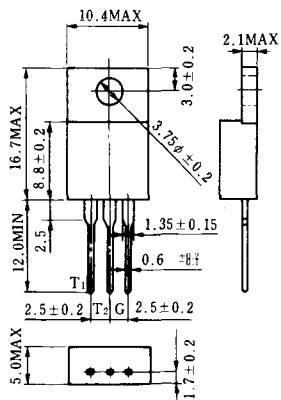


電極接続  
① T<sub>1</sub>  
② T<sub>2</sub>  
③ G  
④ ソフト(T<sub>2</sub>)

### S-1



### ST-1



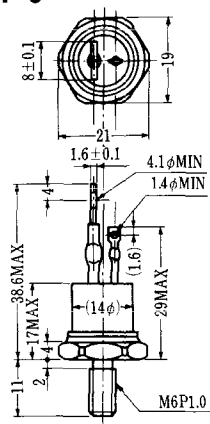
SA-1



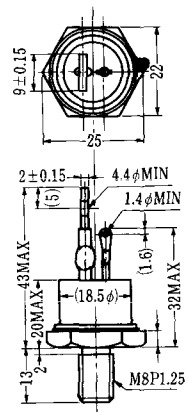
SA-2



SA-3



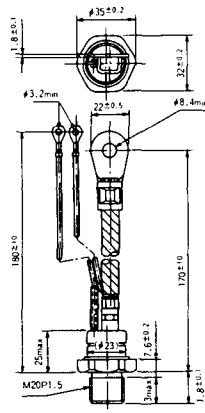
SA-4



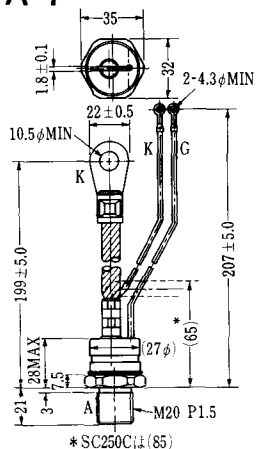
SA-5



SA-6

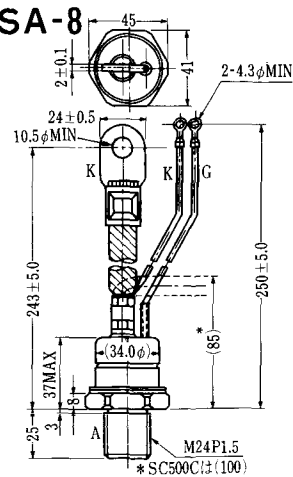


SA-7



\* SC250C:(1)(85)

SA-8

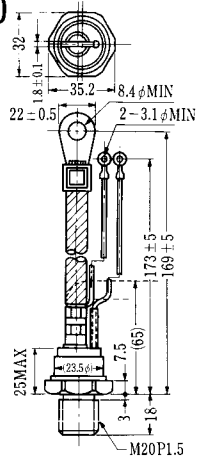


\* SC500C:(1)(100)

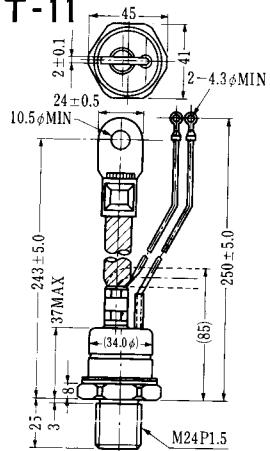




SAT-10



SAT-11

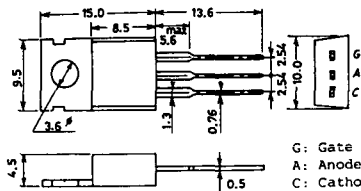


### SY-1 (1096A)



C: Cathode  
A: Anode  
G: Gate

### SY-2 (1151)



G: Gate  
A: Anode  
C: Cathode

### SY-3 (1104)



G: Gate  
A: Anode  
C: Cathode

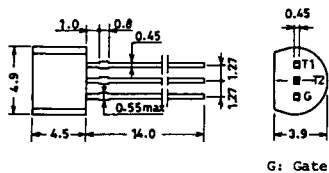
### SY-4 (1150)



G: Gate  
A: Anode  
C: Cathode

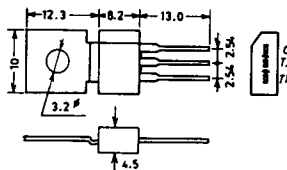


1097A



G: Gate

1102



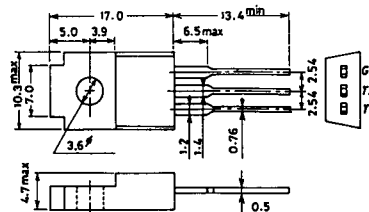
1141



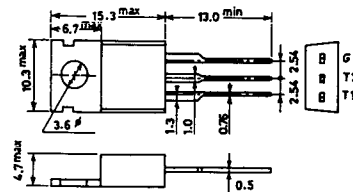
1142



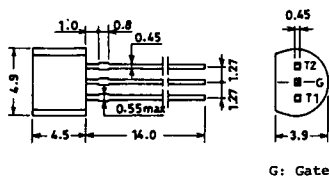
1144



1155

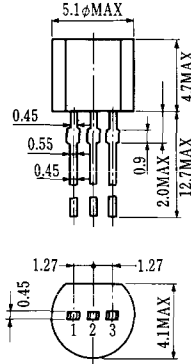


1192A



G: Gate

**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)

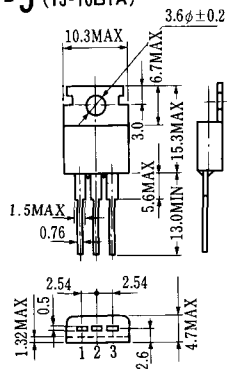
**T-3 (13-8C1A)**



M5×0.8  
アノード

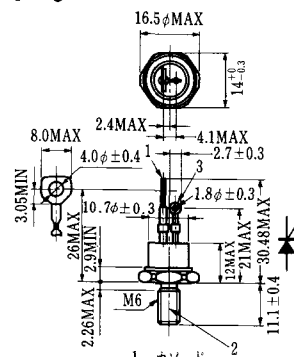
- 1 カソード
- 2 アノード
- 3 ゲート

**T-5 (13-10B1A)**



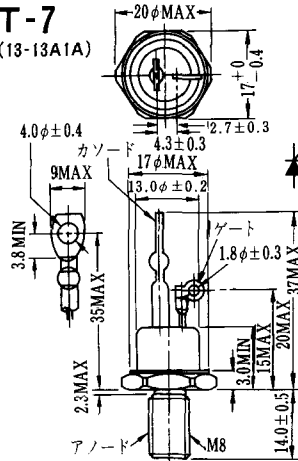
- 1 カソード
- 2 アノード
- 3 ゲート

**T-6 (13-11D1A)**



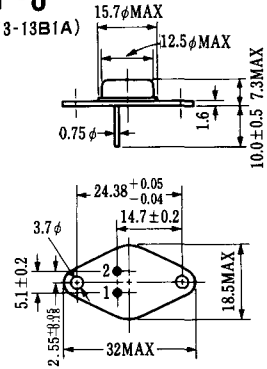
- 1 カソード
- 2 アノード
- 3 ゲート

**T-7 (13-13A1A)**



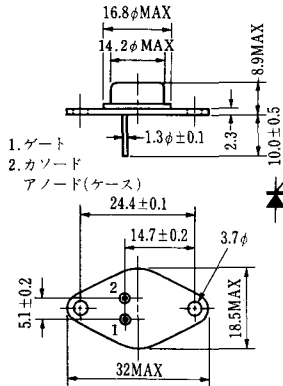
アノード  
M8

**T-8 (13-13B1A)**



1. ゲート
2. カソード
3. アノード(ケース)

### T-9 (13-14A1A)



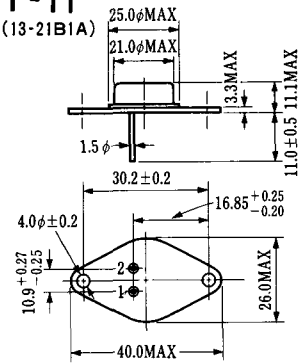
1. ゲート
2. カソード
- アノード(ケース)

### T-10 (13-19A1A)



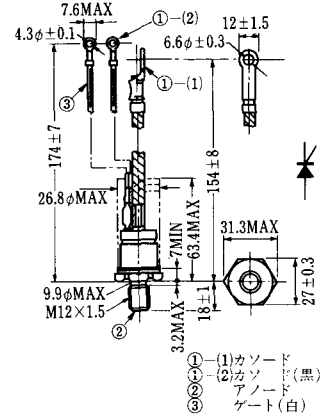
1. カソード
2. アノード
3. ゲート

### T-11 (13-21B1A)



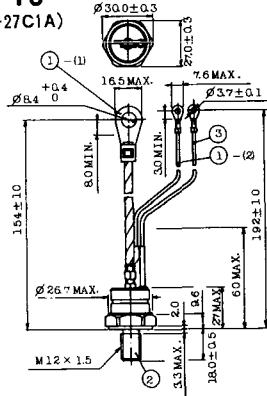
1. ゲート
2. カソード
- アノード(ケース)

### T-12 (13-27B1B)



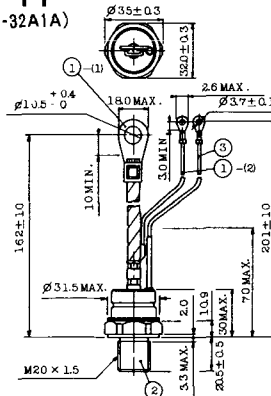
- ① (1) カソード
- ① (2) カソード(黒)
- ② アノード
- ③ ゲート(白)

### T-13 (13-27C1A)



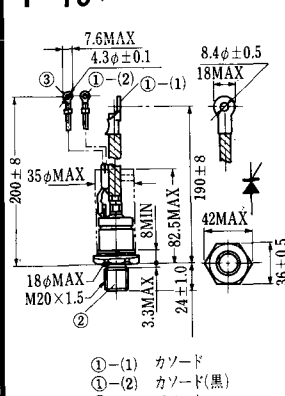
- 1-(1) カソード
- 1-(2) カソード(黒)
- 2 アノード
- 3 ゲート(白)

### T-14 (13-32A1A)



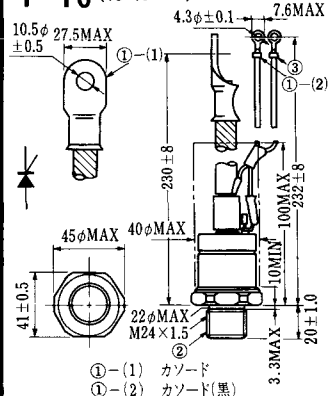
- 1-(1) カソード
- 1-(2) カソード(黒)
- 2 アノード
- 3 ゲート(白)

### T-15 (13-35C1B)



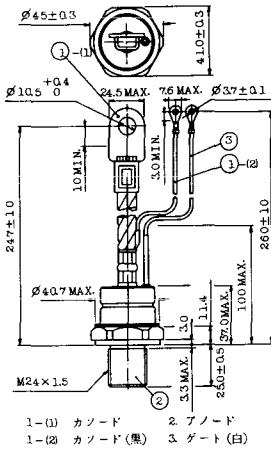
- ① (1) カソード
- ① (2) カソード(黒)
- ② アノード
- ③ ゲート(白)

### T-16 (13-40B1A)

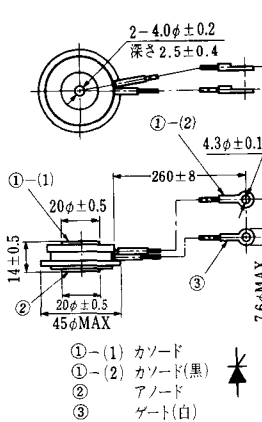


- ① (1) カソード
- ① (2) カソード(黒)
- ② アノード
- ③ ゲート(白)

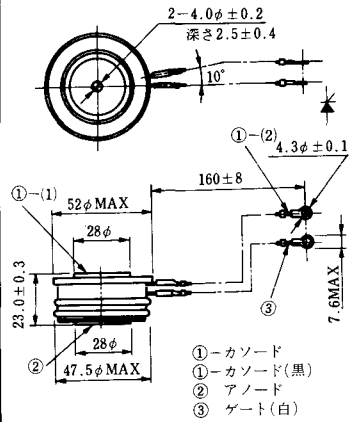
**T-17 (13-42A1A)**



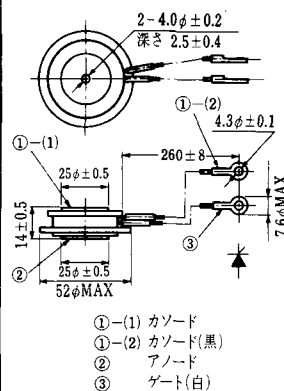
**T-18 (13-45D1A)**



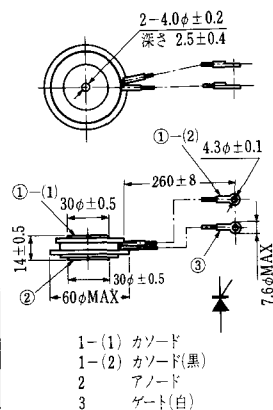
**T-19 (13-52B1A)**



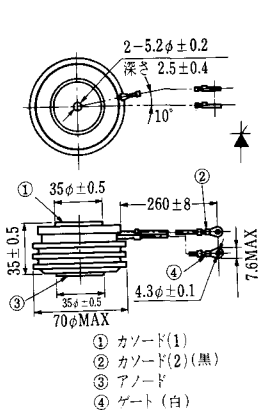
**T-20 (13-52C1A)**



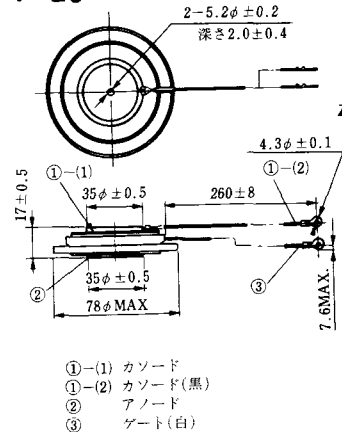
**T-21 (13-60A1A)**



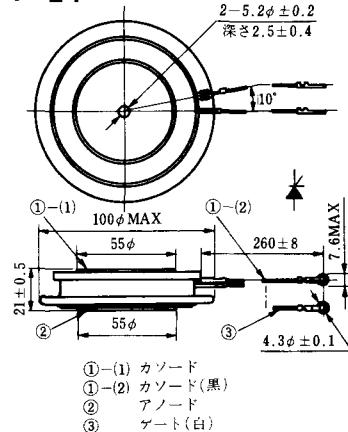
**T-22 (13-70C1A)**



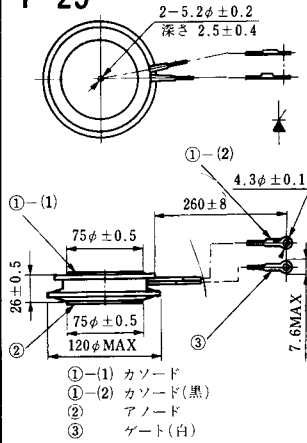
**T-23 (13-78A1A)**



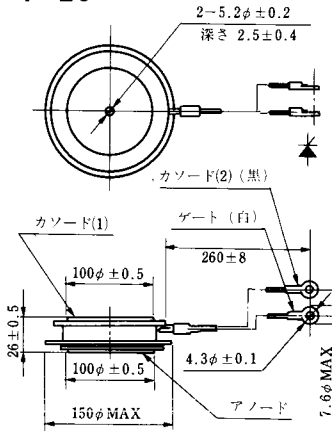
**T-24 (13-100C1A)**



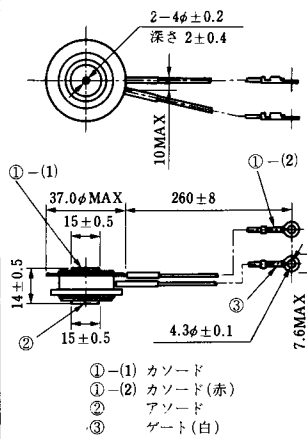
**T-25** (13-120A2A)



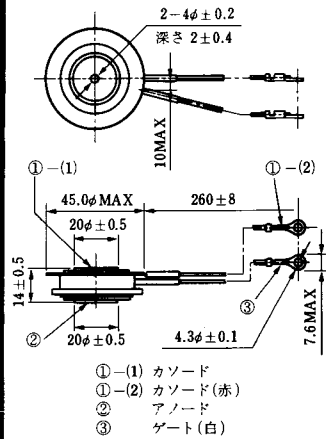
**T-26** (13-150A1A)



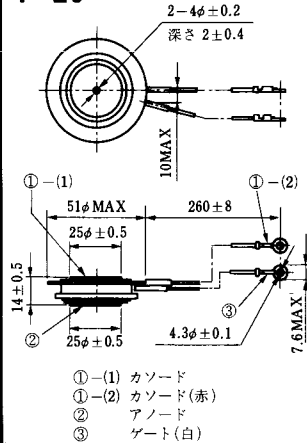
**T-27** (13-37A1A)



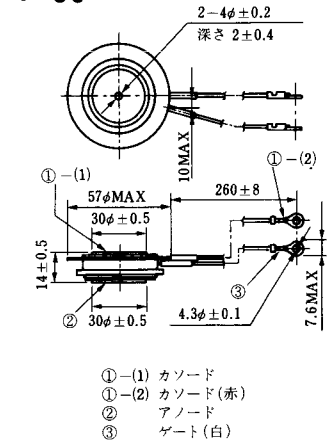
**T-28** (13-45E1A)



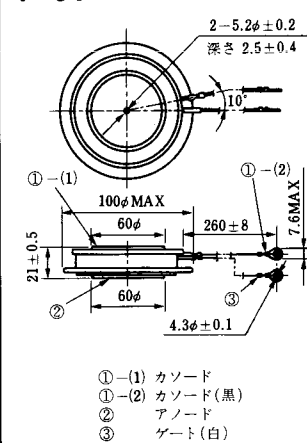
**T-29** (13-51A1A)



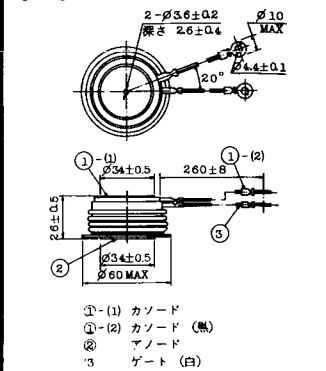
**T-30** (13-57A1A)



**T-31** (13-100E1A)

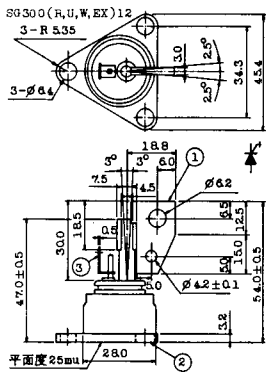


**T-32** (13-60E3A)



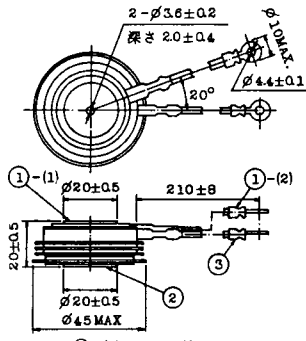


### T-41 (13-28A2A)



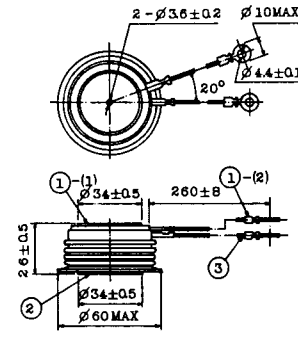
- 1 カソード
- 2 アノード
- 3 ゲート

### T-42 (13-45F1A)



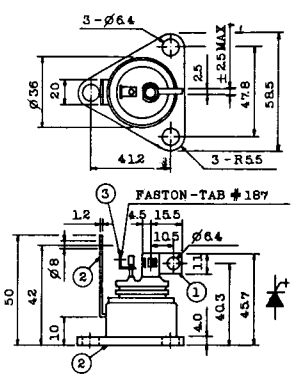
- ①-(1) カソード
- ①-(2) カソード(黒)
- ② アノード
- ③ ゲート(白)

### T-43 (13-60E2A)



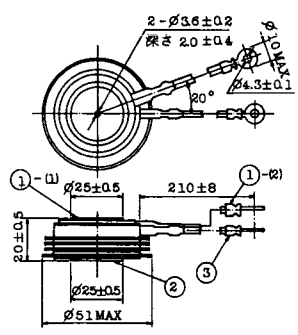
- ①-(1) カソード
- ①-(2) カソード(黒)
- ② アノード
- ③ ゲート(白)

### T-44 (13-36A1A)



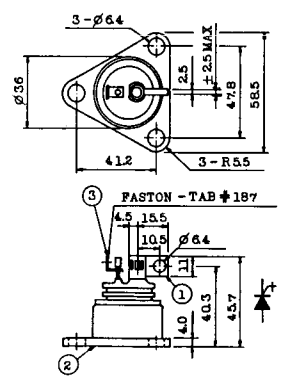
- 1 カソード
- 2 アノード
- 3 ゲート

### T-45 (13-51B1A)



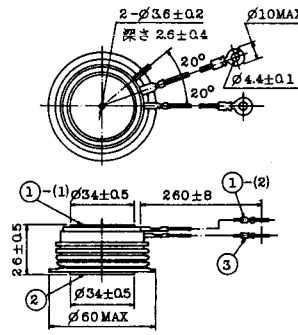
- ①-(1) カソード
- ①-(2) カソード(黒)
- ② アノード
- ③ ゲート(白)

### T-46 (13-36B1A)



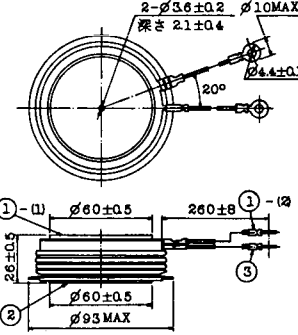
- 1 カソード
- 2 アノード
- 3 ゲート

### 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)

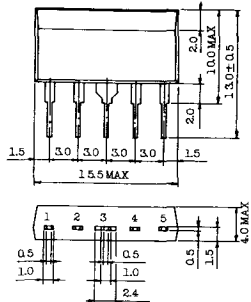


- ①-(1) カソード
- ①-(2) カソード(黒色)
- ② アノード
- ③ ゲート(白色)





T-57 (12-16C1A)



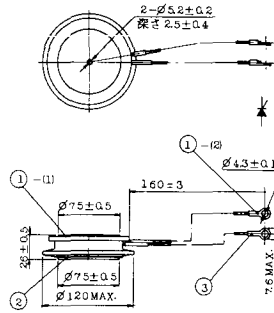
1. アノード (主)
2. ゲート (主)
3. カソード (共通)
4. ゲート (補助)
5. アノード (補助)

T-58 (13-10H1B)



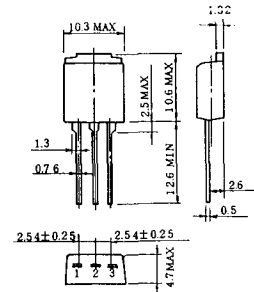
1. カソード
2. アノード
3. ゲート

T-59 (13-120A1A)



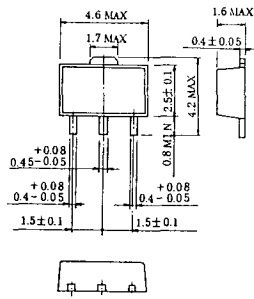
- 1-(1) カソード
- 1-(2) カソード (黒)
2. アノード
3. ゲート (白)

T-60



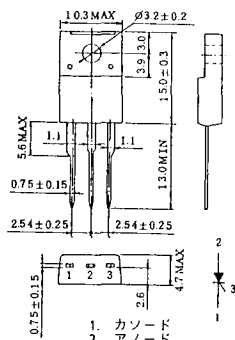
1. カソード
2. アノード
3. ゲート

T-61 (13-5B1A)



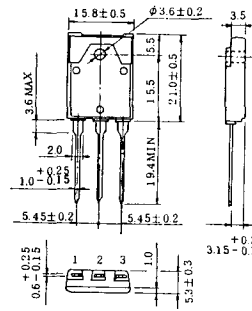
1. ゲート
2. アノード
3. カソード

T-62 (13-10H1A)



1. カソード
2. アノード
3. ゲート

T-63 (13-16A1B)



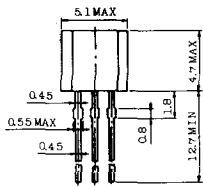
1. カソード
2. アノード
3. ゲート

TT-1



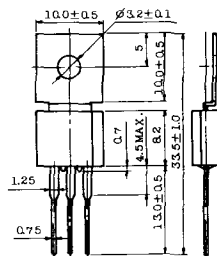
1. ゲート
2. T<sub>2</sub>
3. T<sub>1</sub>

TT-2



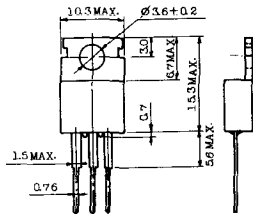
1. T<sub>1</sub>
2. ゲート
3. T<sub>2</sub>

TT-3



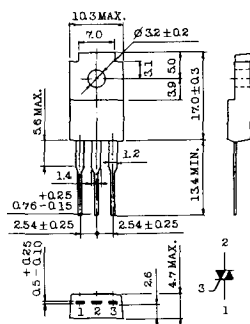
1. T<sub>1</sub>
2. T<sub>2</sub>
3. ゲート

TT-4



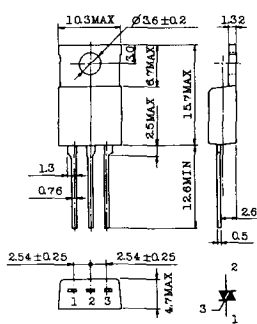
1. T<sub>1</sub>
2. T<sub>2</sub>
3. ゲート

TT-5



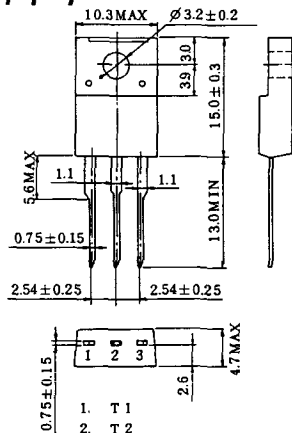
1. T<sub>1</sub>
2. T<sub>2</sub>
3. ゲート

TT-6



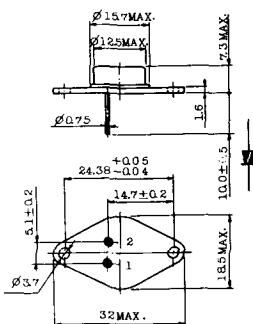
1. T<sub>1</sub>
2. T<sub>2</sub> (放熱板)
3. ゲート

TT-7



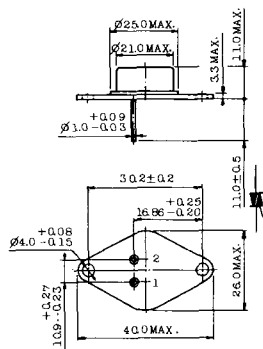
1. T<sub>1</sub>
2. T<sub>2</sub>
3. ゲート

TT-8



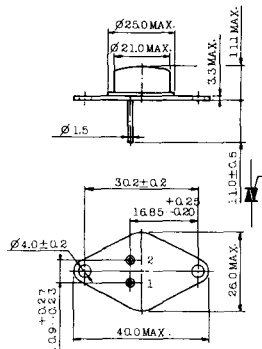
1. ゲート
2. T<sub>1</sub>
- T<sub>2</sub> (ケース)

TT-9



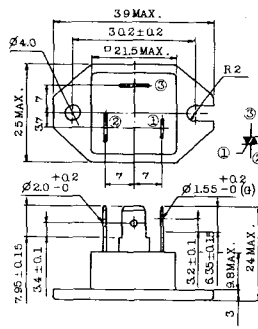
1. ゲート
2. T<sub>1</sub>
3. T<sub>2</sub> (ケース)

TT-10



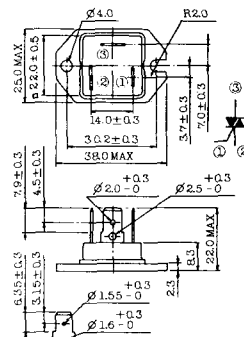
1. ゲート
2. T<sub>1</sub>
3. T<sub>2</sub> (ケース)

TT-11



1. ゲート (フーストン端子 #187)
2. T<sub>1</sub> ( " #250)
3. T<sub>2</sub> ( " #250)

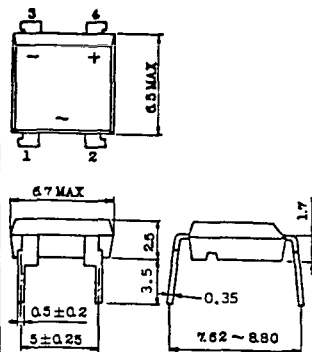
TT-12



ゲート端子詳細

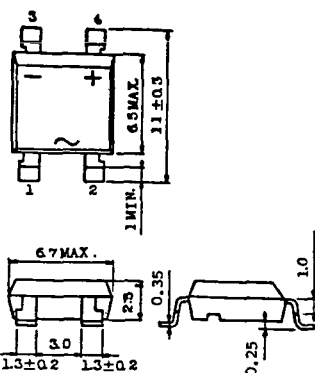
- ① ゲート (フーストン端子 #187)
- ② T<sub>1</sub> ( " #250)
- ③ T<sub>2</sub> ( " #250)

TT-13



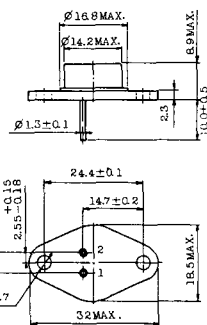
- 1, 2: T<sub>2</sub>
- 3: GATE
- 4: T<sub>1</sub>

TT-14



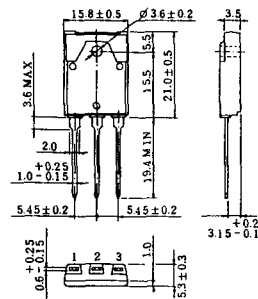
- 1, 2: T<sub>2</sub>
- 3: GATE
- 4: T<sub>1</sub>

TT-15 (13-14A1B)



1. ゲート
2. T<sub>1</sub>
- T<sub>2</sub> (ケース)

TT-16 (13-16A1A)



1. T<sub>1</sub>
2. T<sub>2</sub>
3. ゲート

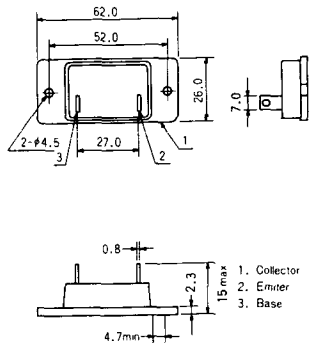


TS-8

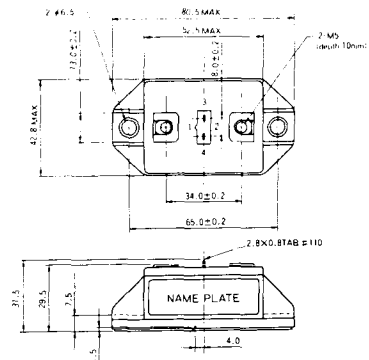


1. ベース  
2. エミッタ  
コレクタ  
(ケース)

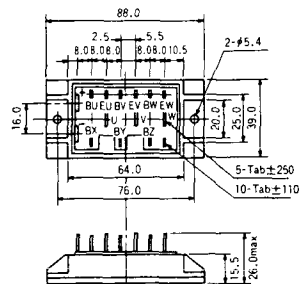
### S-62A1A



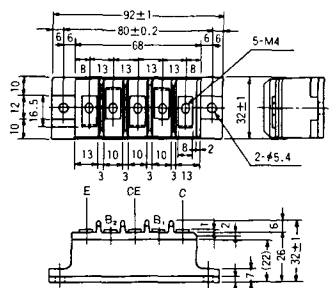
### S-80A1A



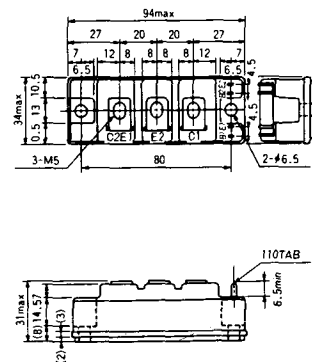
### S-88D1A



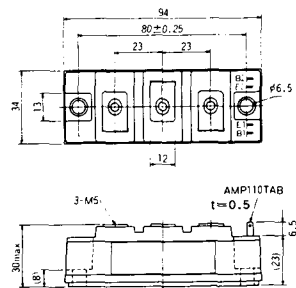
### S-92B1A



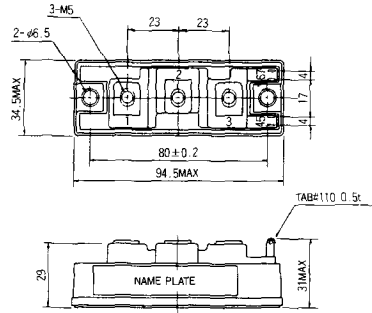
### S-94B1A



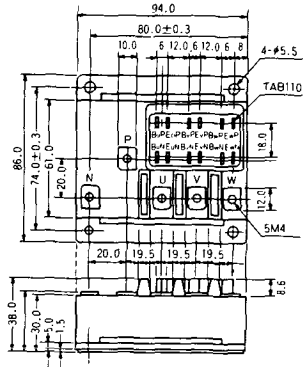
### S-94B1B



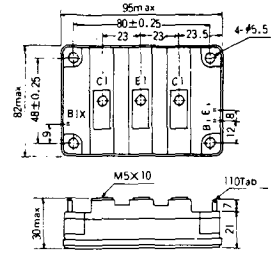
### S-94B2A



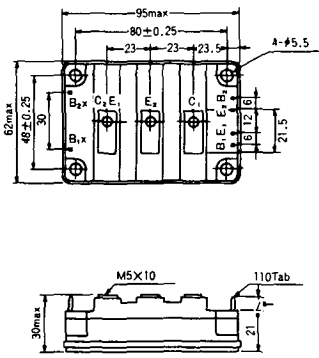
### S-94D1A



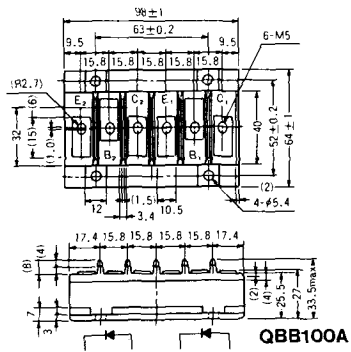
### S-95A1A



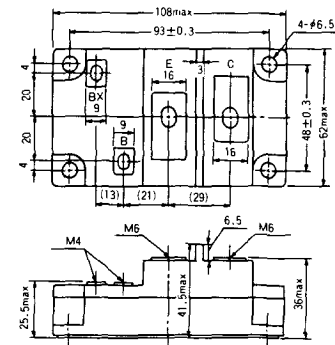
### S-95B1A



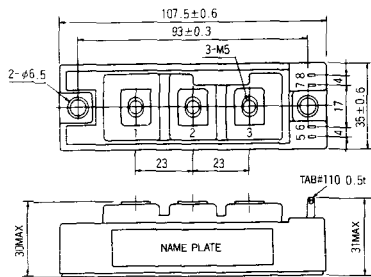
### S-98B1B



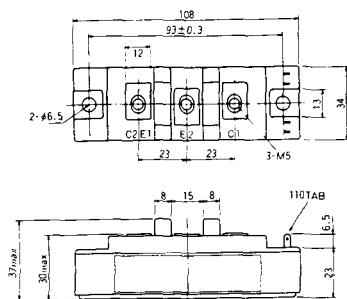
### S-108A2A



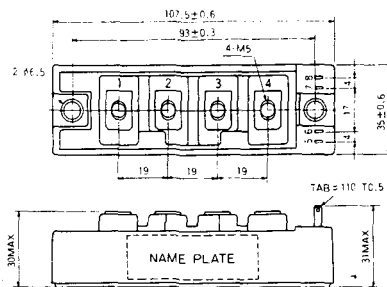
S-108B1A



S-108B1B



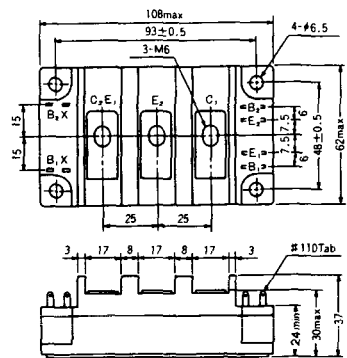
S-108B1C



S-108B2A



S-108B2B





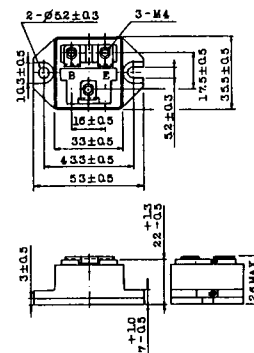
2-22B1A



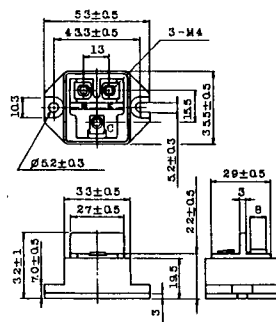
2-27A4A



2-33C1A



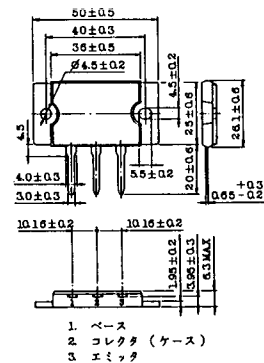
2-33D1A



2-33F1A



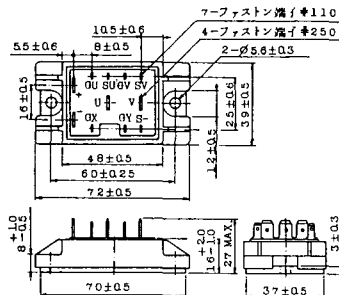
2-37A1A



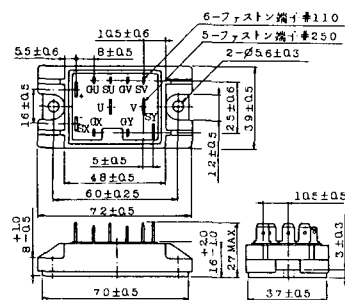
2-48A3A



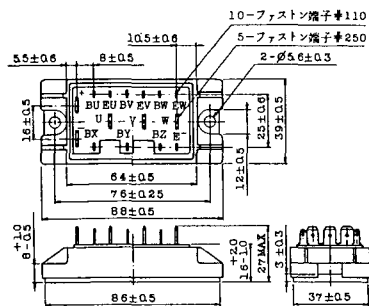
2-48A3B



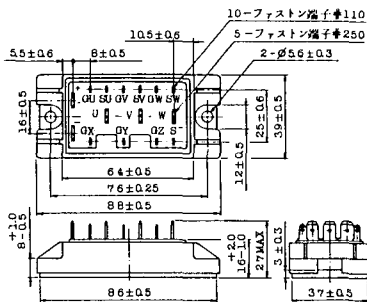
2-48A4A



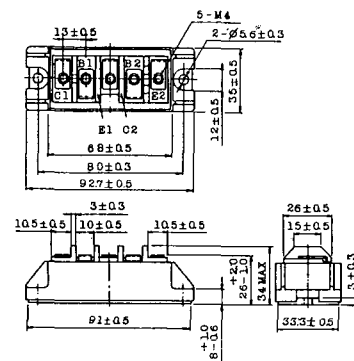
2-64A2A



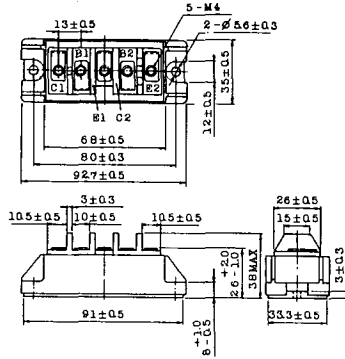
2-64A2B



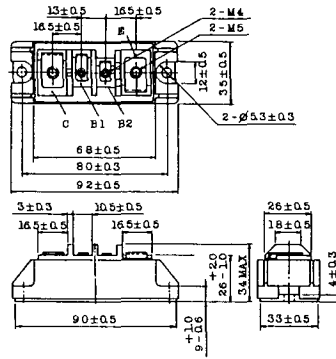
2-68A2A



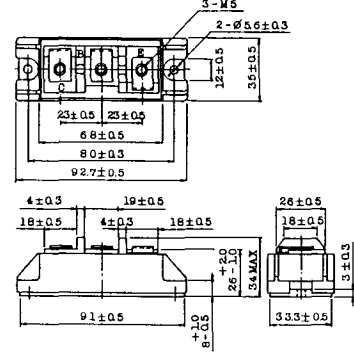
2-68B2A



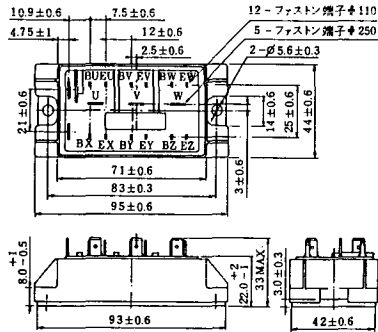
2-68C1A



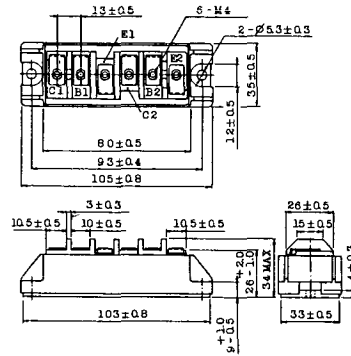
2-68D2A



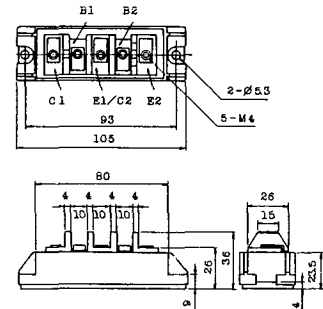
2-72A3A



2-80A1A

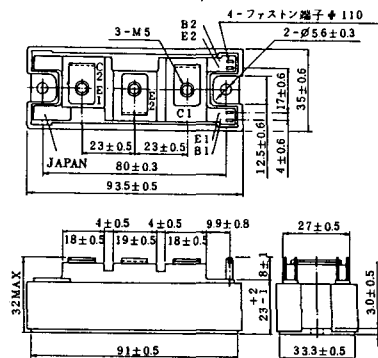


2-80B1A

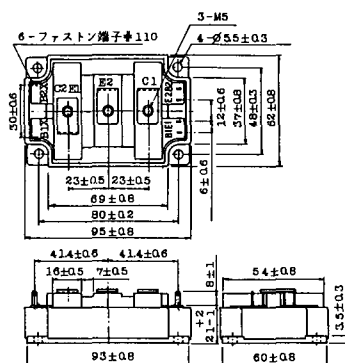




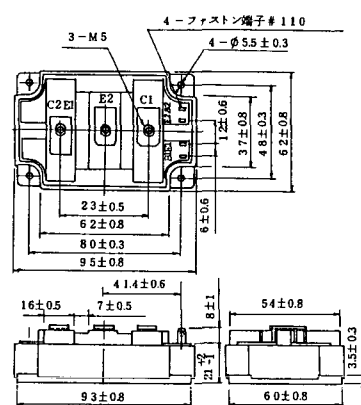
### 2-94D1A



### 2-96A3A



### 2-96A4A



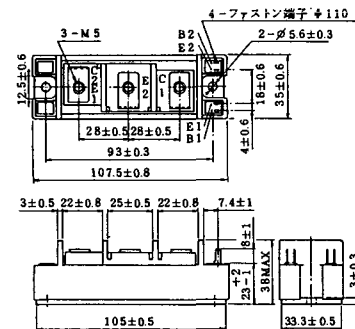
### 2-98B1A



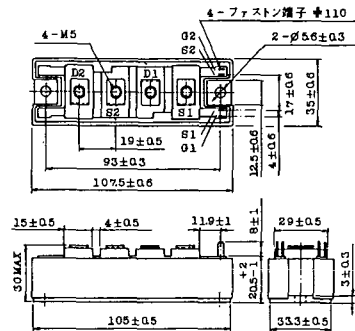
### 2-98C2A



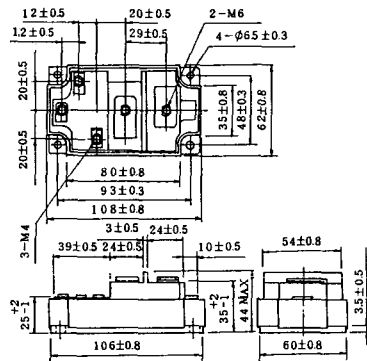
### 2-108A2A



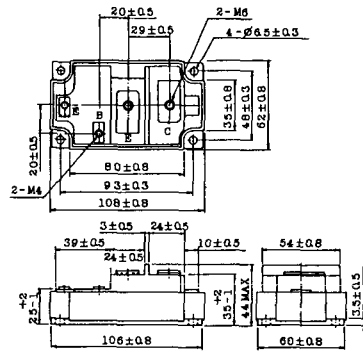
### 2-108B1A



### 2-109A3A



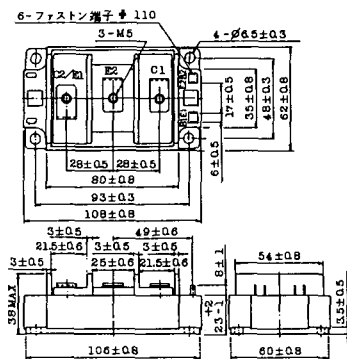
### 2-109A4A



### 2-109B3A

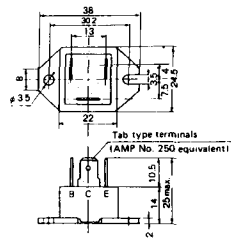


### 2-109B4A

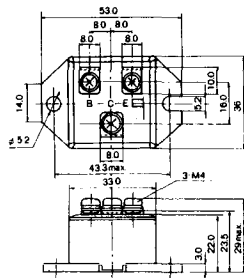




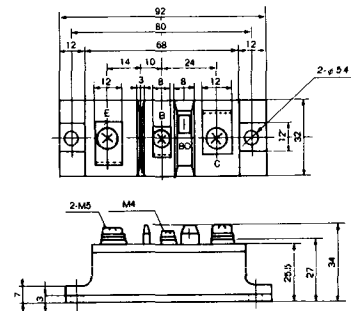
M-101



M-102



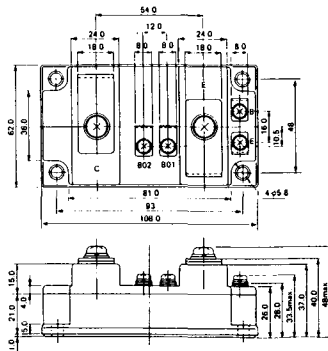
M-103



M-104



M-105

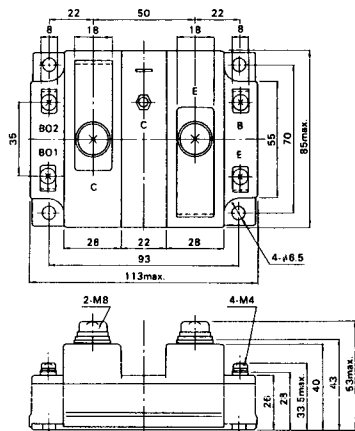


M-106

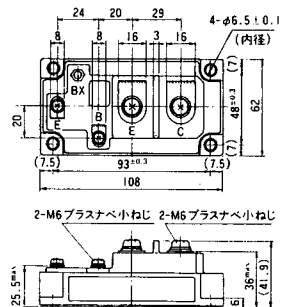




### M-107



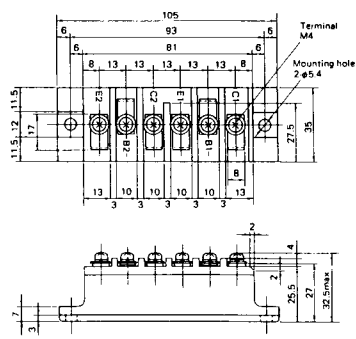
### M-116



M-201



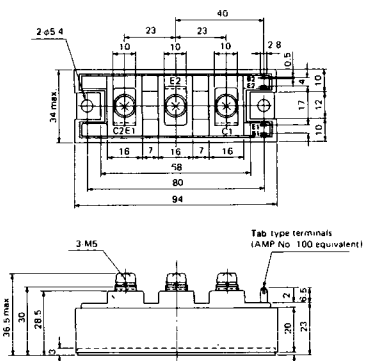
M-202



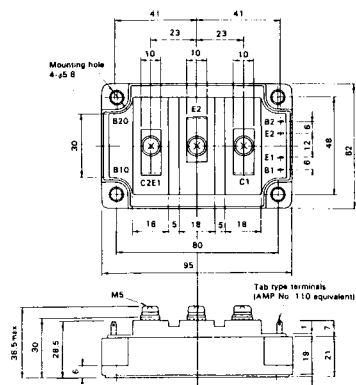
M-203



M-204



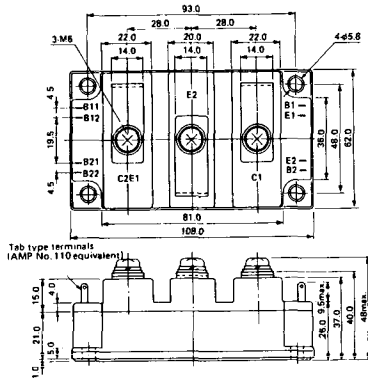
M-205



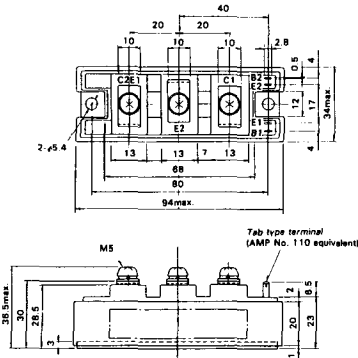
M-206



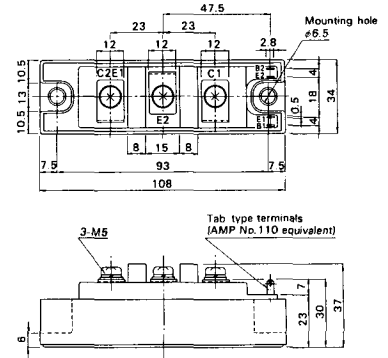
M-207



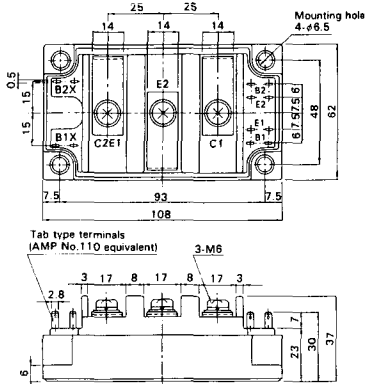
M-208



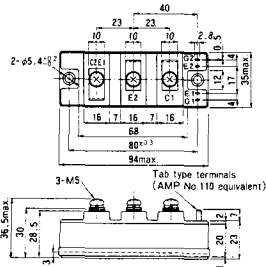
M-209



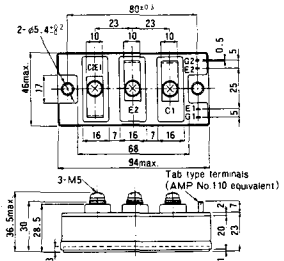
M-210



M-211



M-212





M-219

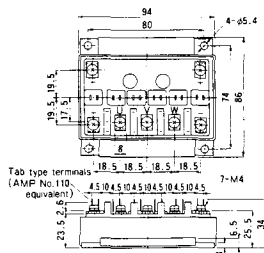




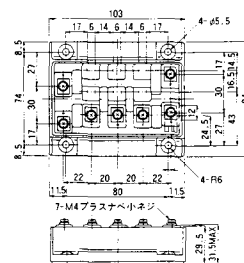
M-607



M-608



M-609



M-610



M-616

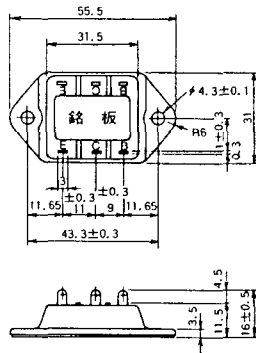




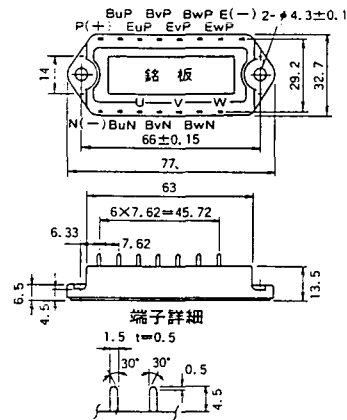




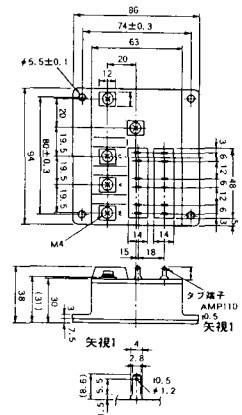
M-3C1A



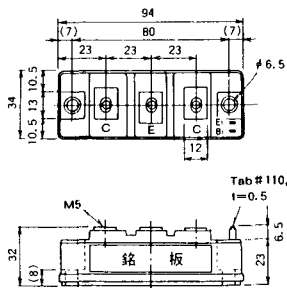
M-3D6A



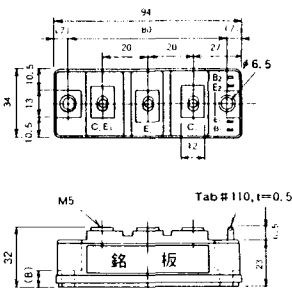
M-3E6A



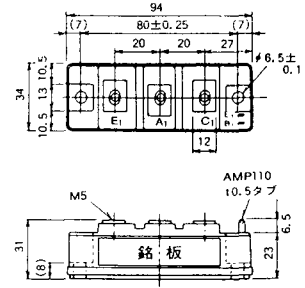
M-4A1A



M-4A2A



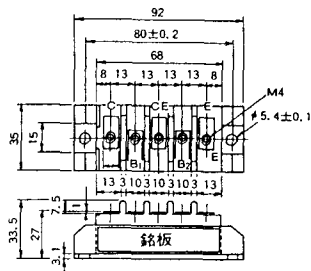
M-4A1B



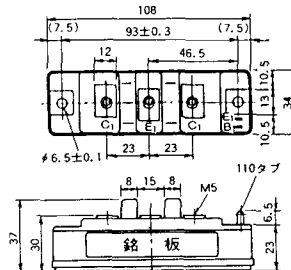
M-4A2B



M-4B2A



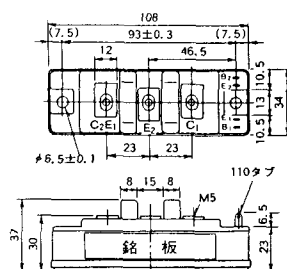
M-5A1A



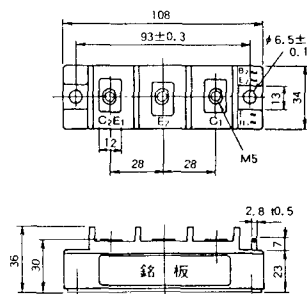
M-5A1B



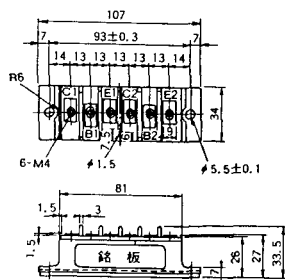
M-5A2A



M-5B2A



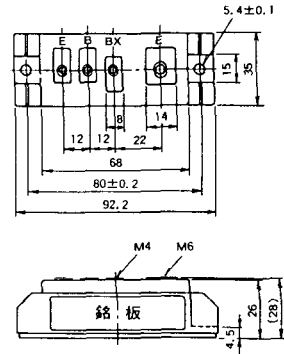
M-5C2A



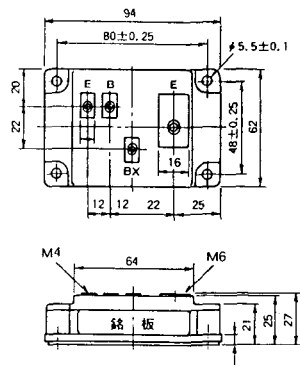
M-5D2A



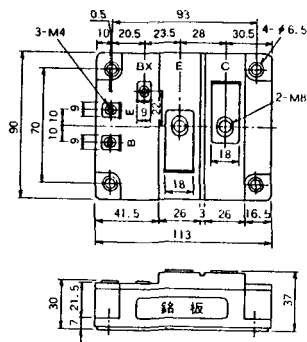
M-6A1A



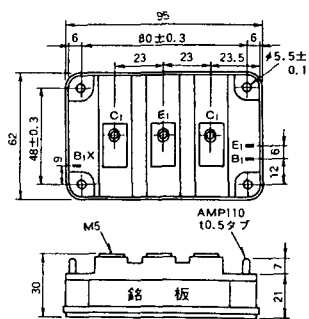
M-7A1A



M-7B1A



M-8A1A

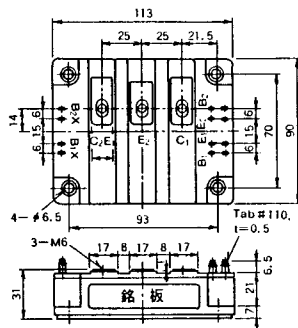




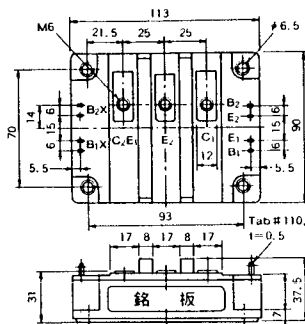




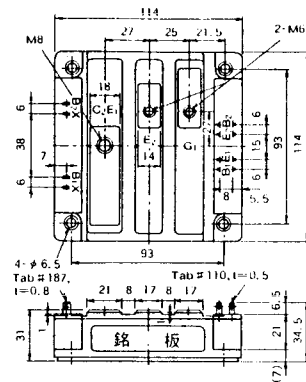
M-10A2A



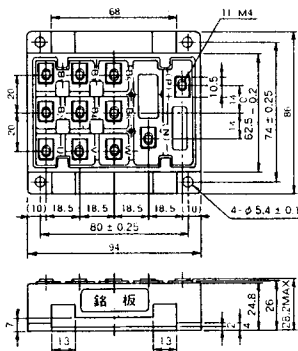
M-10A2B



M-11A2A



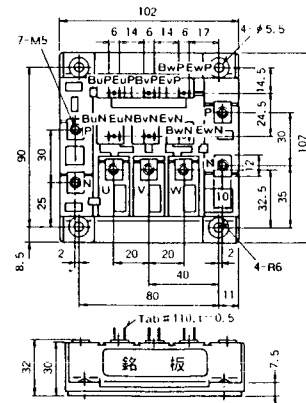
M-12A6A



M-12B6A



M-12B6B







M-9D2B



M-10A2C

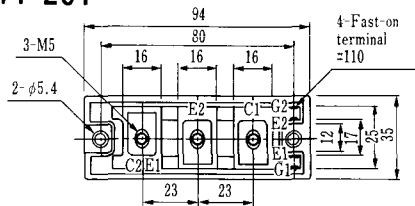


H-101



Weight :480g

### H-201



Weight: 200g

### H-202



Weight: 360g

### LF-J



### LF-K



