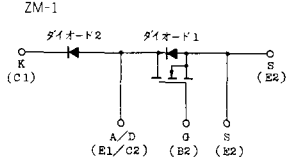
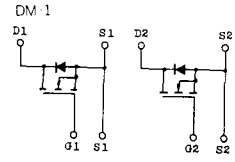
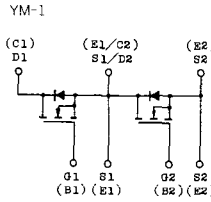
トランジスタ・モジュール　(シリコンNチャネル　MOS　FET　1個/2個内蔵)

- MOS　FETを1個/2個内蔵
- エンハンスメント・タイプ
- 電極と金属ケース部が絶縁されている
- フリーホイル・ダイオード付

■等価回路



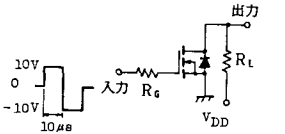




注1. T_C=25℃。　注2. AC, 1分間。

型名	最大定格 (T_a=25℃)								電気的特性 (T_a=25℃)																
	V_{DSS}	V_{GSS}	I_D	I_{DP} (1ms)	P_D (注1)	T_{ch}	T_{stg}	V_{iso} (注2)	I_{GSS}		I_{DSS}		$V_{(BR)DSS}$		$V_{GS(OFF)}$			$\|Y_{fs}\|$			$R_{DS(ON)}$				
									(nA)	V_{GS}	(mA)	V_{DS}	(V)	I_D	(V)		V_{DS}	I_D	(S)	V_{DS}	I_D	(Ω)	V_{GS}	I_D
	(V)	(V)	(A)	(A)	(W)	(℃)	(℃)	(V)	最大	(V)	最大	(V)	最小	(mA)	最小	最大	(V)	(mA)	最小	(V)	(A)	最大	(V)	(A)
MG30D1ZM1	250	±20	±30	±60	200	150	−40〜125	2500	±100	±20	2.0	250	250	10	1.8	4.0	10	30	8.0	10	30	0.125	10	30
MG30D2DM1	250	±20	±30	±60	200	150	−40〜125	2500	±100	±20	2.0	250	250	10	1.8	4.0	10	30	8.0	10	30	0.125	10	30
MG30D2YM1	250	±20	±30	±60	200	150	−40〜125	2500	±100	±20	2.0	250	250	10	1.8	4.0	10	30	8.0	10	30	0.125	10	30
MG30G2DM1	450	±20	±30	±60	250	150	−40〜125	2500	±100	±20	2.0	450	450	10	1.8	4.0	10	30	8.0	10	30	0.205	10	30
MG30G2YM1	450	±20	±30	±60	250	150	−40〜125	2500	±100	±20	2.0	450	450	10	1.8	4.0	10	30	8.0	10	30	0.205	10	30
MG50D2DM1	250	±20	±50	±100	300	150	−40〜125	2500	±150	±20	3.0	250	250	10	1.8	4.0	10	50	12.0	10	50	0.085	10	50
MG50D2YM1	250	±20	±50	±100	300	150	−40〜125	2500	±150	±20	3.0	250	250	10	1.8	4.0	10	50	12.0	10	50	0.085	10	50
MG50G2DM1	450	±20	±50	±100	400	150	−40〜125	2500	±150	±20	3.0	450	450	10	1.8	4.0	10	50	12.0	10	50	0.14	10	50
MG50G2YM1	450	±20	±50	±100	400	150	−40〜125	2500	±150	±20	3.0	450	450	10	1.8	4.0	10	50	12.0	10	50	0.14	10	50

■スイッチング時間測定回路

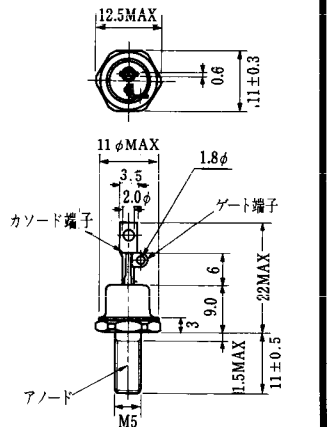


繰り返し周期 ≦ 1 %
入力 : t_r, t_f < 5ns

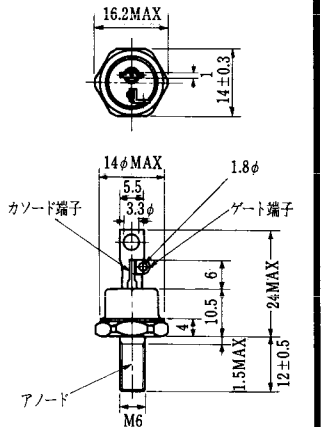
注3．スイッチング時間の * 印はtyp.値。

C_{iss} (f=1 MHz)			スイッチング時間 (ns)				R_G	R_L	V_{DD}	V_{DSF}		t_{rr}				熱抵抗	等価回路	外形図	記事	型名
(pF)	V_{DS}	V_{GS}	t_r	t_{on}	t_f	t_{off}				(V)	I_D	(ns)	I_D	V_{GS}	di/dt	$R_{th(ch-c)}$ (℃/W)				
標準	(V)	(V)	最大	最大	最大	最大	(Ω)	(Ω)	(V)	最大	(A)	最大	(A)	(V)	(A/μs)	最大				
4000	10	0	900	1100	300	1200	24	5	150	1.9	−30	400	−30	−10	100	0.625	ZM-1	2-94C2A	直列ダイオード V_R=250V	MG30D1ZM1
4000	10	0	900	1100	300	1200	24	5	150	1.9	−30	400	−30	−10	100	0.625	DM-1	2-108B1A	2個内蔵	MG30D2DM1
4000	10	0	900	1000	300	1200	24	5	150	1.9	−30	400	−30	−10	100	0.625	YM-1	2-94C3A	2個直列接続	MG30D2YM1
8500	10	0	700	800	200	1300	12	10	300	1.9	−30	500	−30	−10	100	0.5	DM-1	2-108B1A	2個内蔵	MG30G2DM1
8500	10	0	700	800	200	1300	12	10	300	1.9	−30	500	−30	−10	100	0.5	YM-1	2-94C3A	2個直列接続	MG30G2YM1
6000	10	0	900	1100	300	1200	12	3	150	1.95	−50	400	−50	−10	150	0.416	DM-1	2-108B1A	2個内蔵	MG50D2DM1
6000	10	0	900	1100	300	1200	12	3	150	1.95	−50	400	−50	−10	150	0.416	YM-1	2-108A2A	2個直列接続	MG50D2YM1
13000	10	0	700	800	200	1300	5	6	300	1.95	−50	500	−50	−10	150	0.31	DM-1	2-108B1A	2個内蔵	MG50G2DM1
13000	10	0	700	800	200	1300	5	6	300	1.95	−50	500	−50	−10	150	0.31	YM-1	2-108A2A	2個直列接続	MG50G2YM1

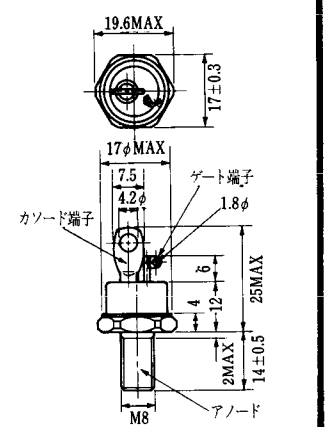
FD-1



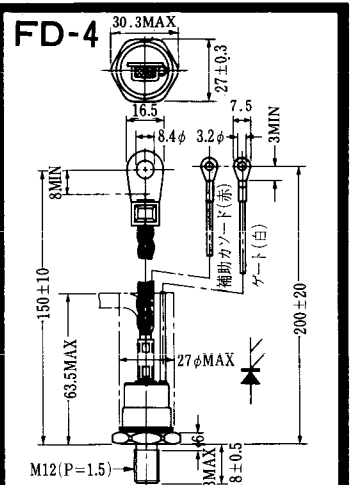
FD-2



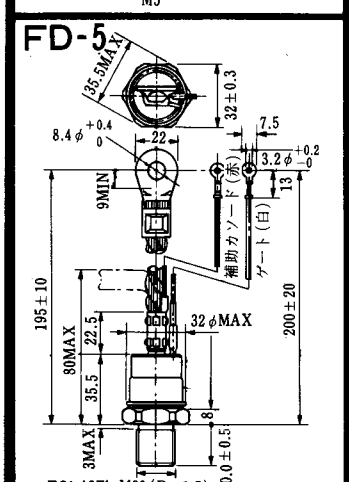
FD-3



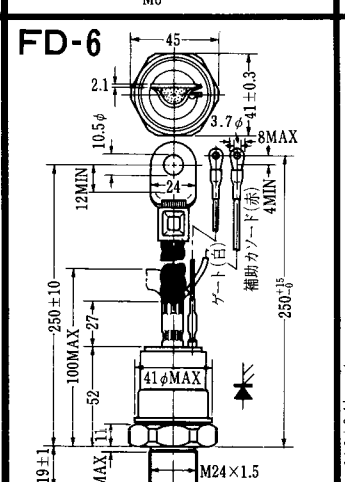
FD-4



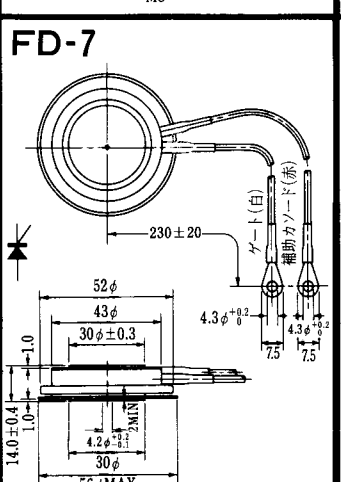
FD-5



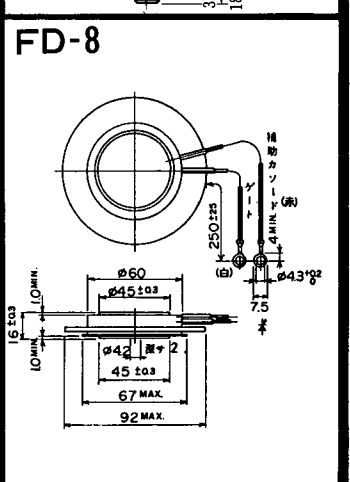
FD-6



FD-7

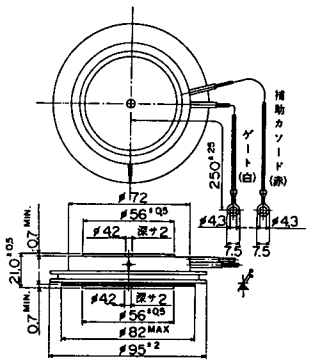


FD-8

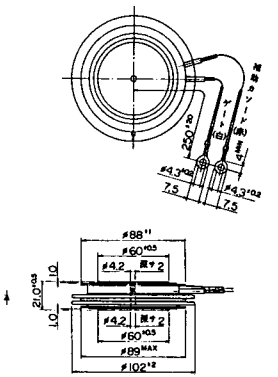


〈寸法図単位:mm〉

FD-9



FD-10

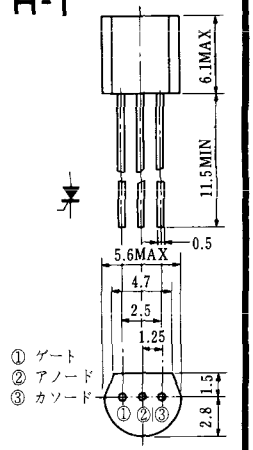


FD-11

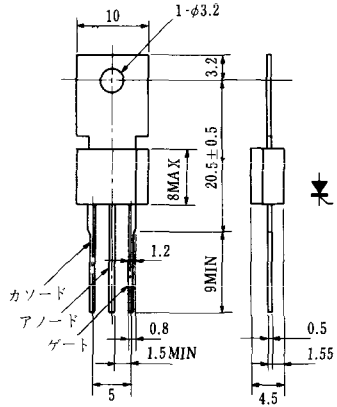
FD-12

《寸法図単位:mm》

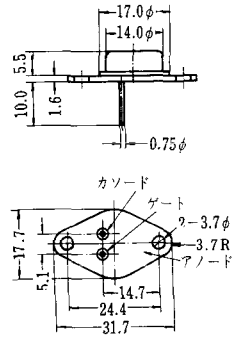
H-1



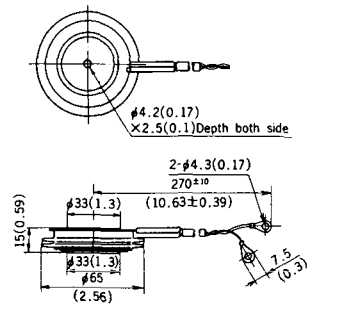
H-2



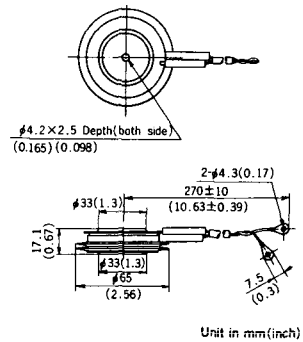
H-3



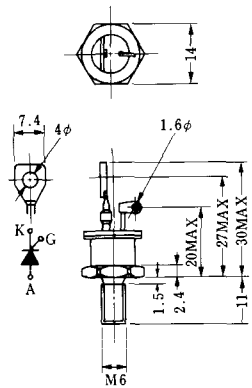
H-4



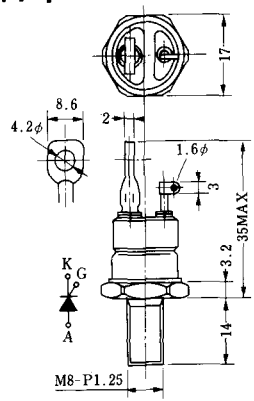
H-5



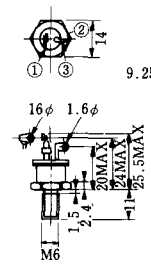
H-6



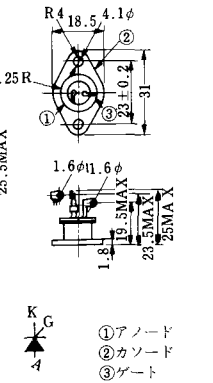
H-7



H-8A

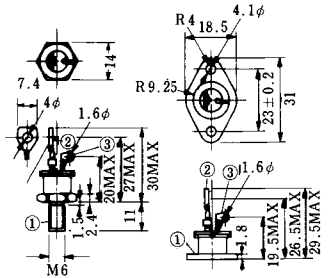


H-8B



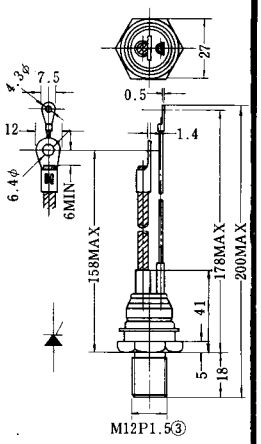
《寸法図単位：mm》

H-9A　H-9B

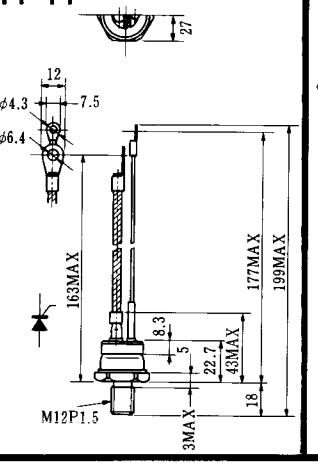


①アノード
②カソード
③ゲート

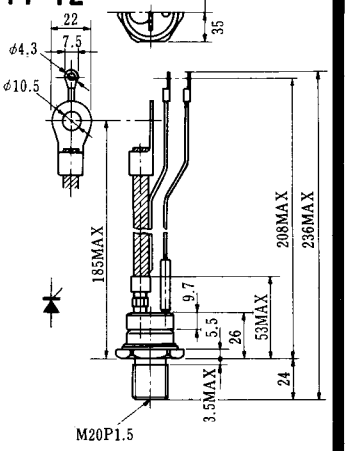
H-10



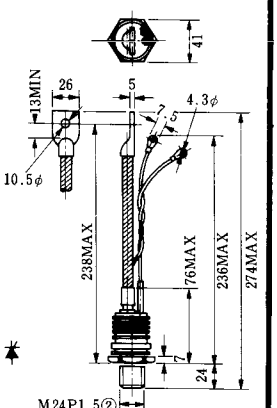
H-11



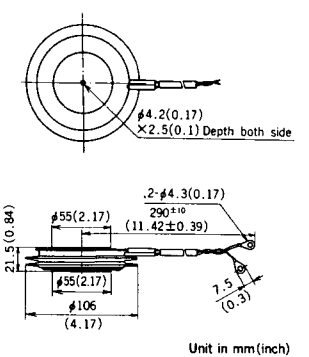
H-12



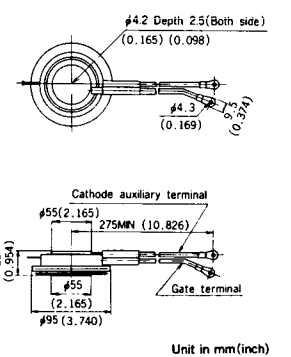
H-13



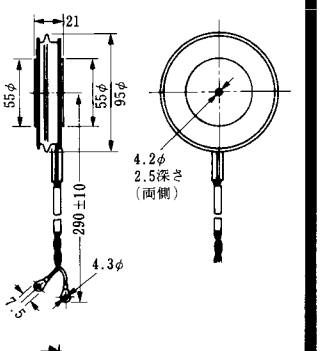
H-14



H-15

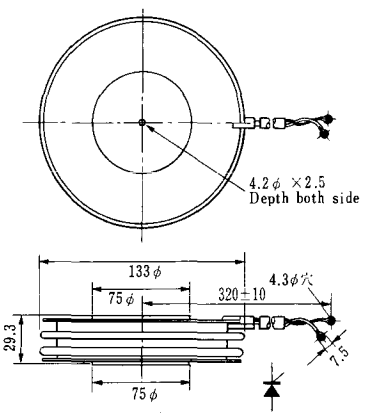


H-16

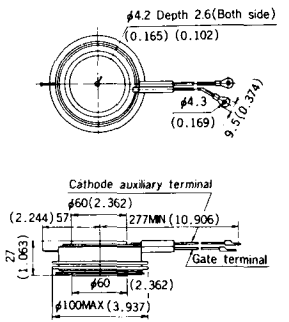


《寸法図単位：mm》

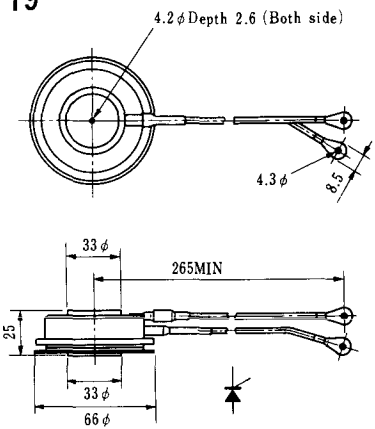
H-17



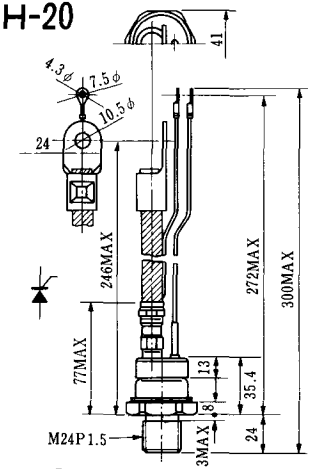
H-18



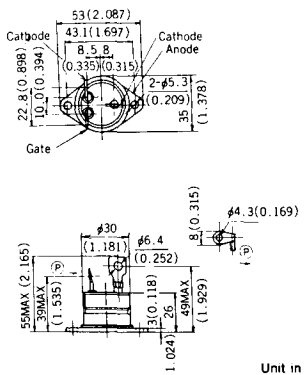
H-19



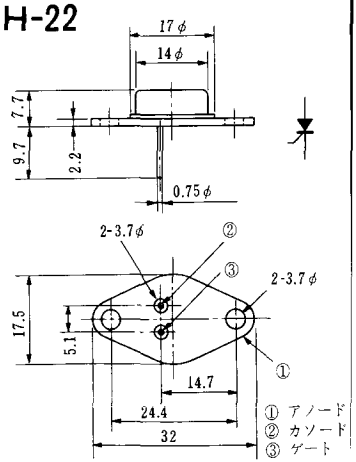
H-20



H-21

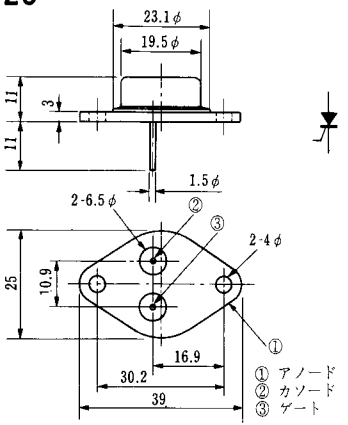


H-22

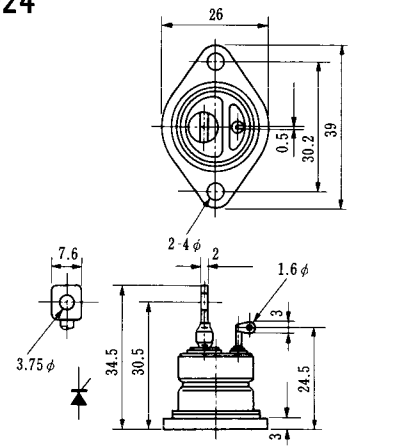


《寸法図単位：mm

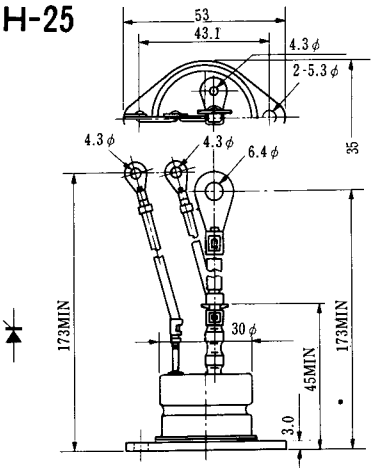
H-23



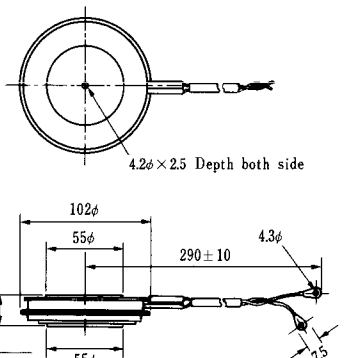
H-24



H-25

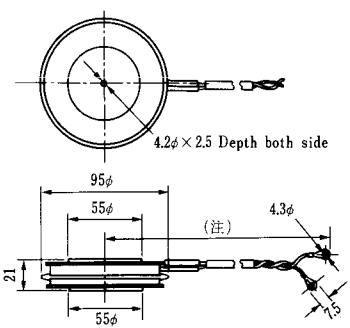


H-26



Type	Direction of polarity
CA12	

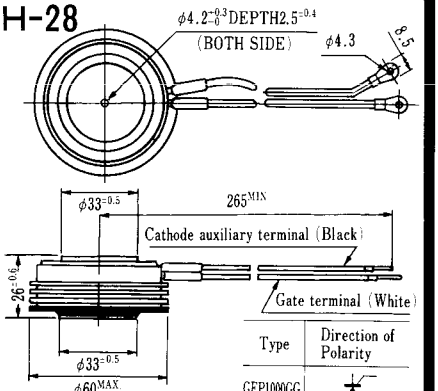
H-27



Type	Direction of polarity
CF11V	

(注) CC11V : 400±10
CF11V : 250±10

H-28



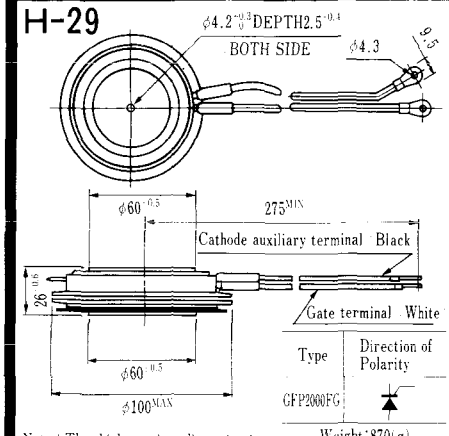
Type	Direction of Polarity
GFP1000GG	

Weight : 360(g)

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

《寸法図単位 : mm》

H-29

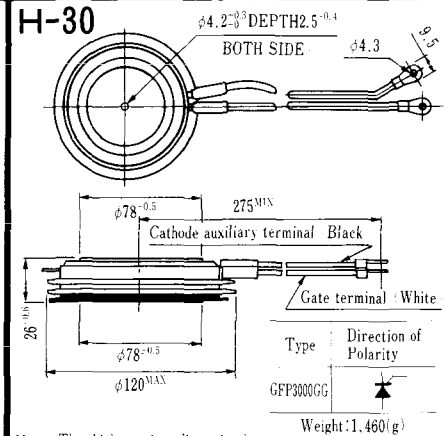


Type	Direction of Polarity
GFP2000FG	

Weight:870(g)

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

H-30



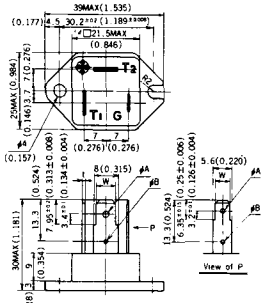
Type	Direction of Polarity
GFP3000GG	

Weight:1.460(g)

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

《寸法図単位:mm》

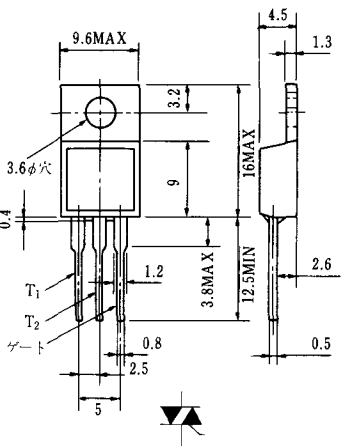
HT-1

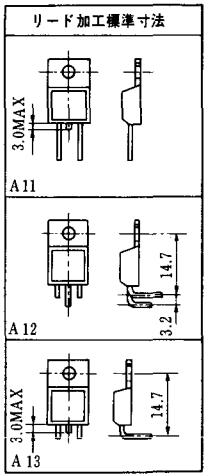


TERMINAL	t	W	φA	φB
T_1	0.8±0.025 (0.031±0.001)	6.35±0.1 (0.250±0.004)	$2.00^{+0.1}_{-0}$ $(0.079^{+0.004}_{-0})$	1.3 (0.051)
T_2	0.8±0.025 (0.031±0.001)	6.35±0.1 (0.250±0.004)	$2.00^{+0.1}_{-0}$ $(0.079^{+0.004}_{-0})$	1.3 (0.051)
G	0.5±0.025 (0.020±0.001)	4.75±0.1 (0.187±0.004)	$1.55^{+0.1}_{-0}$ $(0.061^{+0.004}_{-0})$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

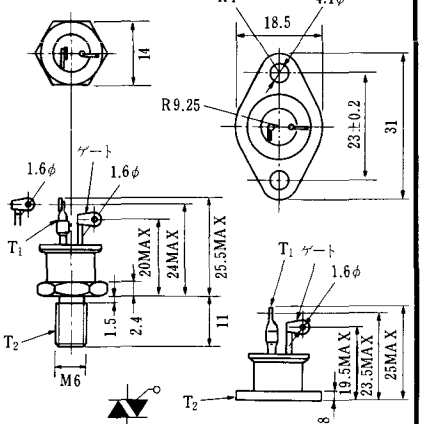
Unit in mm(inch)

HT-2

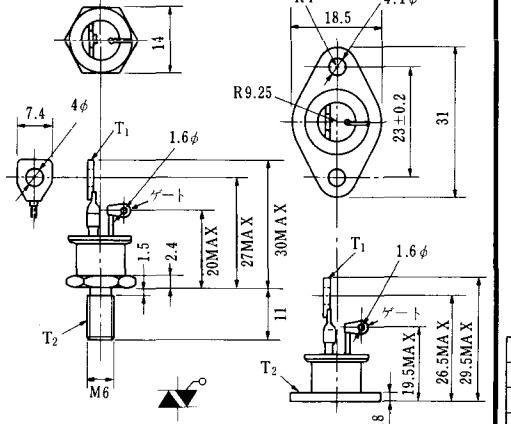




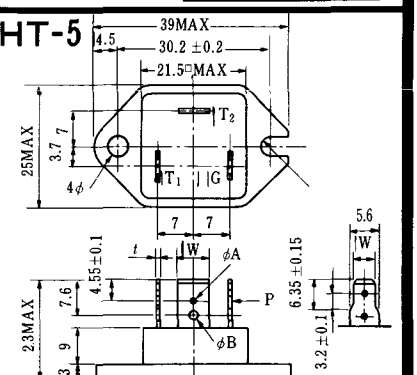
HT-3



HT-4



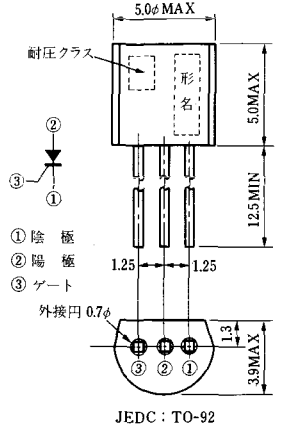
HT-5



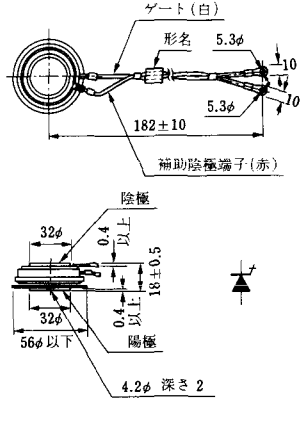
TERMINAL	t	W	φA	φB
T_1	0.8±0.025	6.35±0.1	$2.00^{+0.1}_{-0}$	2.4
T_2	0.8±0.025	6.35±0.1	$2.00^{+0.1}_{-0}$	2.4
G	0.5±0.025	4.75±0.1	$1.55^{+0.1}_{-0}$	1.55

《寸法図単位：mm》

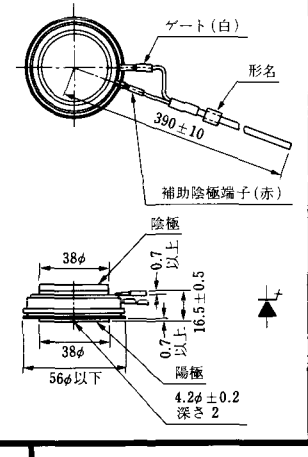
M-1



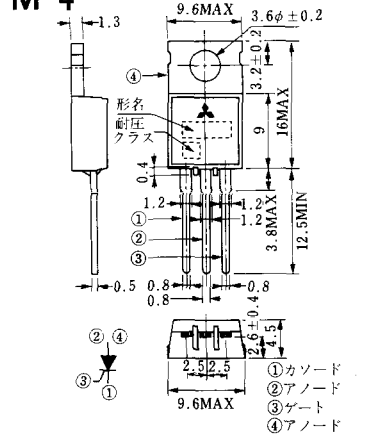
M-2



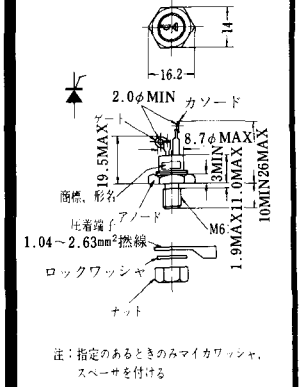
M-3



M-4

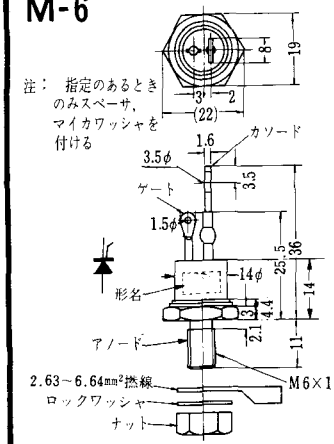


M-5



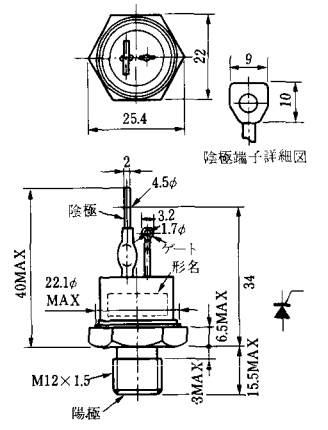
注：指定のあるときのみマイカワッシャ，スペーサを付ける

M-6

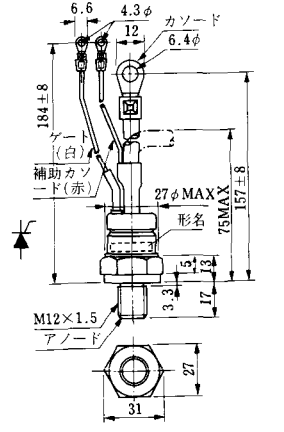


注：指定のあるときのみマイカワッシャ

M-7

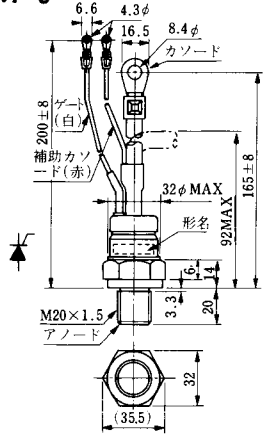


M-8

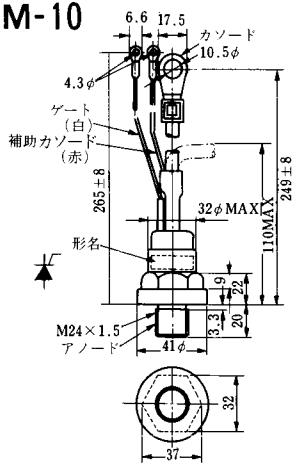


《寸法図単位：mm

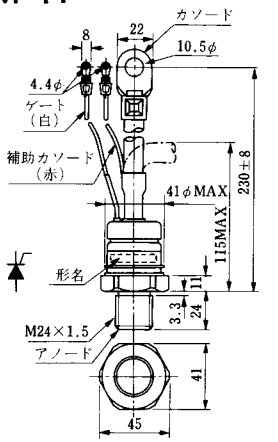
M-9



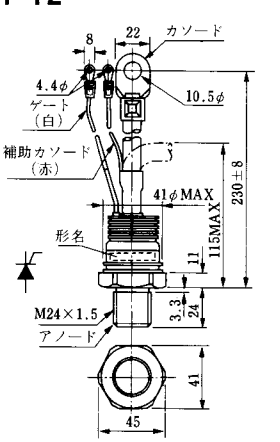
M-10



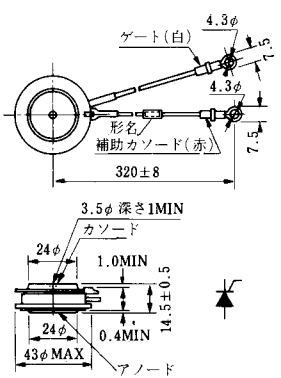
M-11



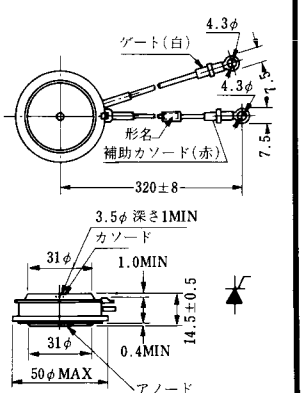
M-12



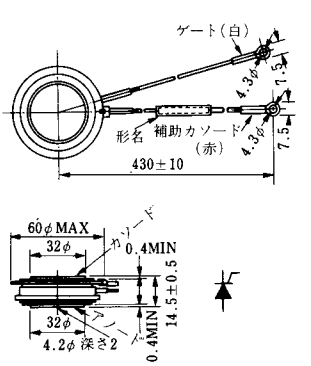
M-13



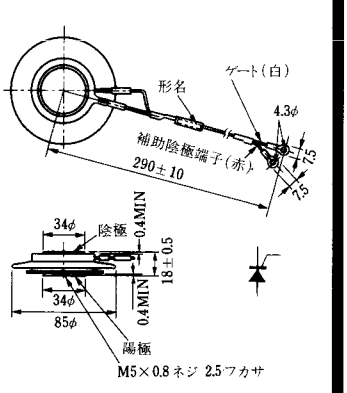
M-14



M-15

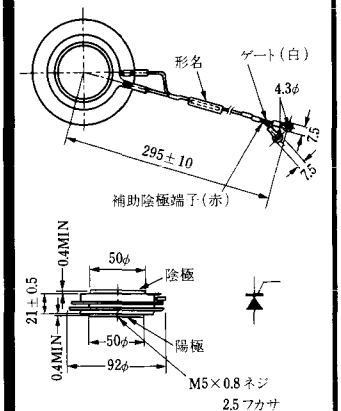


M-16

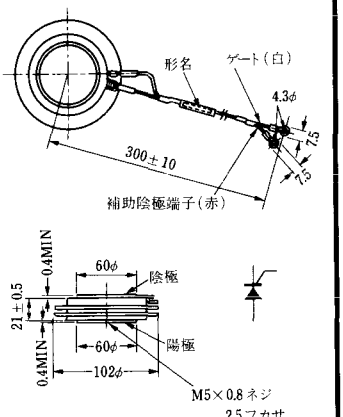


《寸法図単位：mm》

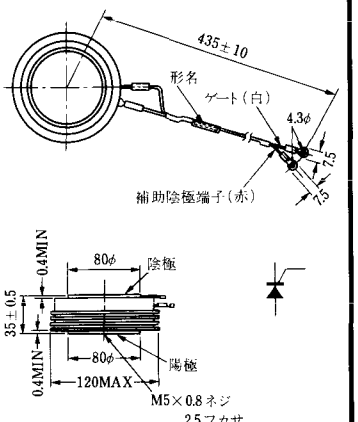
M-17



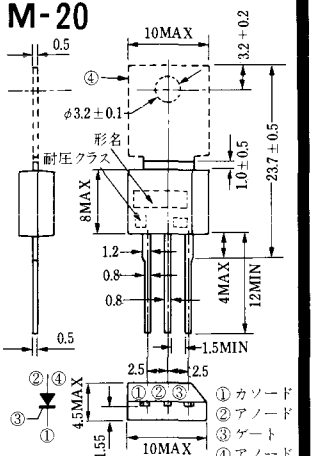
M-18



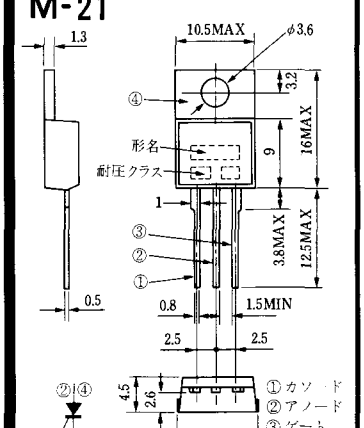
M-19



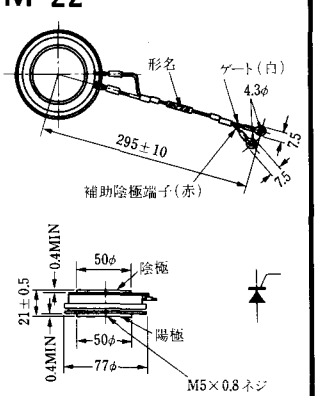
M-20



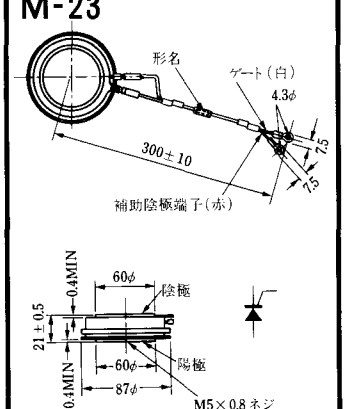
M-21



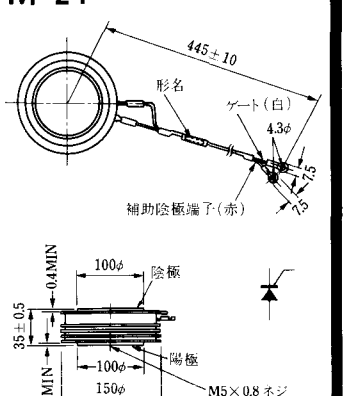
M-22



M-23

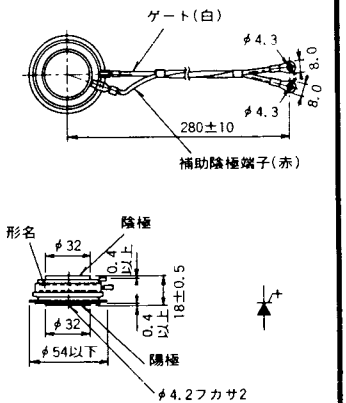


M-24

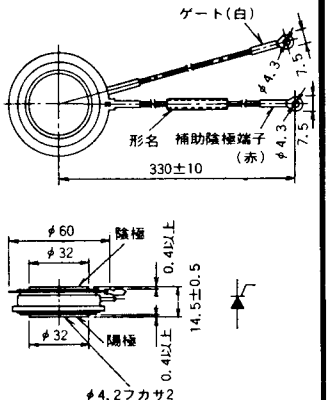


《寸法図単位：mm》

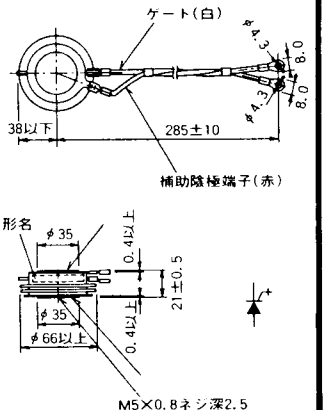
M-25



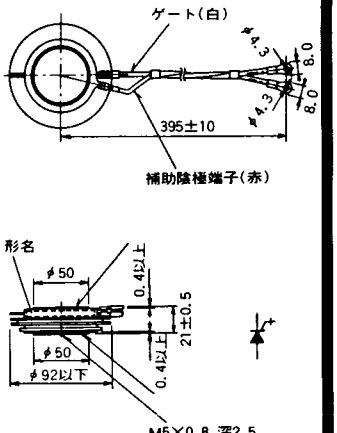
M-26



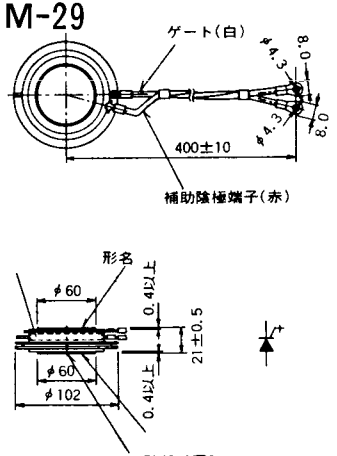
M-27



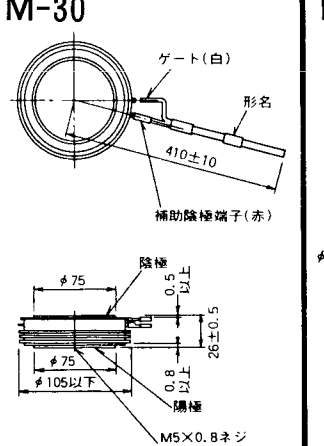
M-28



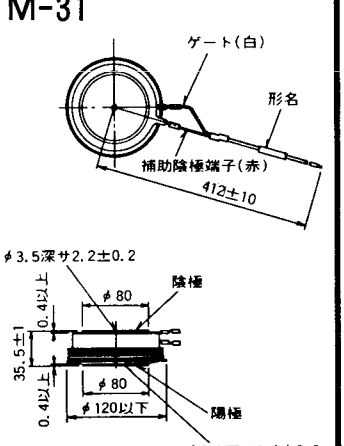
M-29



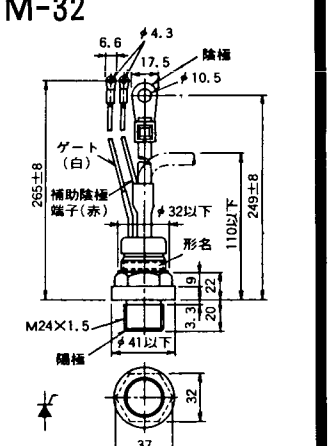
M-30



M-31

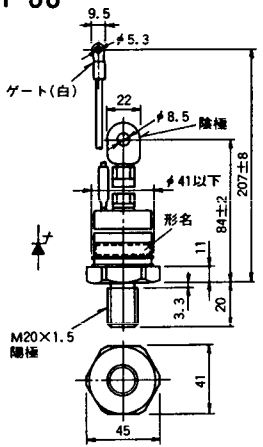


M-32

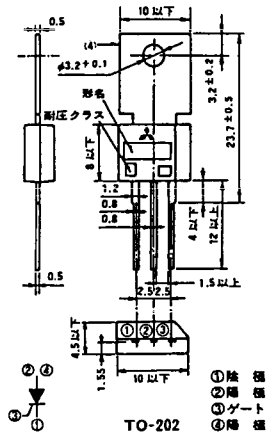


《寸法図単位：mm》

M-33

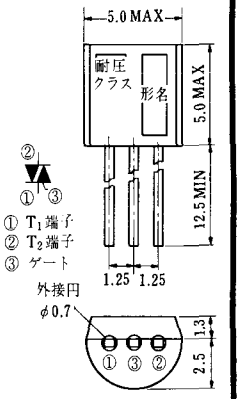


M-34



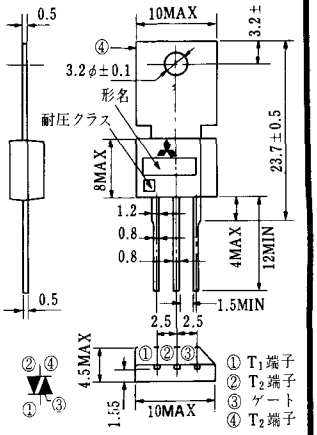
《寸法図単位:mm》

MT-1

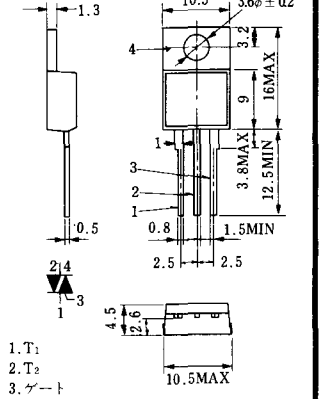


JEDC：TO-92

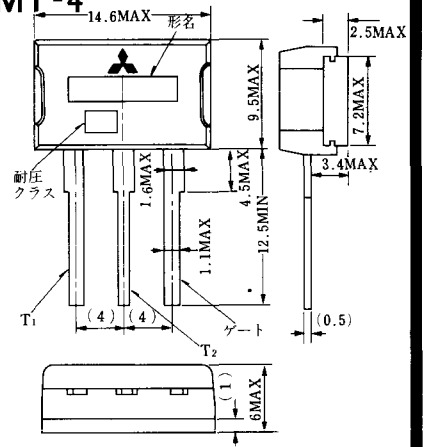
MT-2



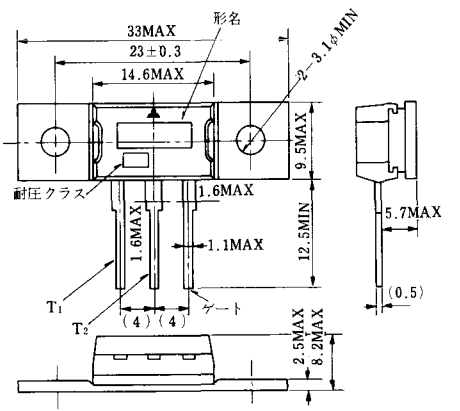
MT-3



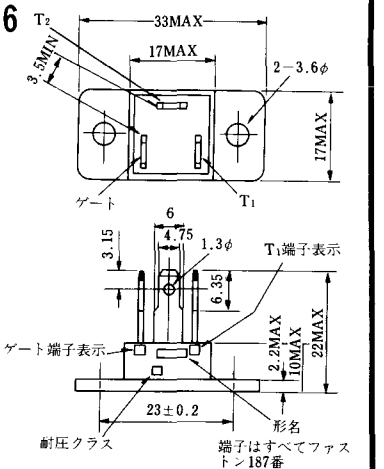
MT-4



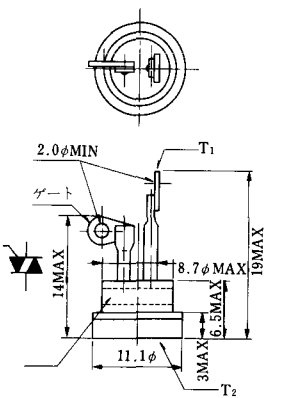
MT-5



MT-6

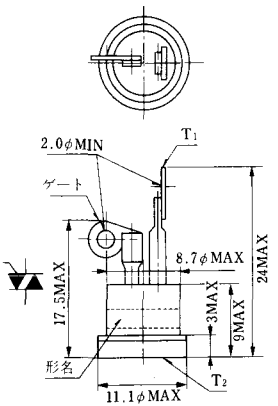


MT-7

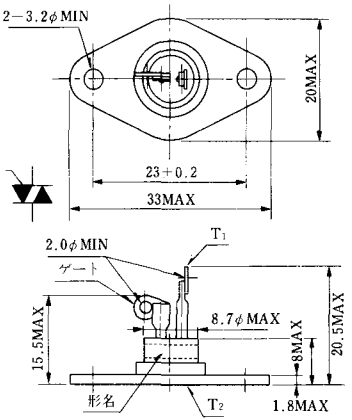


《寸法図単位：mm》

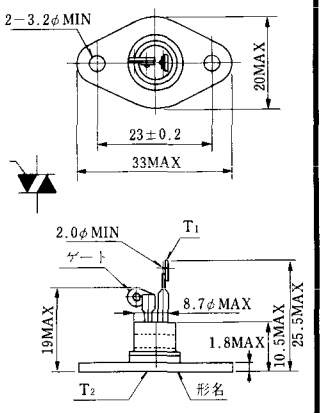
MT-8



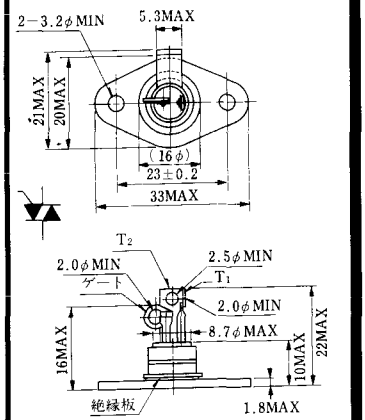
MT-9



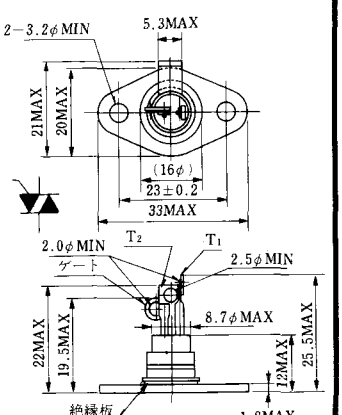
MT-10



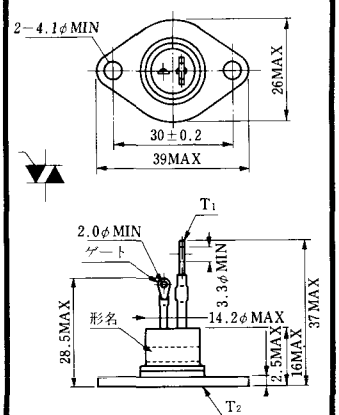
MT-11



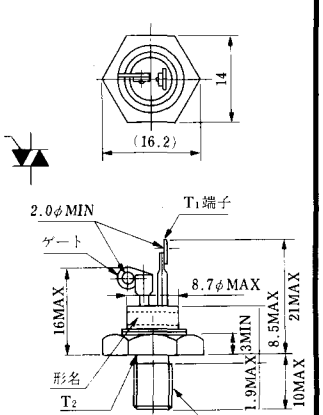
MT-12



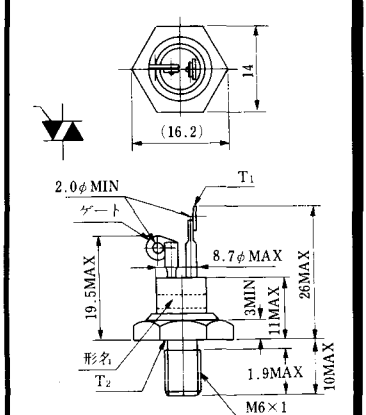
MT-13



MT-14

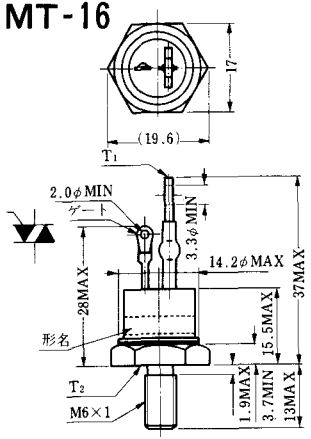


MT-15

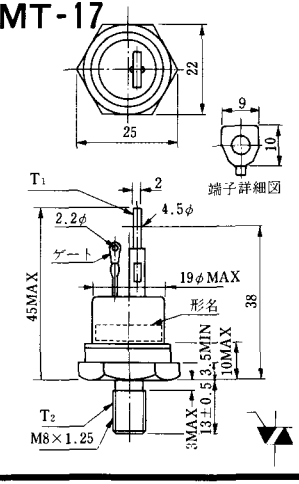


《寸法図単位：mm》

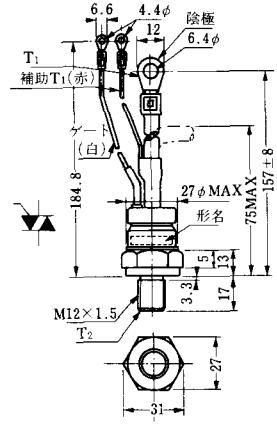
MT-16



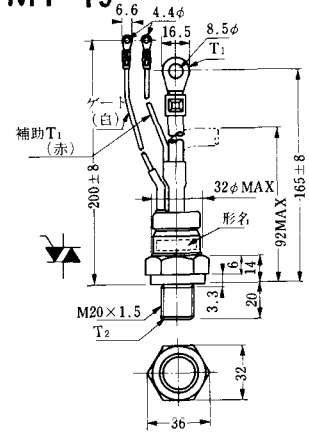
MT-17



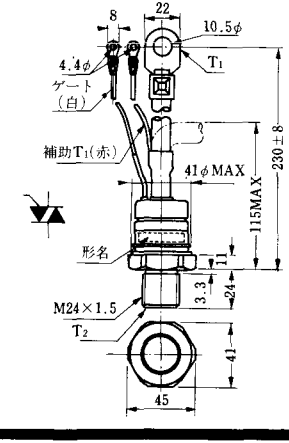
MT-18



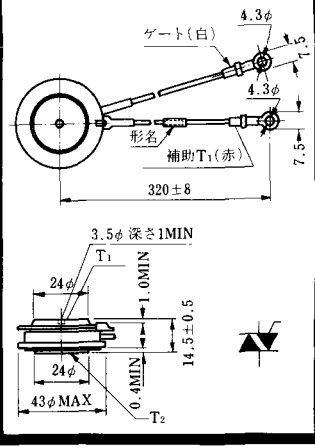
MT-19



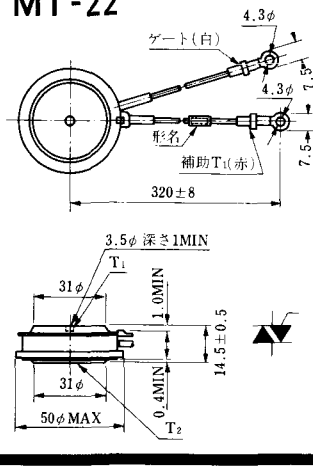
MT-20



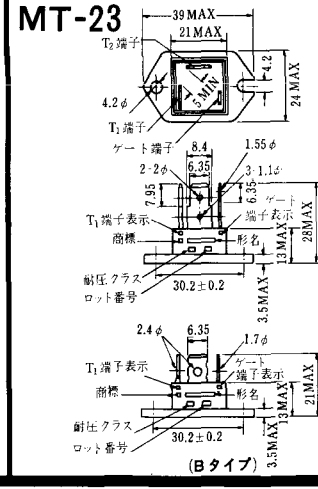
MT-21



MT-22

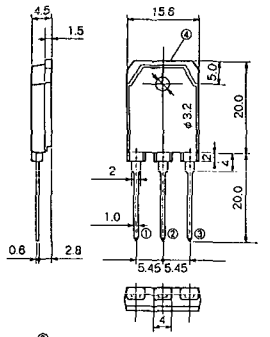


MT-23



《寸法図単位：mm》

MT-24

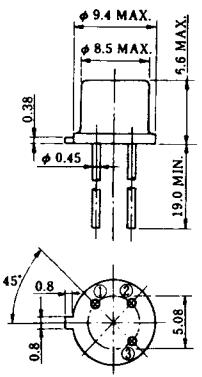


① T_1 端子
② T_2 端子
③ ゲート端子
④ T_2 端子

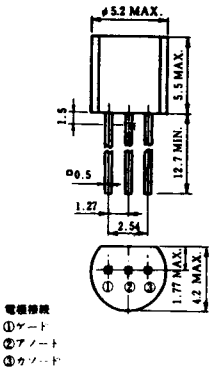
TO－3P

《寸法図単位:mm》

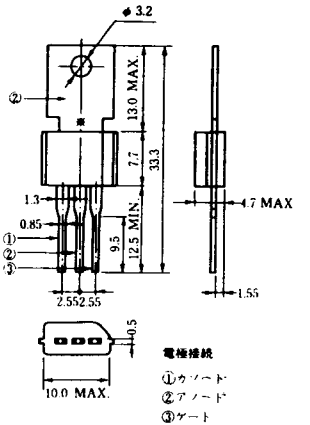
N-1



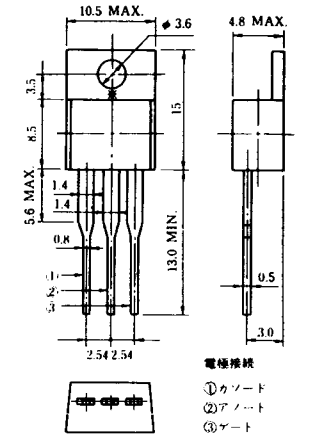
N-2



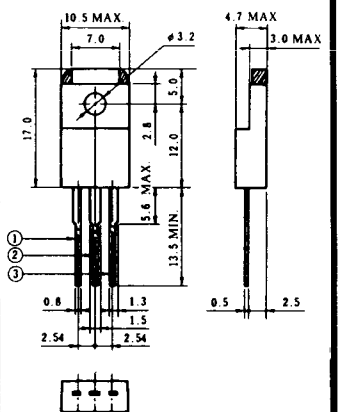
N-3



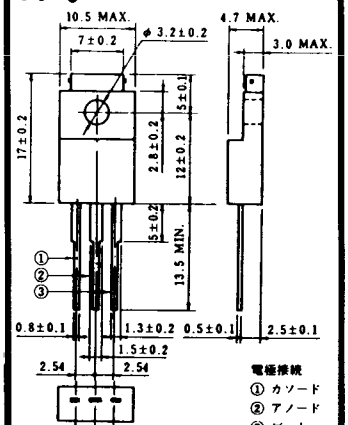
N-4



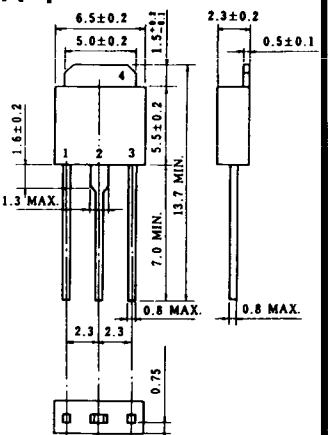
N-5



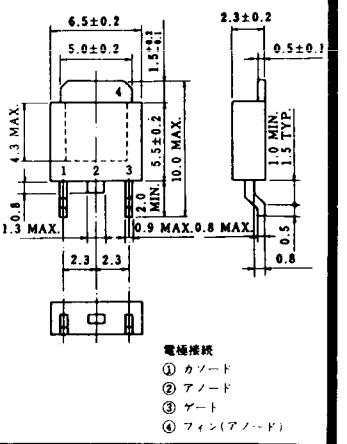
N-6



N-7

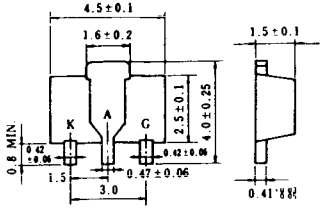


N-8



〈寸法図単位：mm〉

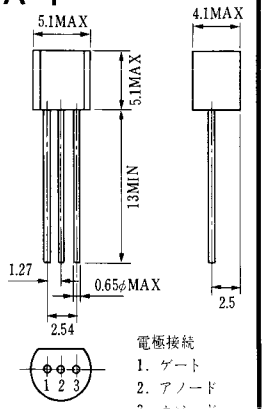
N-9



電極接続
K：カソード
A：アノード
G：ゲート

〈寸法図単位：mm〉

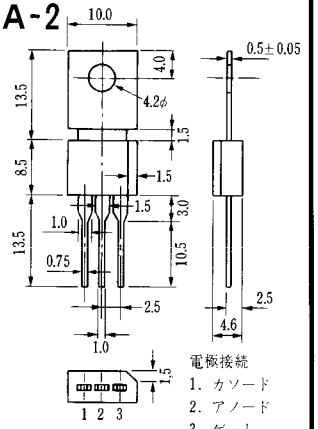
NA-1



電極接続
1. ゲート
2. アノード
3. カソード

JEDEC：TO-92

NA-2



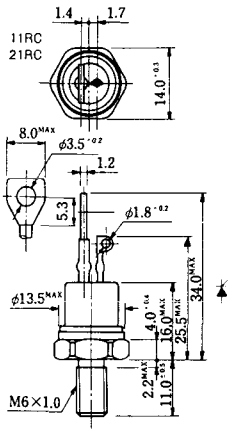
電極接続
1. カソード
2. アノード
3. ゲート

JEDEC：TO-202AA

《寸法図単位：mm》

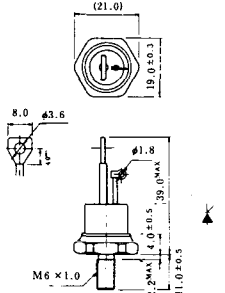
NI-1

11RC
21RC



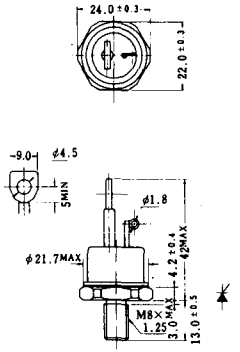
NI-2

29RD



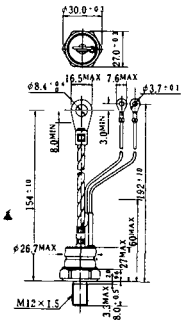
NI-3

39RC
59RC
39RF
59RF



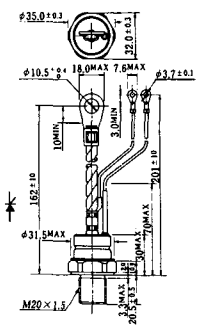
NI-4

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



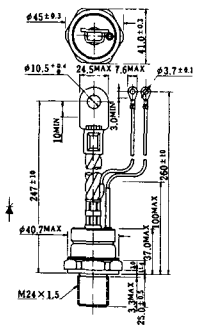
NI-5

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



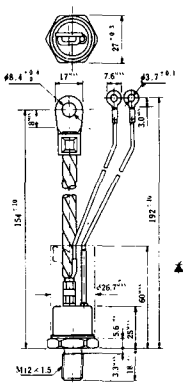
NI-6

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



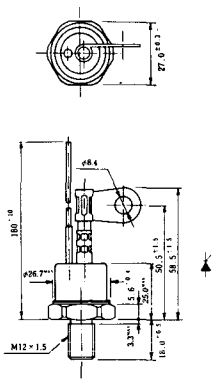
NI-7

89RW「JL
129RW「JL



NI-8

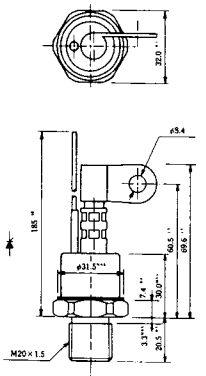
89RW
129RW



《寸法図単位:mm》

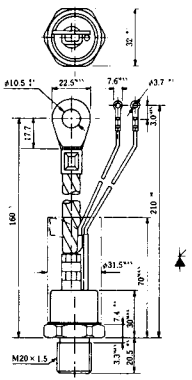
NI-9

259RW
309RW



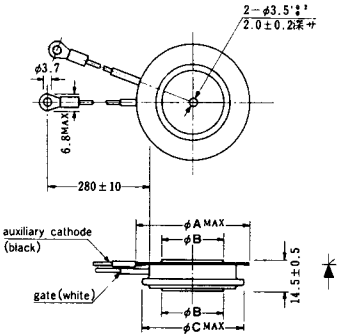
NI-10

259RW「JL
309RW「JL



NI-11

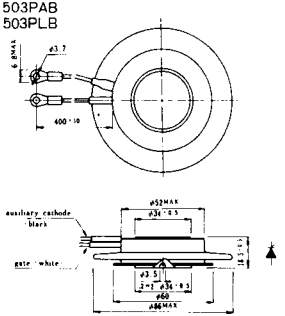
103PA
253PA
503PA
553PA
803PA
103PLE
103PLG
103PLH
203PLG
253PLE
253PLH
353PLG
403PLE
403PLH



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

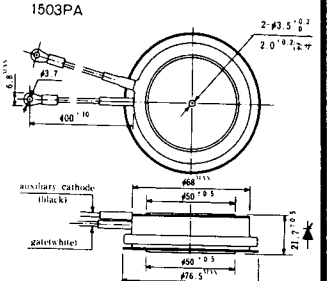
NI-12

403PAB
503PAB
503PLB



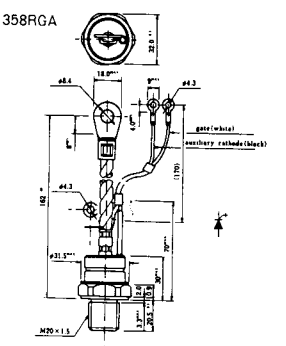
NI-13

1003PA
1003PAB
1003PLF
1003PLH
1503PA



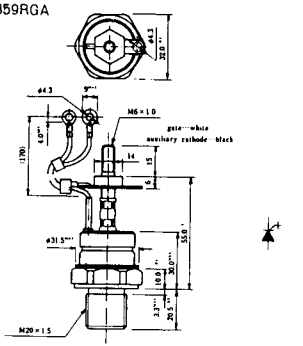
NI-14

358RGA



NI-15

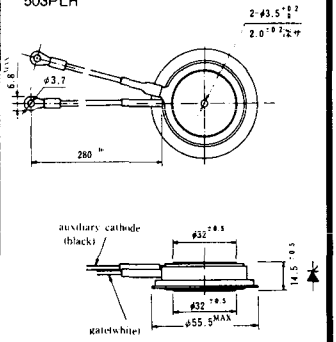
359RGA



《寸法図単位:mm》

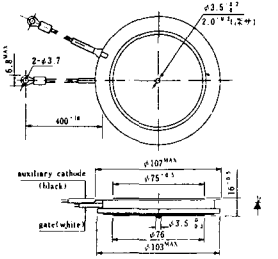
NI-16

503PLF
503PLH



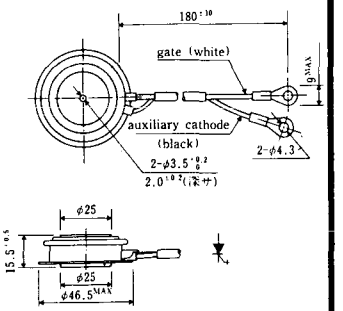
NI-17

3003PA



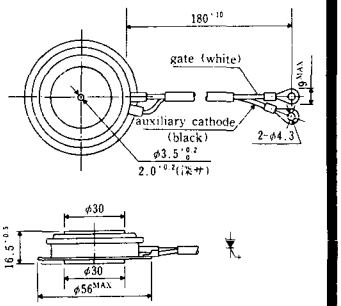
NI-18

353PGA「」E



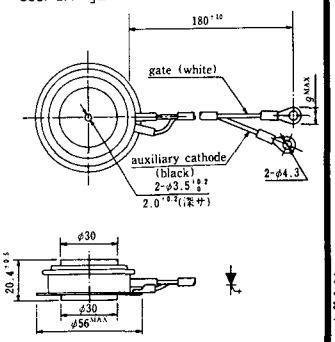
NI-19

603PGA, 603PGA「」A, 803PGA



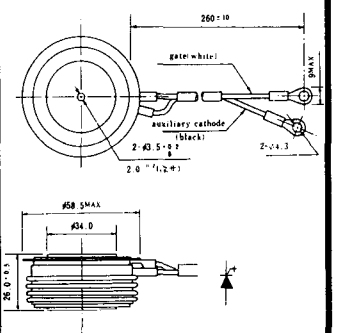
NI-20

603PGA「」E



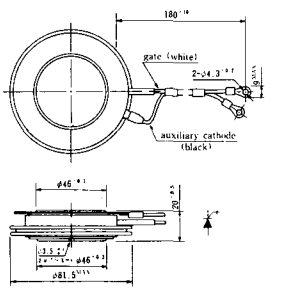
NI-21

1001PGB「」E



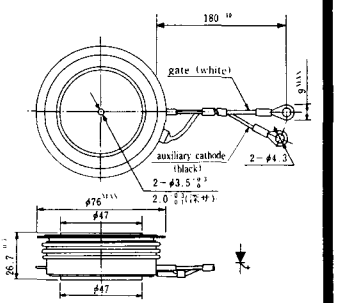
NI-22

1201PGA, 1201PGA「」A, 1401PGA



NI-23

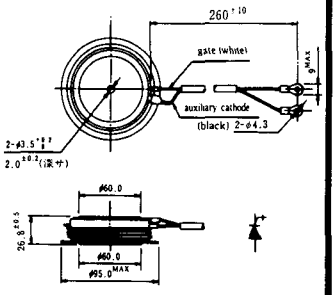
1201PGA「」E



《寸法図単位:mm》

NI-24

2001PGBT JE

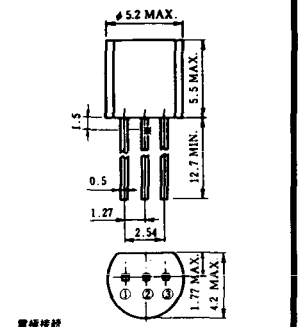


NI-25

NI-26

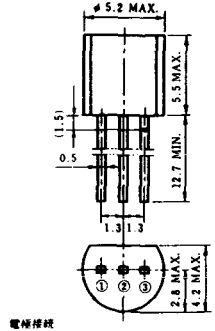
《寸法図単位:mm》

NT-1



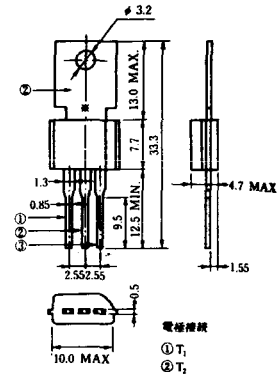
電極接続
①T_1
②ゲート
③T_2

NT-2



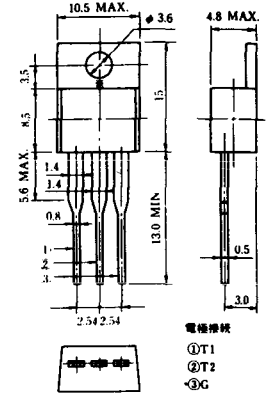
電極接続
①T_1
②ゲート
③T_2

NT-3



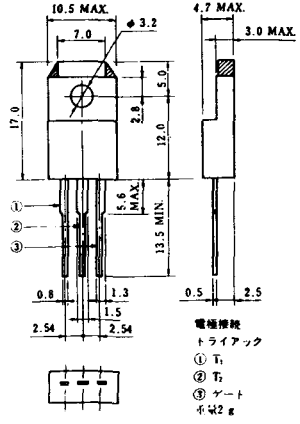
電極接続
①T_1
②T_2
③ゲート

NT-4



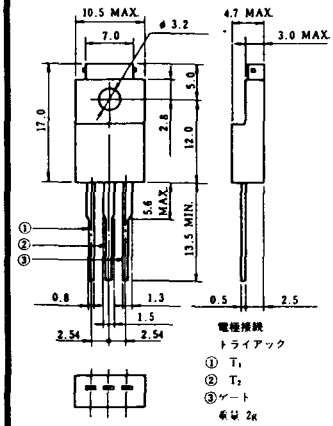
電極接続
①T1
②T2
③G

NT-5



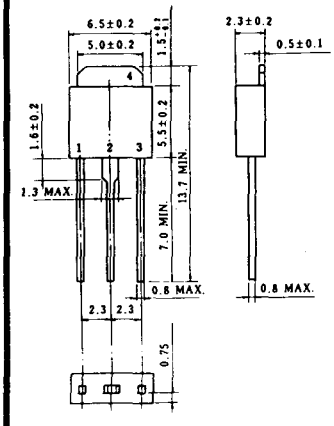
電極接続
トライアック
① T_1
② T_2
③ ゲート
本体2 g

NT-6

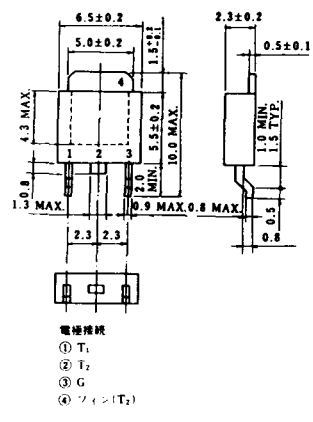


電極接続
トライアック
① T_1
② T_2
③ゲート
本体 2g

NT-7



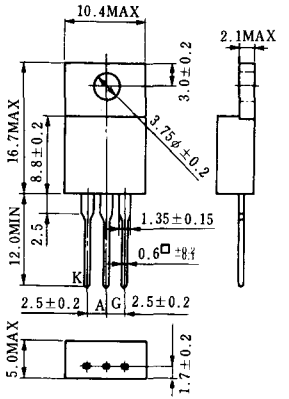
NT-8



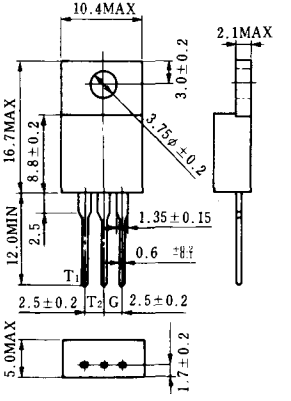
電極接続
① T_1
② T_2
③ G
④ フィン(T_2)

《寸法図単位：mm》

S-1

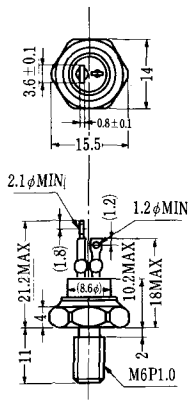


ST-1

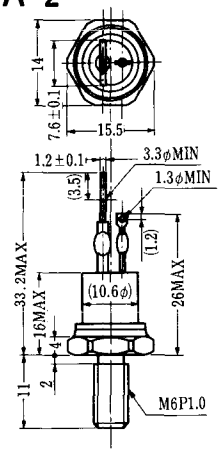


《寸法図単位：mm》

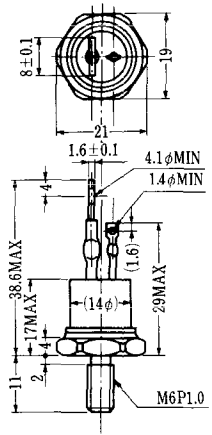
SA-1



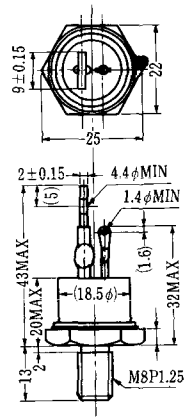
SA-2



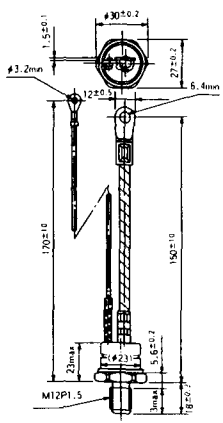
SA-3



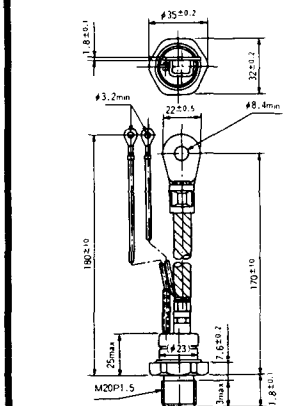
SA-4



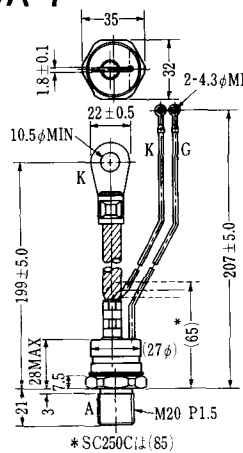
SA-5



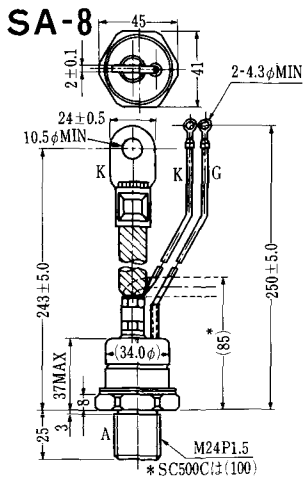
SA-6



SA-7

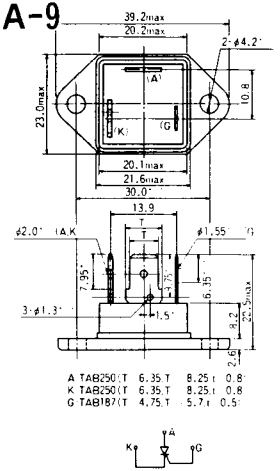


SA-8

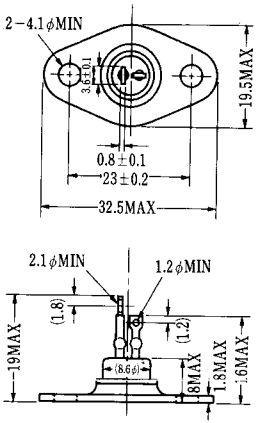


《寸法図単位:mm》

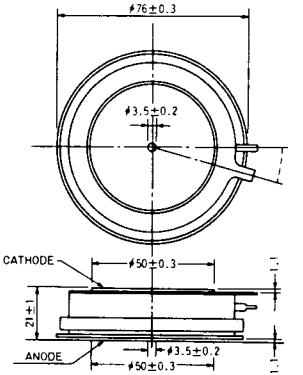
SA-9



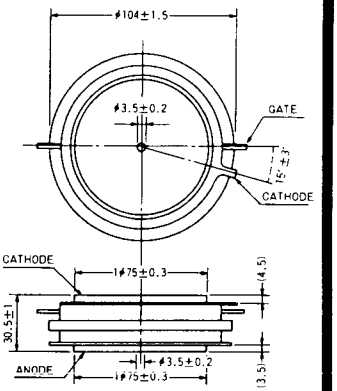
SA-10



SA-11

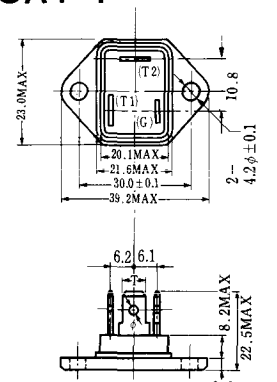


SA-12



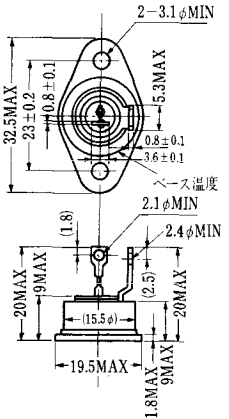
《寸法図単位:mm》

SAT-1

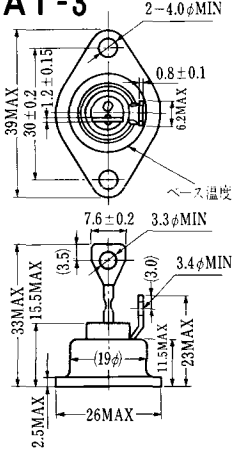


T1端子：ファストン250(T=6.35, t=0.8, φ=1.65)
T2端子：ファストン250(T=6.35, t=0.8, φ=1.65)
G 端子：ファストン187(T=4.75, t=0.5, φ=1.3)

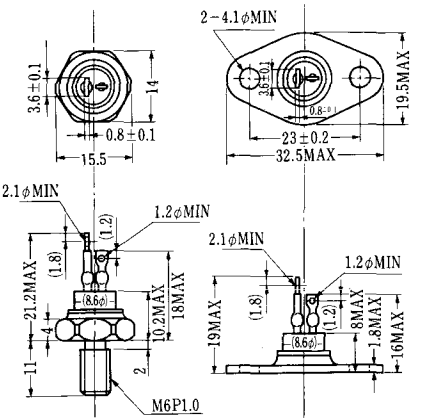
SAT-2



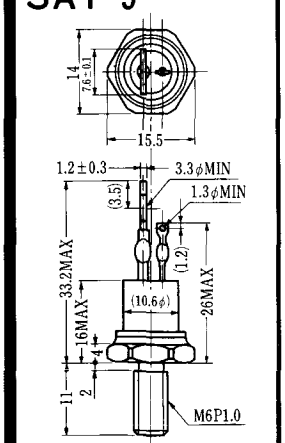
SAT-3



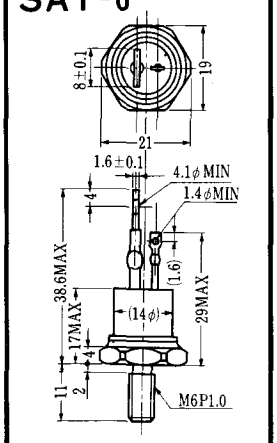
SAT-4



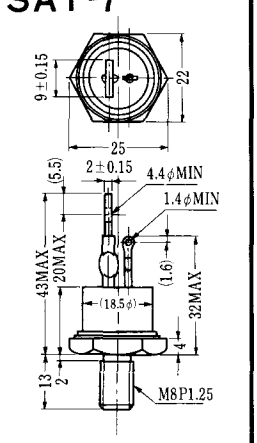
SAT-5



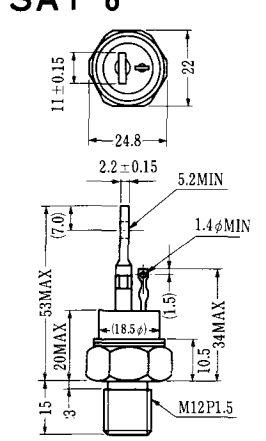
SAT-6



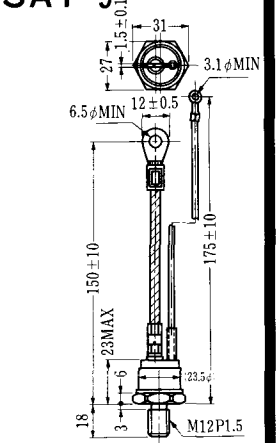
SAT-7



SAT-8

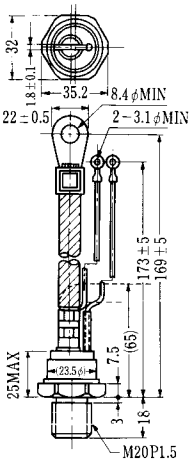


SAT-9

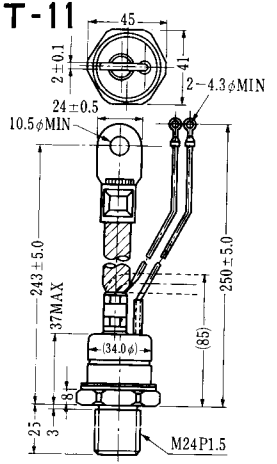


《寸法図単位：mm》

SAT-10

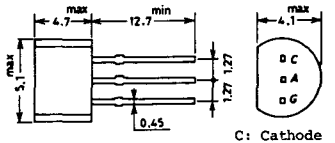


SAT-11



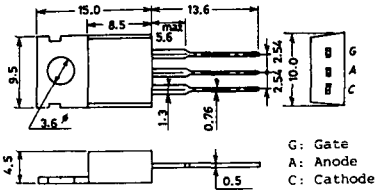
《寸法図単位：mm》

SY-1(1096A)



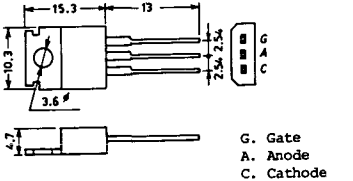
C: Cathode
A: Anode
G: Gate

SY-2(1151)



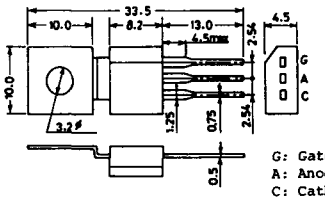
G: Gate
A: Anode
C: Cathode

SY-3(1104)



G. Gate
A. Anode
C. Cathode

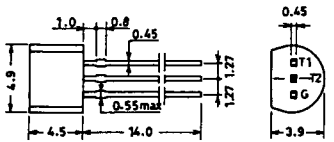
SY-4(1150)



G: Gate
A: Anode
C: Cathode

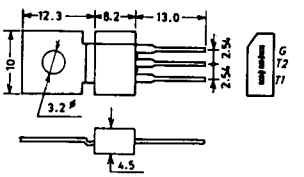
《寸法図単位:mm》

1097A

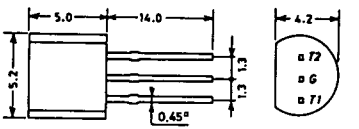


G: Gate

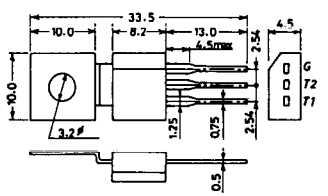
1102



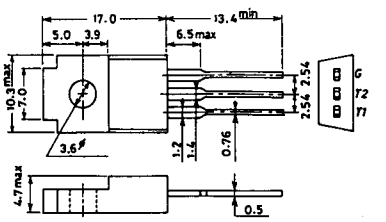
1141



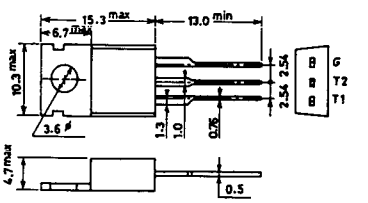
1142



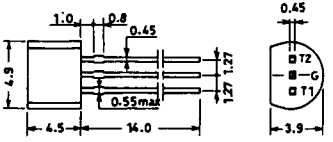
1144



1155



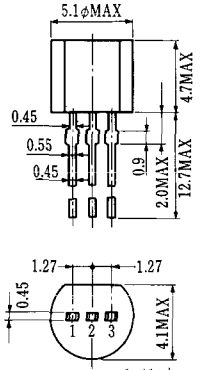
1192A



G: Gate

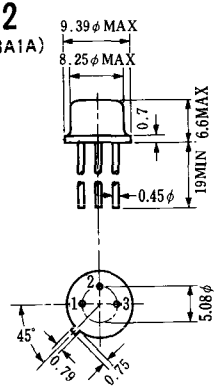
《寸法図単位:mm》

T-1 (13-5A1A)



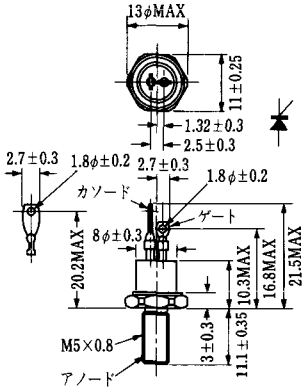
1 ゲート
2 アノード
3 カソード

T-2 (13-8A1A)

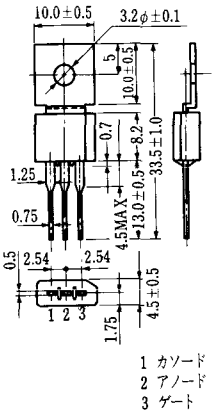


1. カソード
2. ゲート
3. アノード(ケース)

T-3 (13-8C1A)

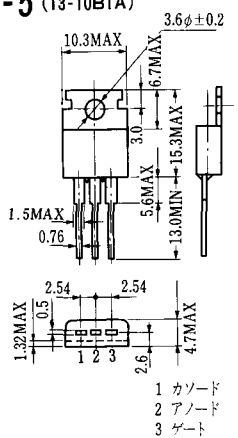


T-4 (13-10A1A)



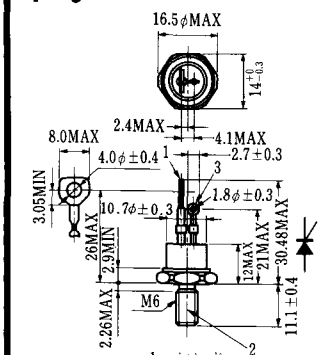
1 カソード
2 アノード
3 ゲート

T-5 (13-10B1A)



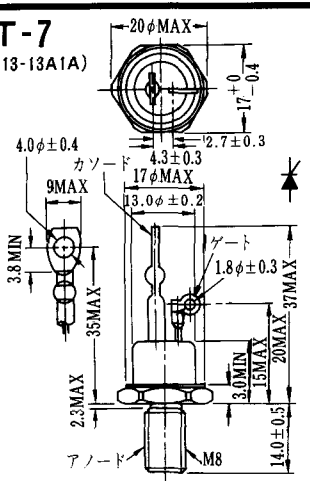
1 カソード
2 アノード
3 ゲート

T-6 (13-11D1A)

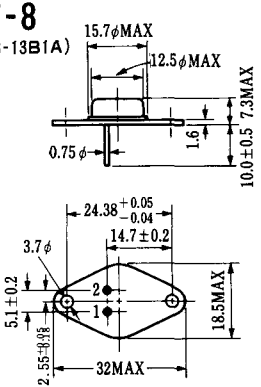


1 カソード
2 アノード
3 ゲート

T-7 (13-13A1A)



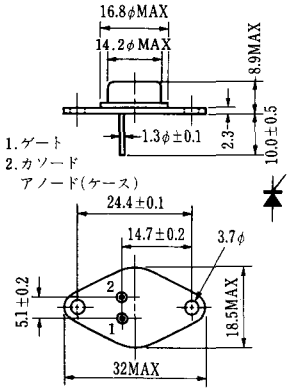
T-8 (13-13B1A)



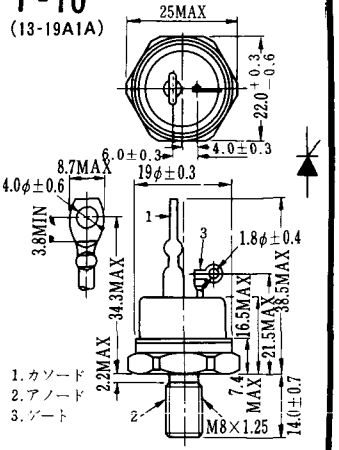
1. ゲート
2. カソード
アノード(ケース)

《寸法図単位：mm

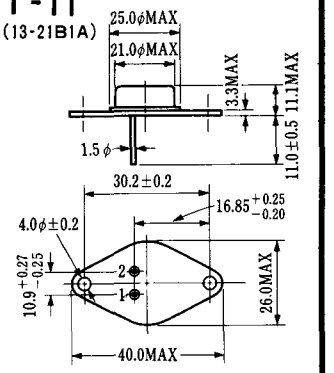
T-9 (13-14A1A)



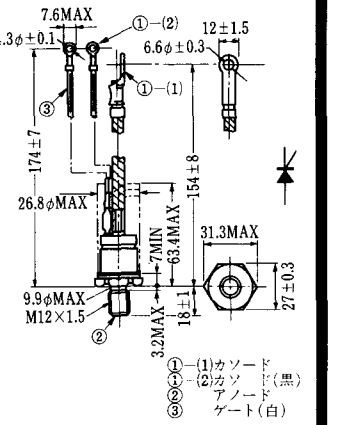
T-10 (13-19A1A)



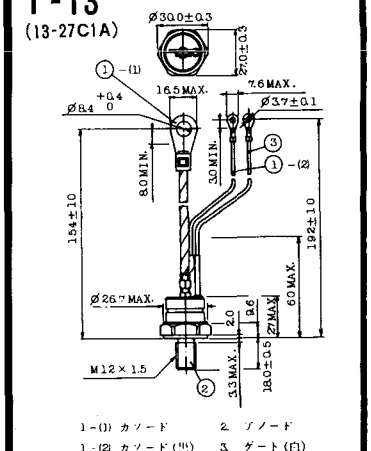
T-11 (13-21B1A)



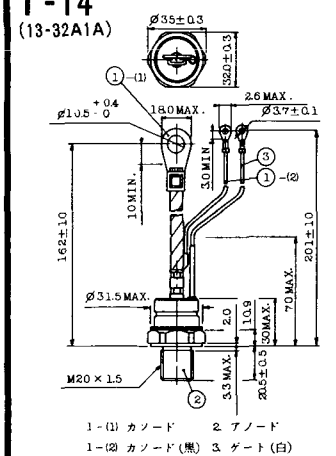
T-12 (13-27B1B)



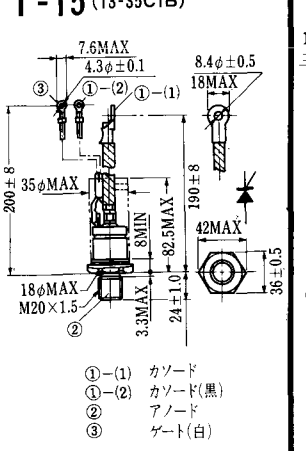
T-13 (13-27C1A)



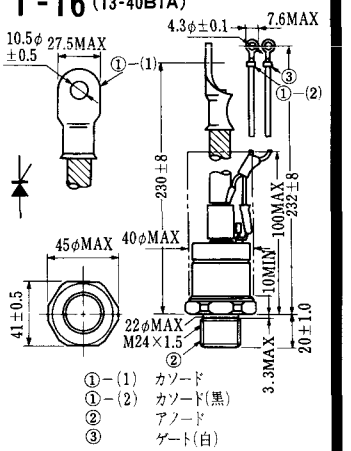
T-14 (13-32A1A)



T-15 (13-35C1B)

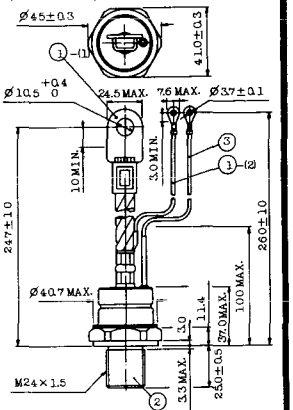


T-16 (13-40B1A)



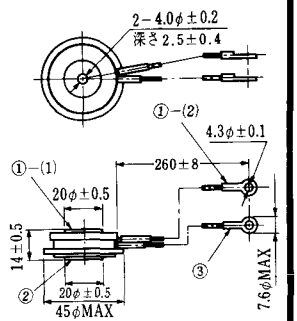
《寸法図単位：mm》

T-17 (13-42A1A)



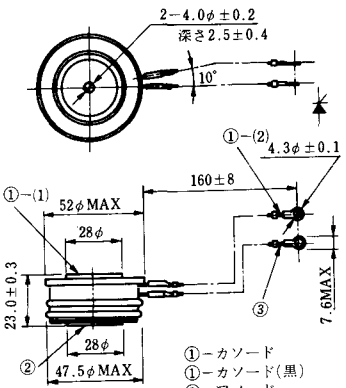
1-(1) カソード　2. アノード
1-(2) カソード(黒)　3. ゲート(白)

T-18 (13-45D1A)



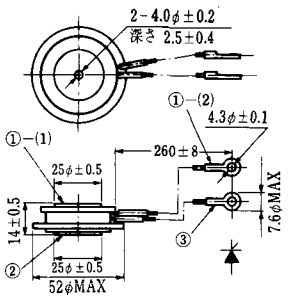
①-(1) カソード
①-(2) カソード(黒)
②　アノード
③　ゲート(白)

T-19 (13-52B1A)



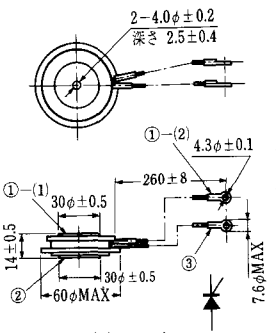
①-カソード
①-カソード(黒)
②　アノード
③　ゲート(白)

T-20 (13-52C1A)



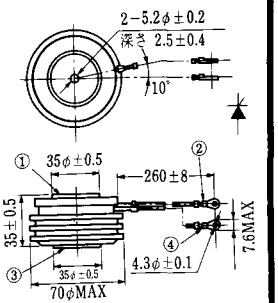
①-(1) カソード
①-(2) カソード(黒)
②　アノード
③　ゲート(白)

T-21 (13-60A1A)



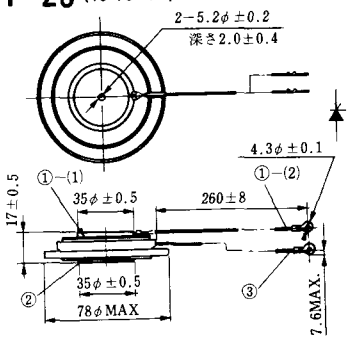
1-(1) カソード
1-(2) カソード(黒)
2　アノード
3　ゲート(白)

T-22 (13-70C1A)



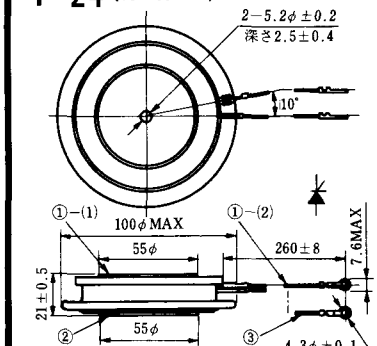
① カソード(1)
② カソード(2)(黒)
③ アノード
④ ゲート(白)

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)

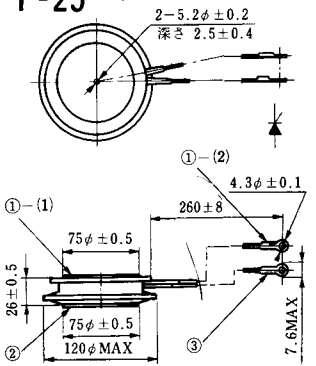
T-24 (13-100C1A)



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

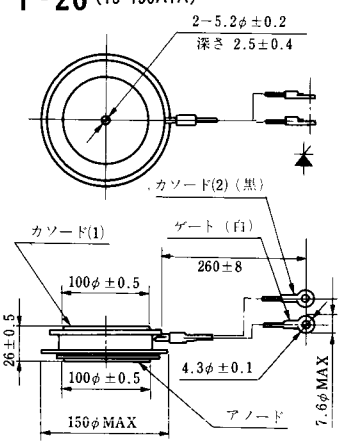
《寸法図単位：mm

T-25 (13-120A2A)



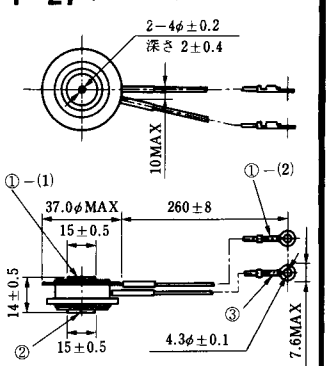
①−(1) カソード
①−(2) カソード(黒)
② アノード
③ ゲート(白)

T-26 (13-150A1A)



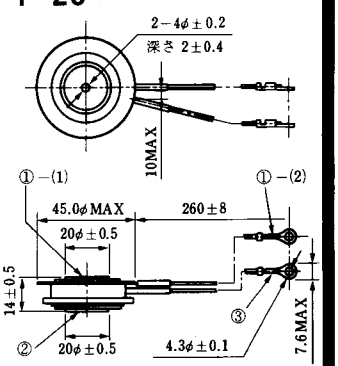
①−(1) カソード
①−(2) カソード(赤)
② アノード
③ ゲート(白)

T-27 (13-37A1A)



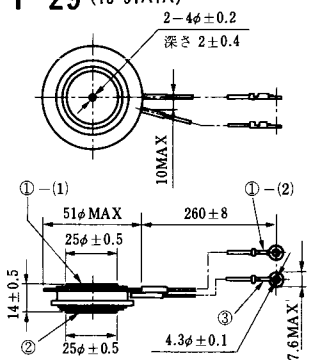
①−(1) カソード
①−(2) カソード(赤)
② アノード
③ ゲート(白)

T-28 (13-45E1A)



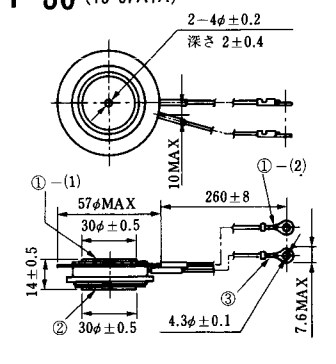
①−(1) カソード
①−(2) カソード(赤)
② アノード
③ ゲート(白)

T-29 (13-51A1A)



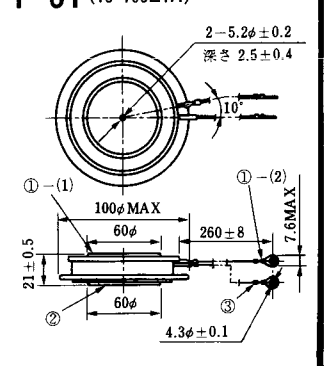
①−(1) カソード
①−(2) カソード(赤)
② アノード
③ ゲート(白)

T-30 (13-57A1A)



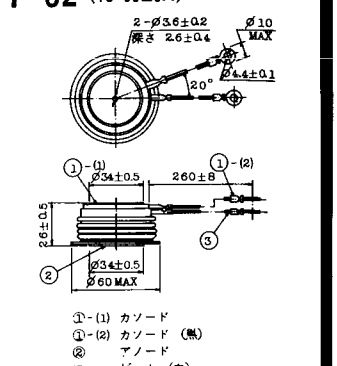
①−(1) カソード
①−(2) カソード(赤)
② アノード
③ ゲート(白)

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)

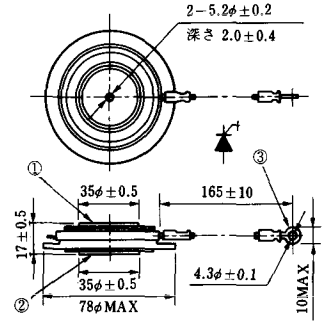
T-32 (13-60E3A)



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

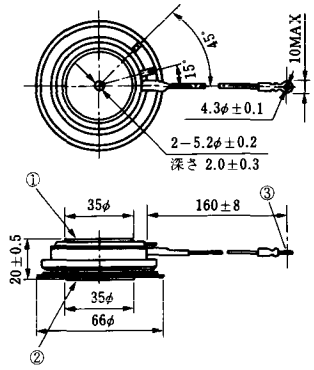
《寸法図単位：mm》

T-33 (13-78B1A)



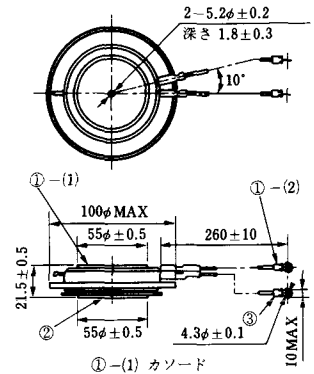
① カノード
② アノード
③ ゲート

T-34 (13-66A1A)



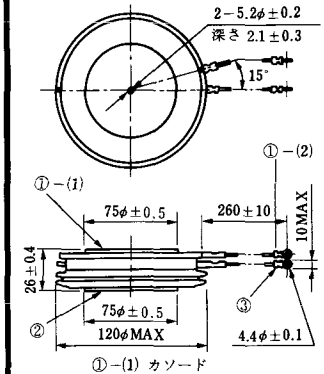
① カソード
② アノード
③ ゲート

T-35 (13-100D1A)



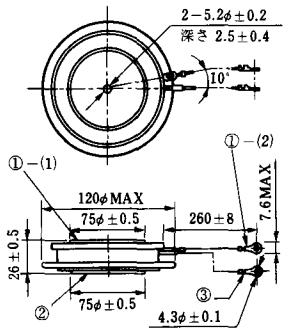
①−(1) カソード
①−(2) カソード(黒)
② アノード
③ ゲート(白)

T-36 (13-120E1A)



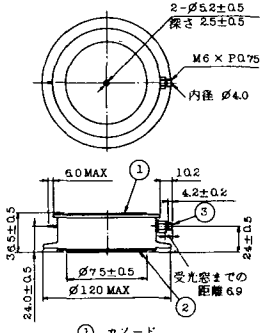
①−(1) カソード
①−(2) カソード(黒)
② アノード
③ ゲート(白)

T-37 (13-120A1A)



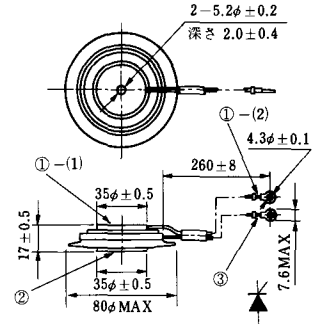
①−(1) カソード
①−(2) カソード(黒)
② アノード
③ ゲート(白)

T-38 (13-120C1A)



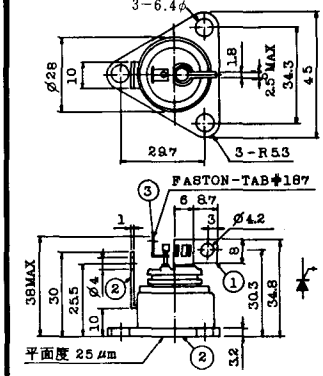
① カソード
② アノード
③ ゲート

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)

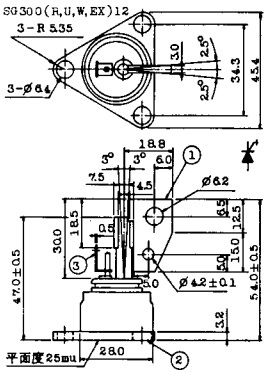
T-40 (13-28A1A)



1. カソード
2. アノード
3. ゲート

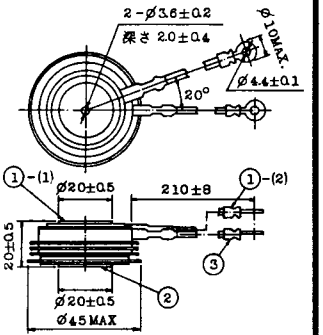
《寸法図単位：mm

T-41 (13-28A2A)



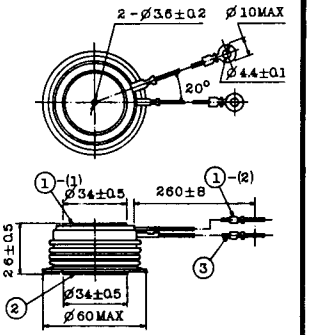
1. カソード
2. アノード
3. ゲート

T-42 (13-45F1A)



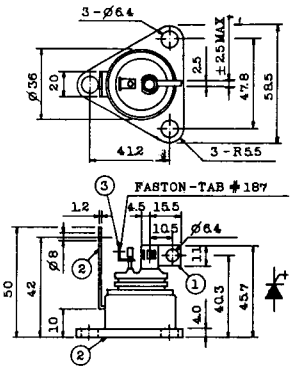
①-(1) カソード
①-(2) カソード(黒)
② アノード
③ ゲート(白)

T-43 (13-60E2A)



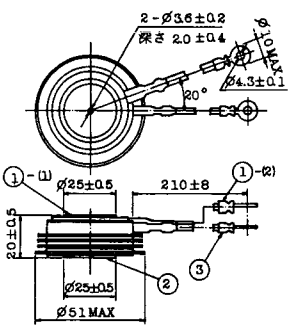
①-(1) カソード
①-(2) カソード(黒)
② アノード
③ ゲート(白)

T-44 (13-36A1A)



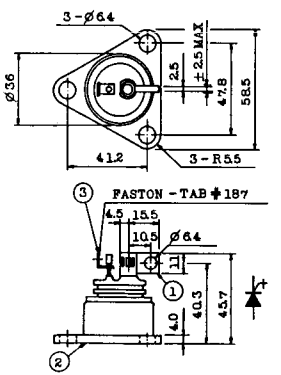
1. カソード
2. アノード
3. ゲート

T-45 (13-51B1A)



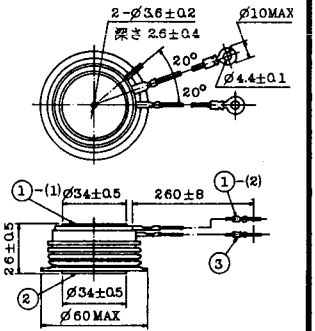
①-(1) カソード
①-(2) カソード (黒)
② アノード
③ ゲート (白)

T-46 (13-36B1A)



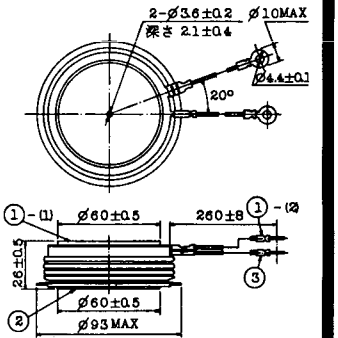
1. カソード
2. アノード
3. ゲート

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)

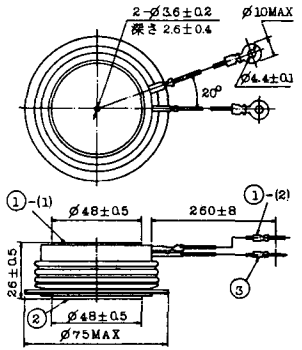
T-48 (13-93C1A)



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)

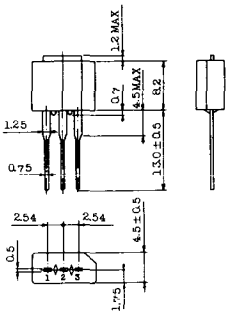
《寸法図単位：mm》

T-49 (13-75A1A)



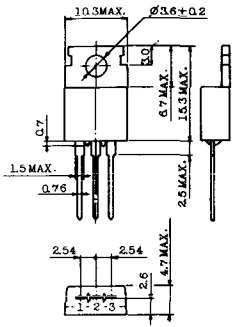
1-(1) カソード
1-(2) カソード（黒）
2. アノード
3. ゲート（白）

T-50 (13-10A3A)



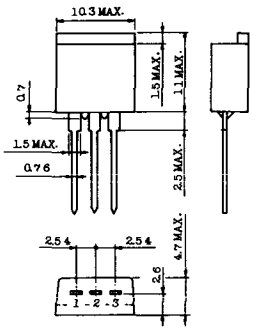
1. カソード
2. アノード
3. ゲート

T-51 (13-10D1A)



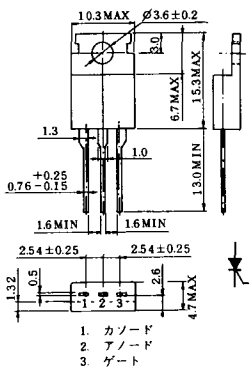
1. カソード
2. アノード
3. ゲート

T-52 (13-10D2A)



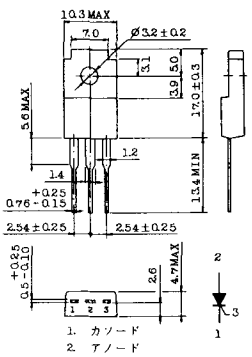
1. カソード
2. アノード
3. ゲート

T-53 (13-10E1B)



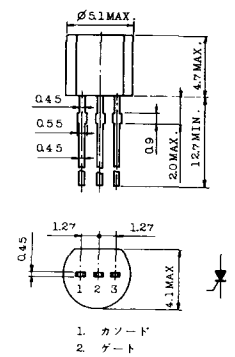
1. カソード
2. アノード
3. ゲート

T-54 (13-10F1B)



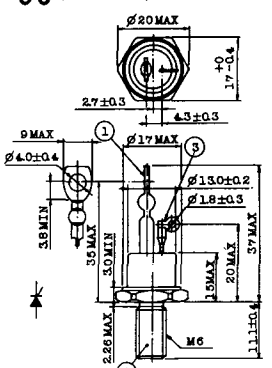
1. カソード
2. アノード
3. ゲート

T-55 (13-5A1D)



1. カソード
2. ゲート
3. アノード

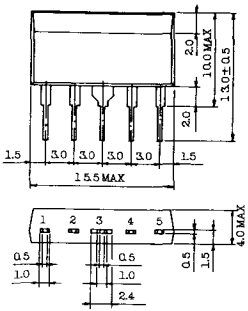
T-56 (13-13C1A)



1. カソード
2. アノード
3. ゲート

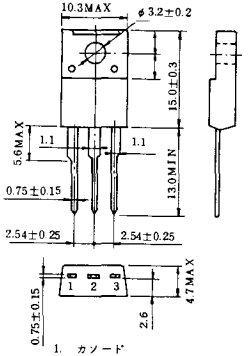
《寸法図単位：mm》

T-57 (12-16C1A)



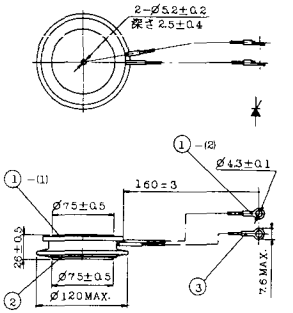
1. アノード（主）
2. ゲート（主）
3. カソード（共通）
4. ゲート（補助）
5. アノード（補助）

T-58 (13-10H1B)



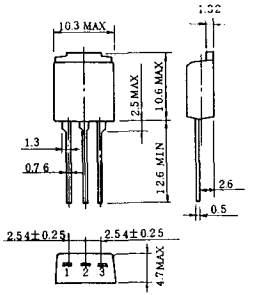
1. カソード
2. アノード
3. ゲート

T-59 (13-120A1A)



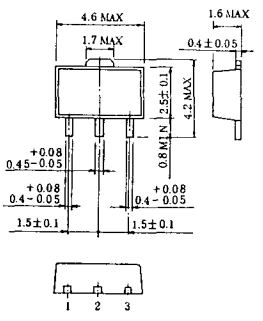
1-(1) カソード
1-(2) カソード(黒)
2. アノード
3. ゲート(白)

T-60



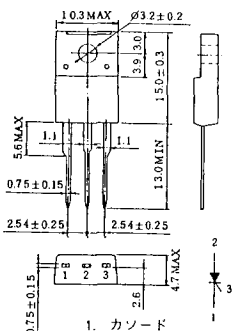
1. カソード
2. アノード
3. ゲート

T-61 (13-5B1A)



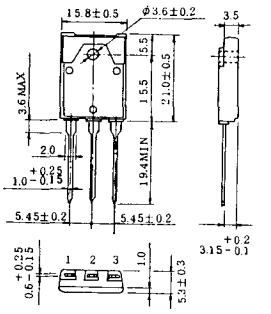
1. ゲート
2. アノード
3. カソード

T-62 (13-10H1A)



1. カソード
2. アノード
3. ゲート

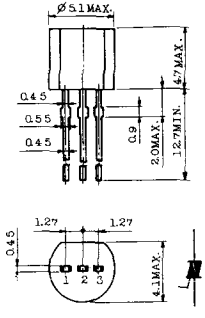
T-63 (13-16A1B)



1. カソード
2. アノード
3. ゲート

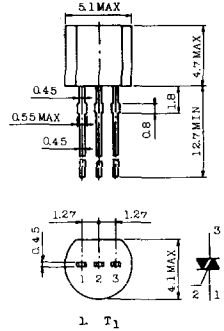
《寸法図単位:mm》

TT-1



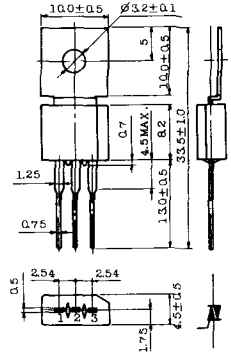
1. ゲート
2. T_2
3. T_1

TT-2



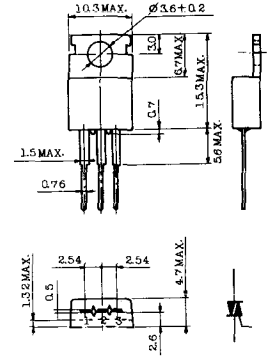
1. T_1
2. ゲート
3. T_2

TT-3



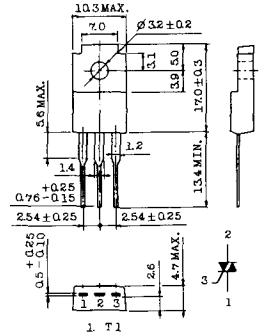
1. T_1
2. T_2
3. ゲート

TT-4



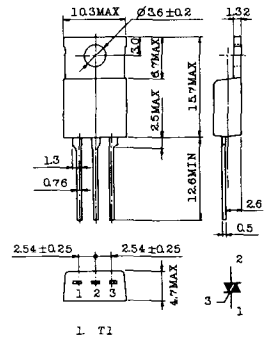
1. T_1
2. T_2
3. ゲート

TT-5



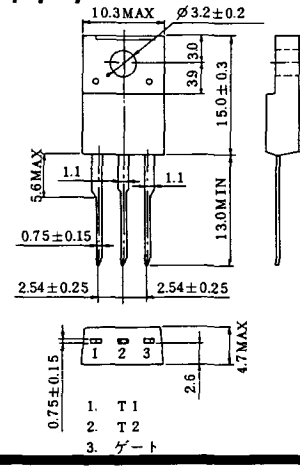
1. T1
2. T2
3. ゲート

TT-6



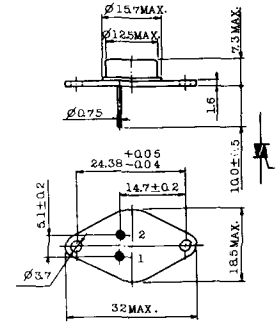
1. T1
2. T2（放熱板）
3. ゲート

TT-7



1. T1
2. T2
3. ゲート

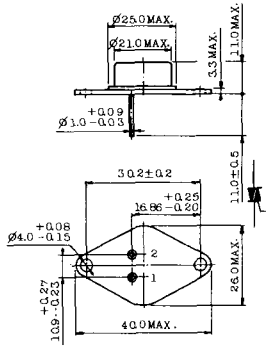
TT-8



1. ゲート
2. T_1
   T_2（ケース）

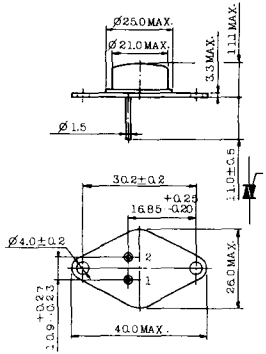
〈寸法図単位：mm

TT-9



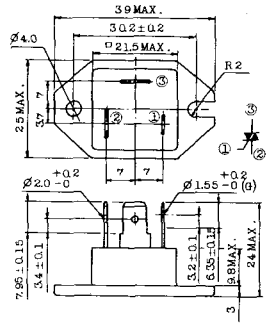
1. ゲート
2. T_1
3. T_2（ケース）

TT-10



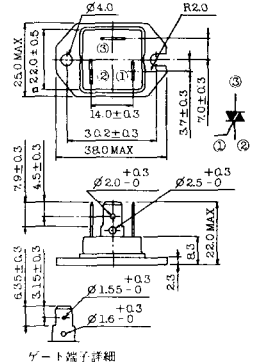
1. ゲート
2. T_1
3. T_2（ケース）

TT-11



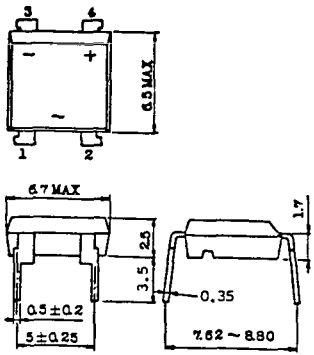
1. ゲート（ファストン端子 #187）
2. T_1（〃 #250）
3. T_2（〃 #250）

TT-12



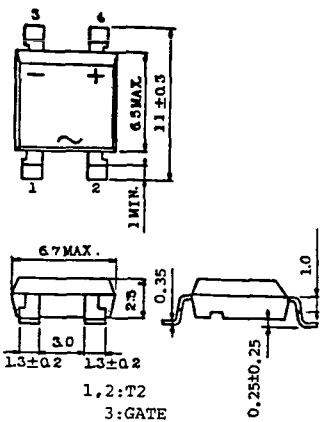
① ゲート（ファストン端子 #187）
② T_1（〃 #250）
③ T_2（〃 #250）

TT-13



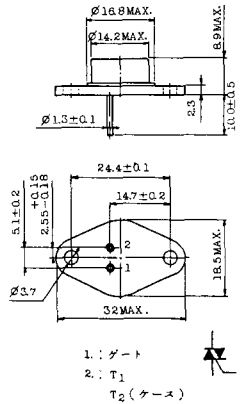
1,2:T2
3:GATE
4:T1

TT-14



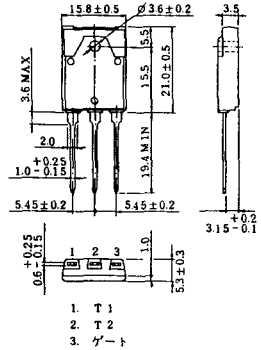
1,2:T2
3:GATE
4:T1

TT-15 (13-14A1B)



1.：ゲート
2.：T_1
T_2（ケース）

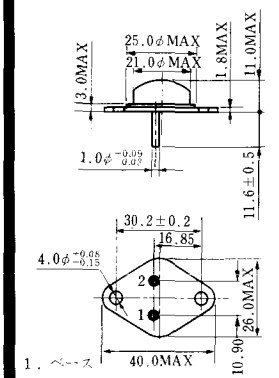
TT-16 (13-16A1A)



1. T_1
2. T_2
3. ゲート

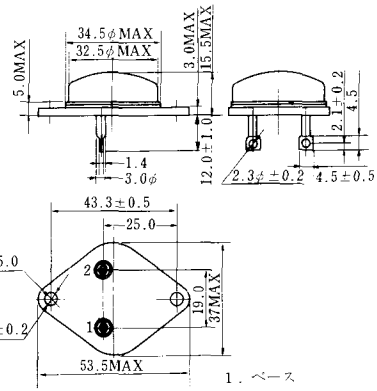
《寸法図単位：mm》

TS-1



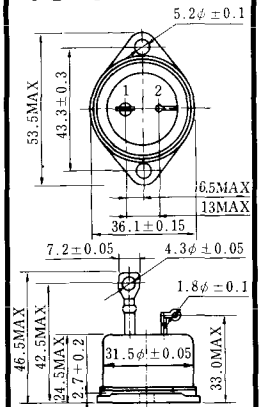
1．ベース
2．エミッタ
コレクタ(ケース)

TS-2



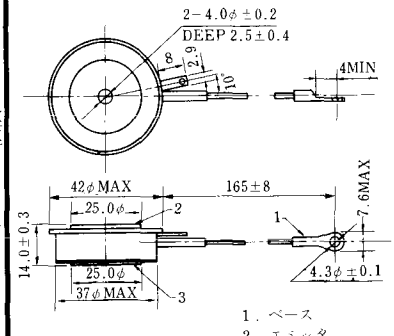
1．ベース
2．エミッタ
コレクタ(ケース)

TS-3



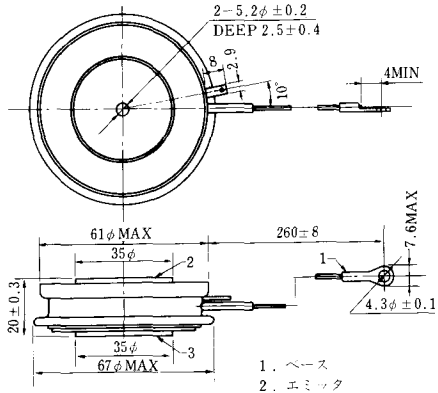
1．エミッタ 2．ベース
コレクタ(ケース)

TS-4



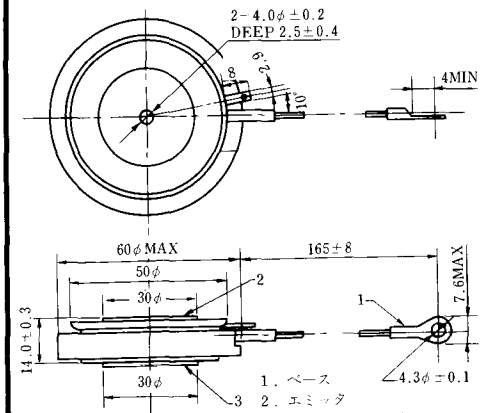
1．ベース
2．エミッタ
3．コレクタ(ケース)

TS-5



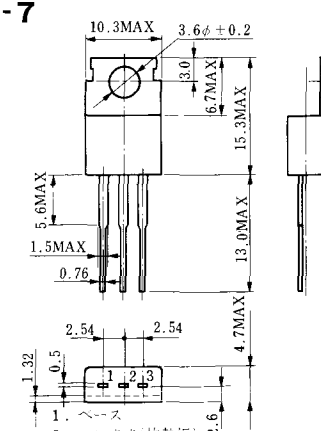
1．ベース
2．エミッタ
3．コレクタ(ケース)

TS-6



1．ベース
2．エミッタ
3．コレクタ(ケース)

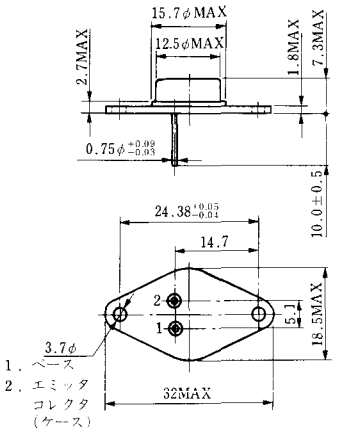
TS-7



1．ベース
2．コレクタ(放熱板)
3．エミッタ

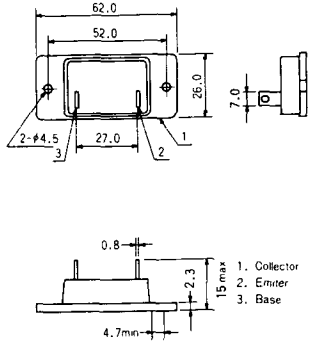
《寸法図単位：mm》

TS-8

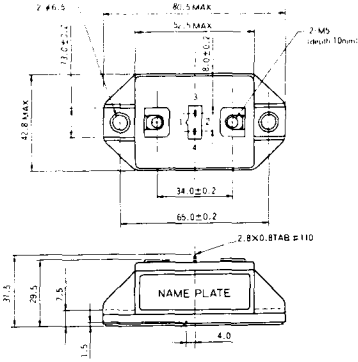

15.7φMAX
12.5φMAX
2.7MAX
1.8MAX
7.3MAX
0.75φ +0.09 −0.03
10.0±0.5
24.38 +0.05 −0.01
14.7
2
1
5.1
18.5MAX
3.7φ
1．ベース
2．エミッタ
コレクタ
（ケース）
32MAX

《寸法図単位：mm》

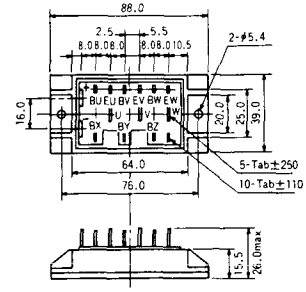
S-62A1A



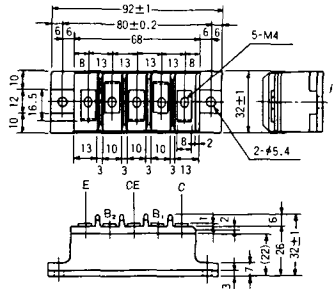
S-80A1A



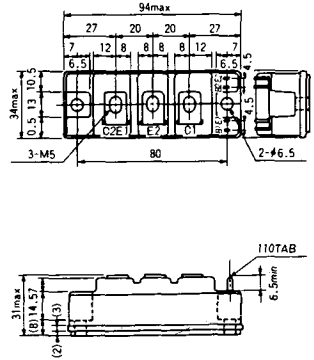
S-88D1A



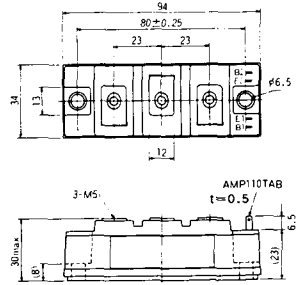
S-92B1A



S-94B1A

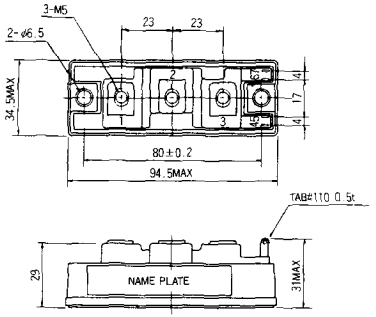


S-94B1B

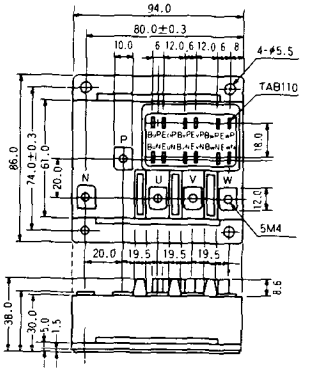


《寸法図単位：mm》

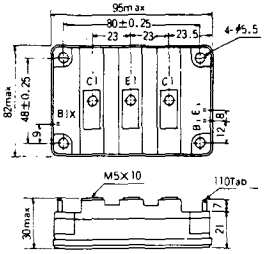
S-94B2A



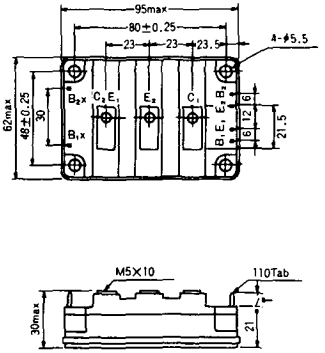
S-94D1A



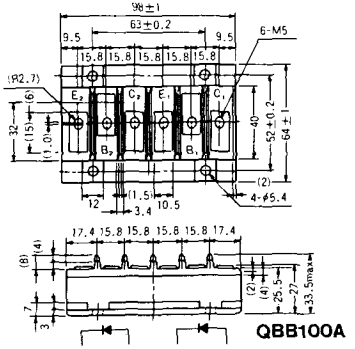
S-95A1A



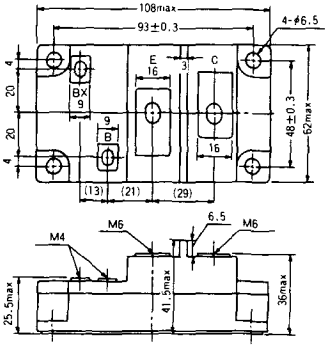
S-95B1A



S-98B1B

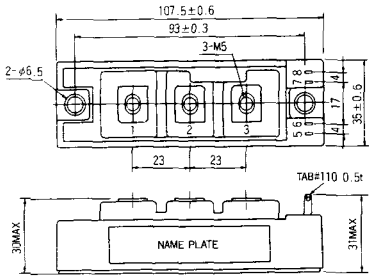


S-108A2A

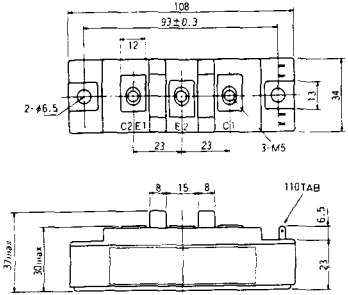


《寸法図単位：mm》

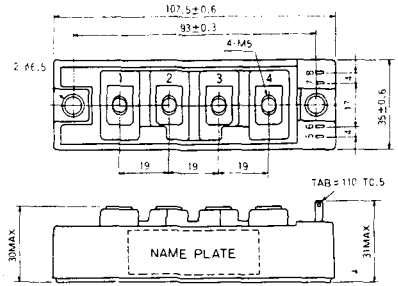
S-108B1A



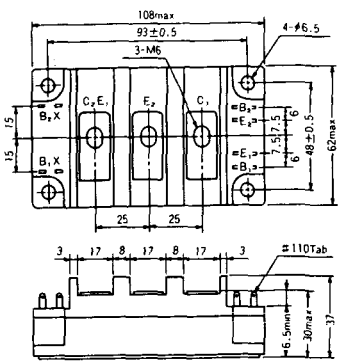
S-108B1B



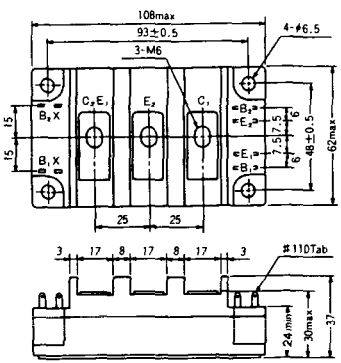
S-108B1C



S-108B2A

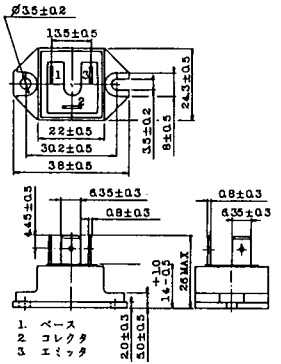


S-108B2B

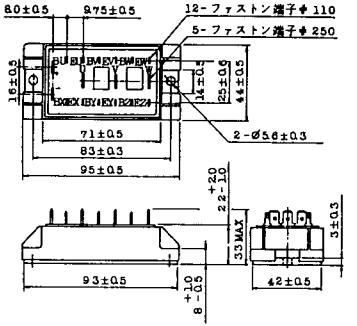


〈寸法図単位:mm〉

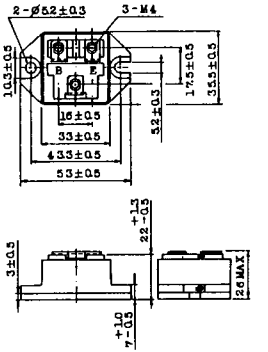
2-22B1A



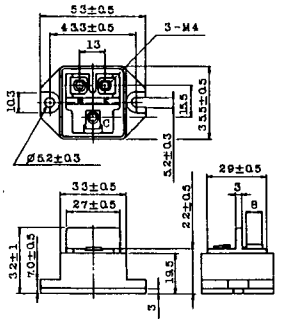
2-27A4A



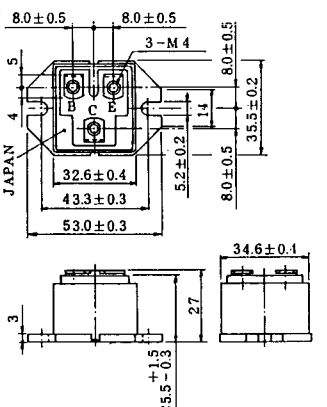
2-33C1A



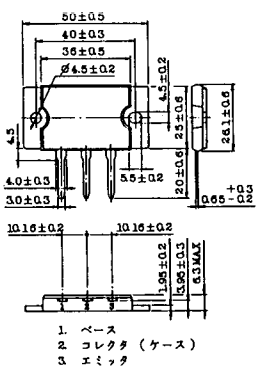
2-33D1A



2-33F1A

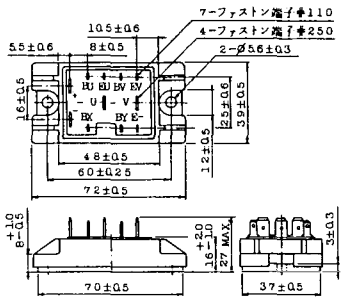


2-37A1A

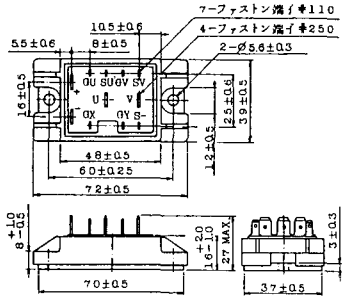


《寸法図単位：mm》

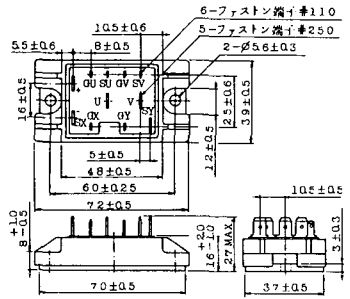
2-48A3A



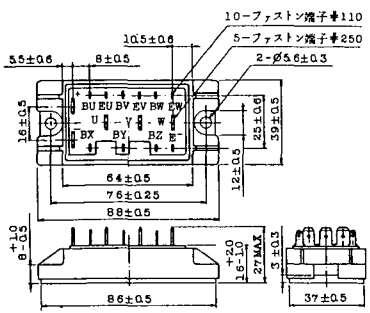
2-48A3B



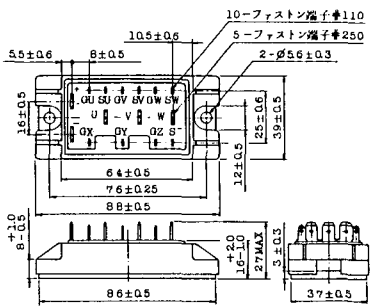
2-48A4A



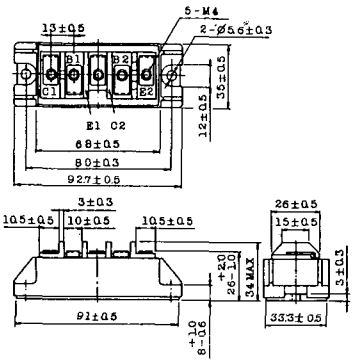
2-64A2A



2-64A2B

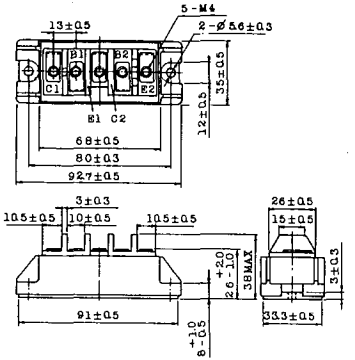


2-68A2A

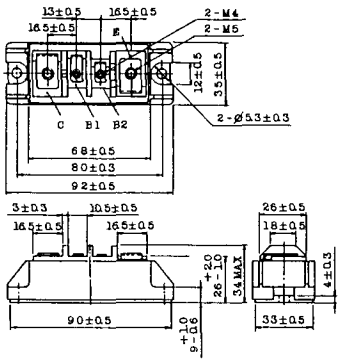


《寸法図単位：mm》

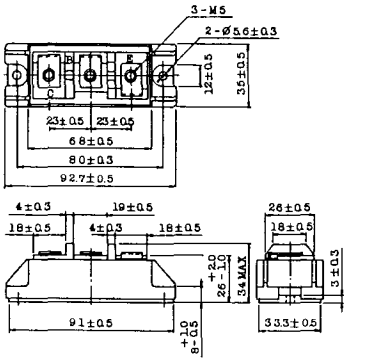
2-68B2A



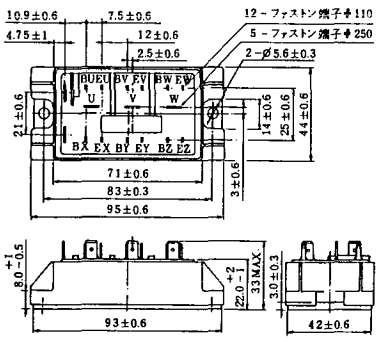
2-68C1A



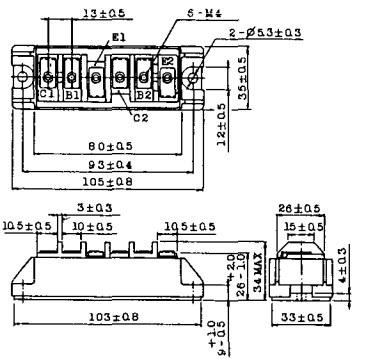
2-68D2A



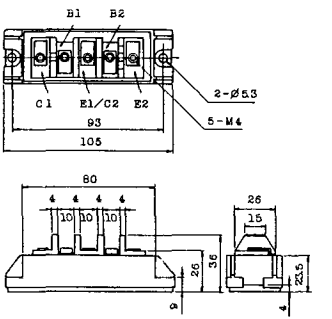
2-72A3A



2-80A1A

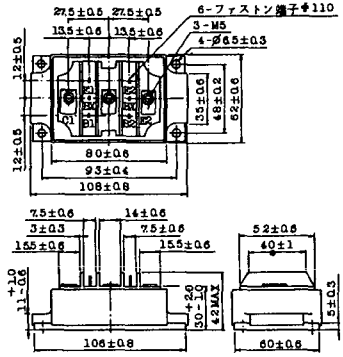


2-80B1A

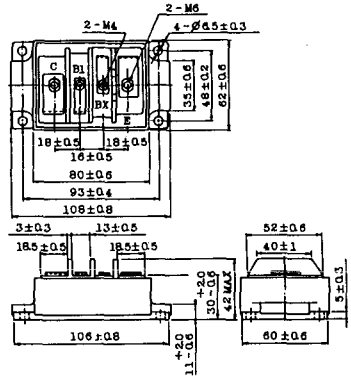


《寸法図単位：mm》

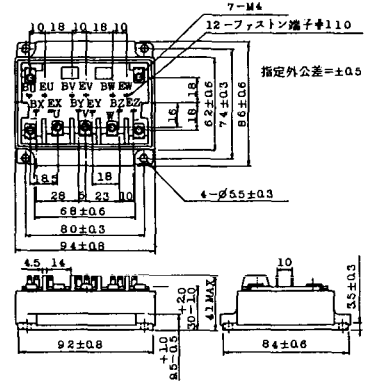
2-80C1A



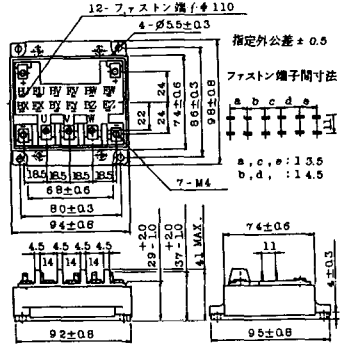
2-80D2A



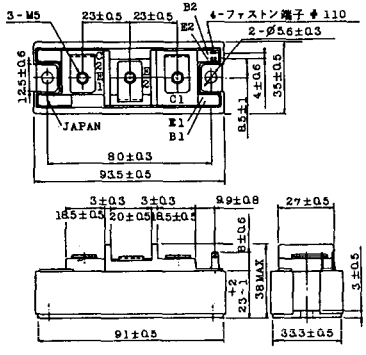
2-94A2A



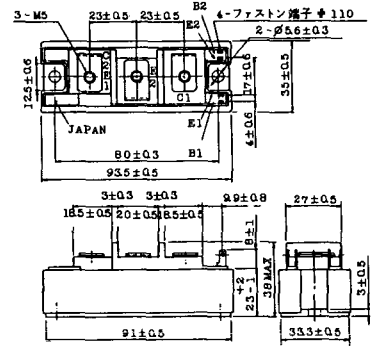
2-94B1A



2-94C2A

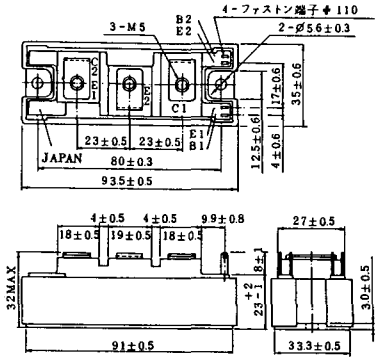


2-94C3A

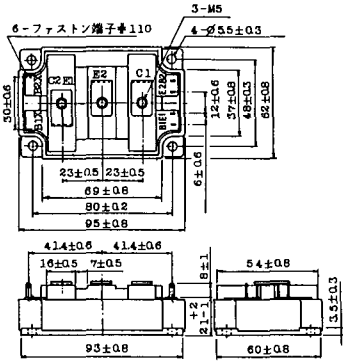


《寸法図単位：mm》

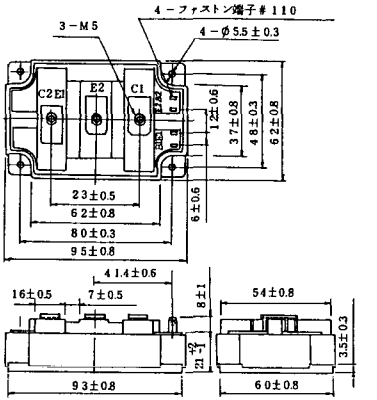
2-94D1A



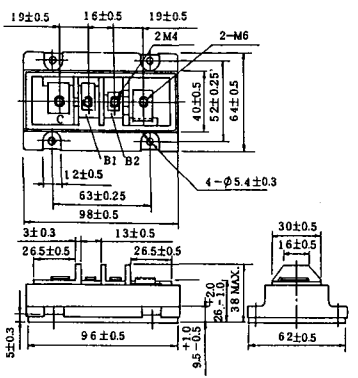
2-96A3A



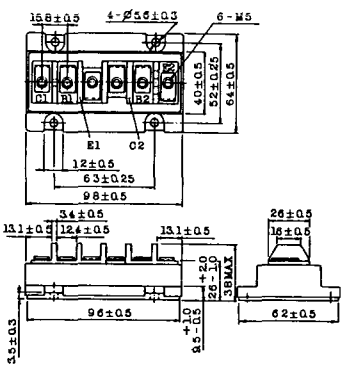
2-96A4A



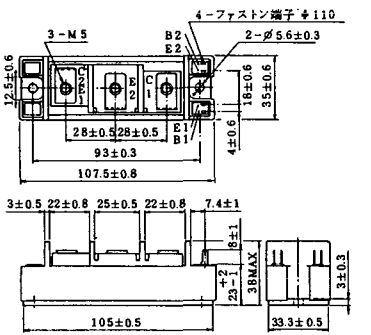
2-98B1A



2-98C2A

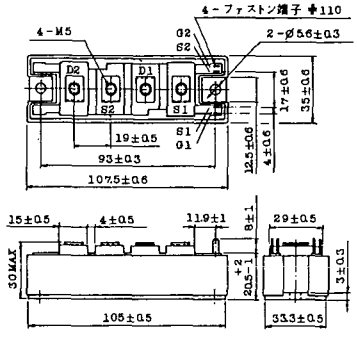


2-108A2A

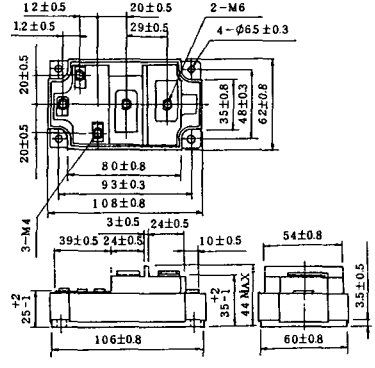


《寸法図単位：mm》

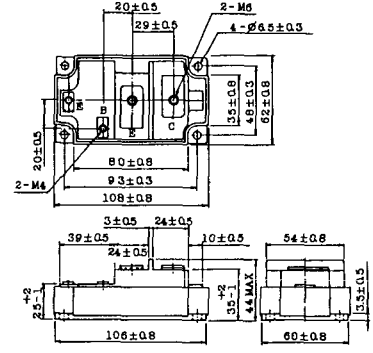
2-108B1A



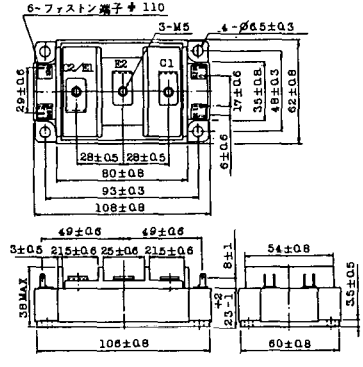
2-109A3A



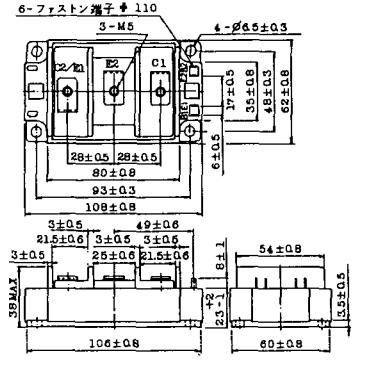
2-109A4A



2-109B3A



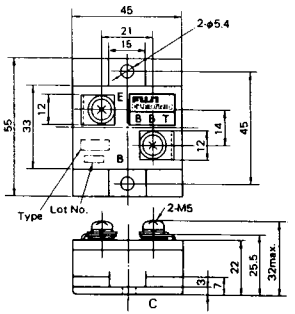
2-109B4A



《寸法図単位：mm》

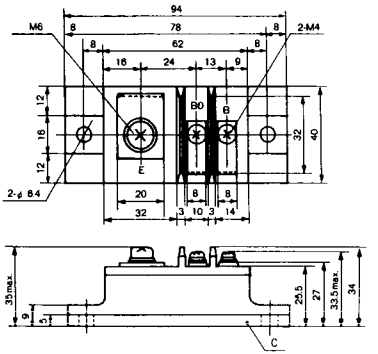
BBT-II

BBTII
1D200A-020



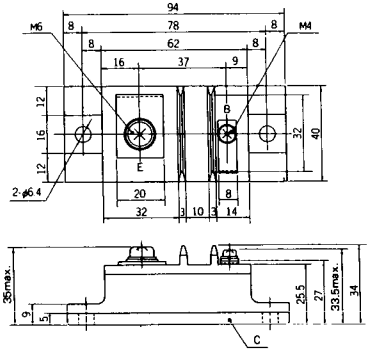
BBT-III

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



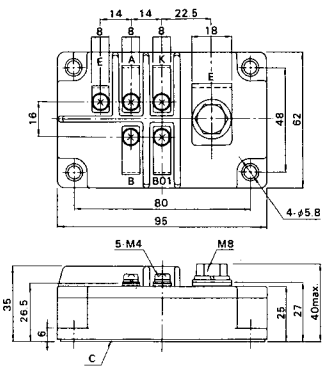
BBT-III

BBTIII
ETN01-055
ET1257



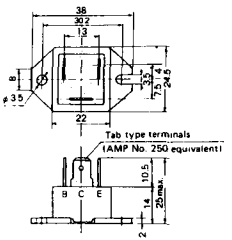
BBT-IV

BBTIV
1D500A-030

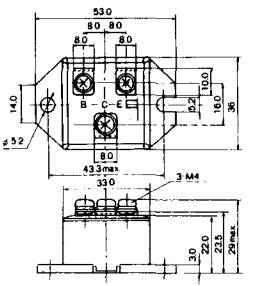


《寸法図単位:mm》

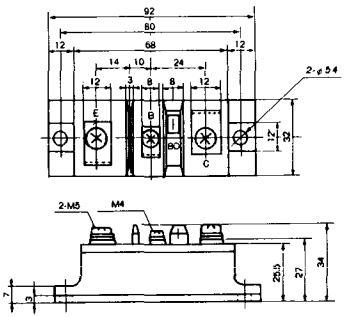
M-101



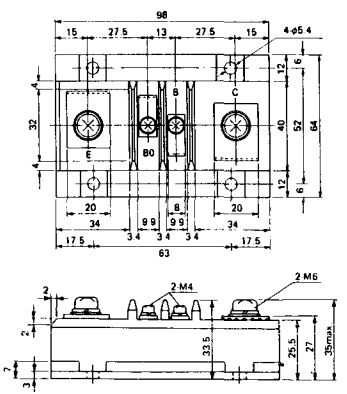
M-102



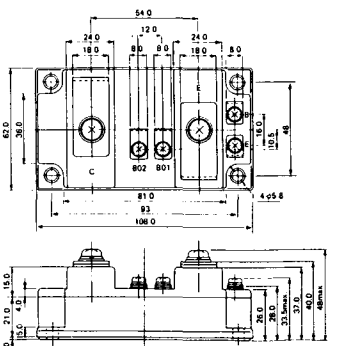
M-103



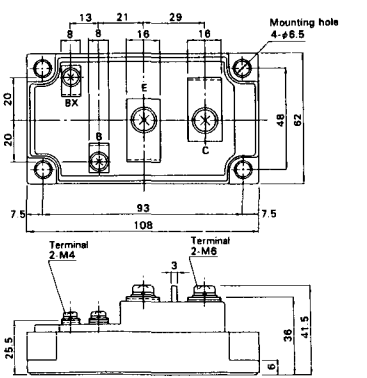
M-104



M-105

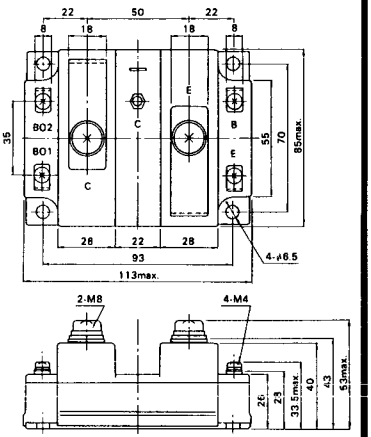


M-106

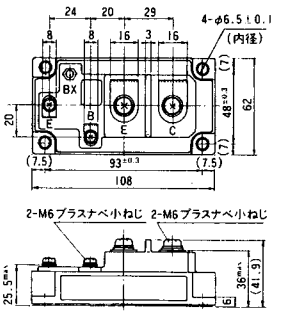


《寸法図単位：mm》

M-107

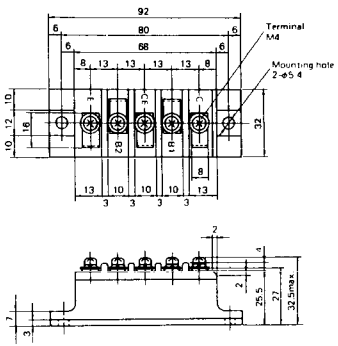


M-116

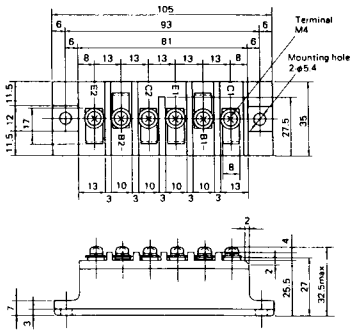


《寸法図単位：mm》

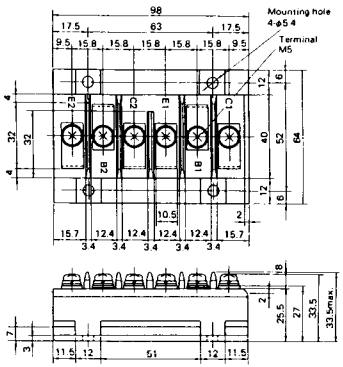
M-201



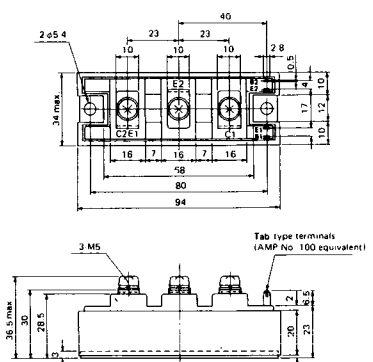
M-202



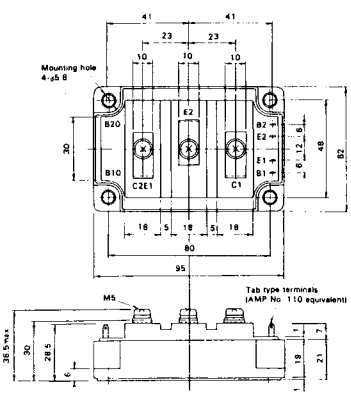
M-203



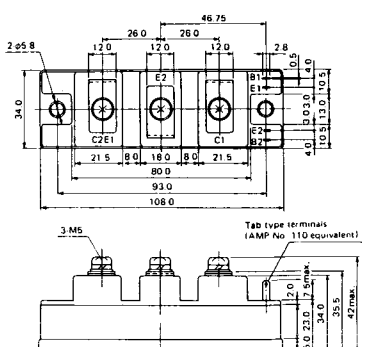
M-204



M-205

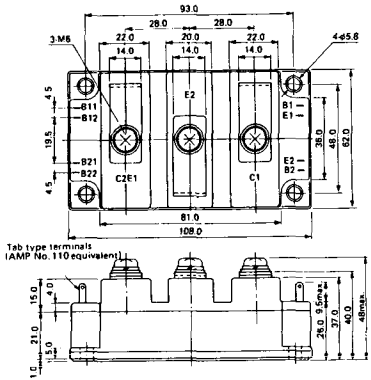


M-206

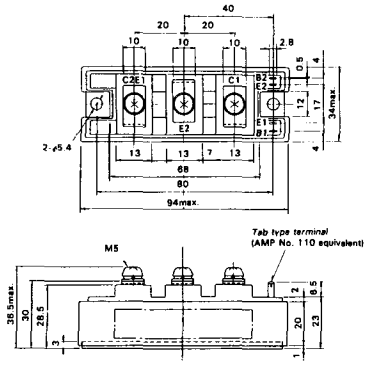


《寸法図単位：mm》

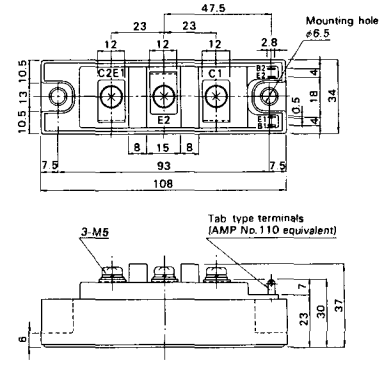
M-207



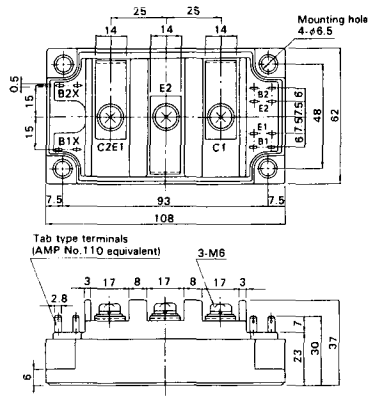
M-208



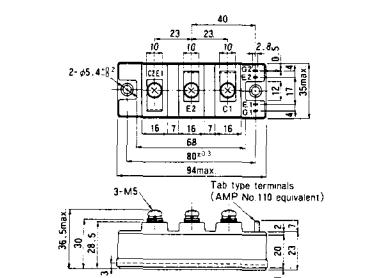
M-209



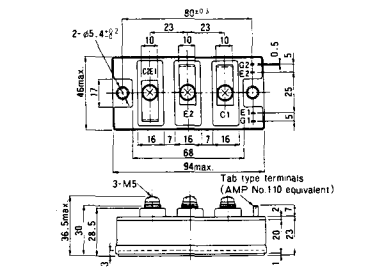
M-210



M-211

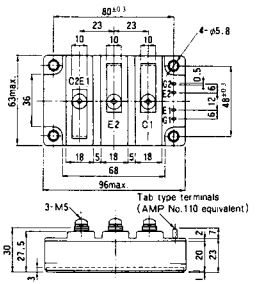


M-212



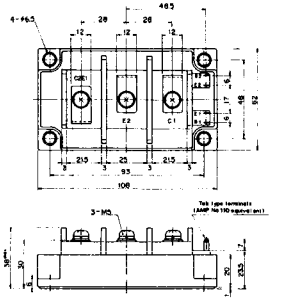
《寸法図単位：mm》

M-213

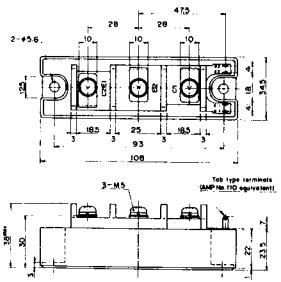


M-214

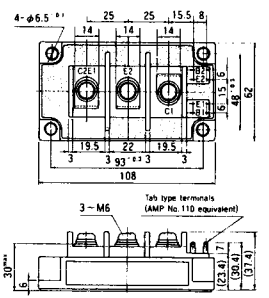
M-215



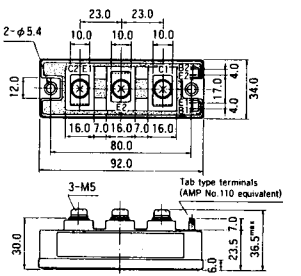
M-216



M-217

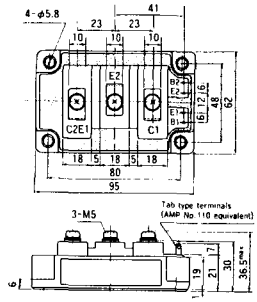


M-218



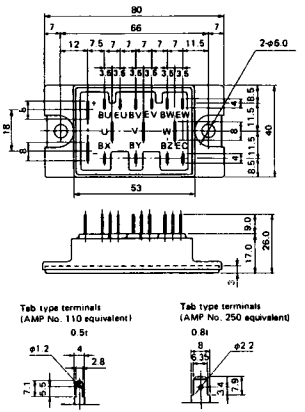
《寸法図単位:mm》

M-219

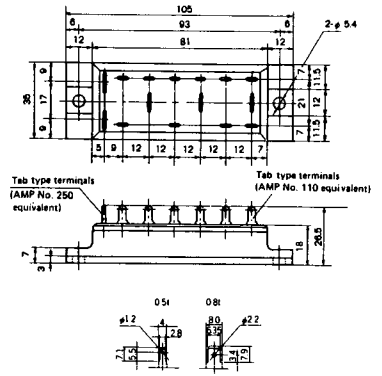


〈寸法図単位:mm〉

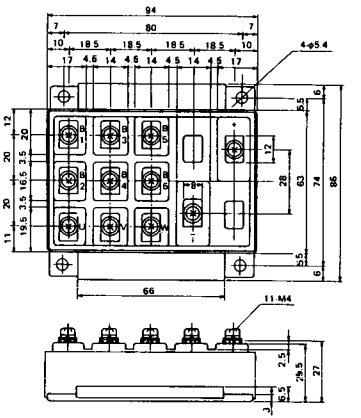
M-601



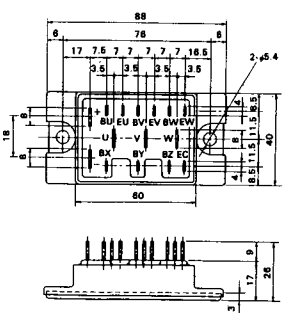
M-602



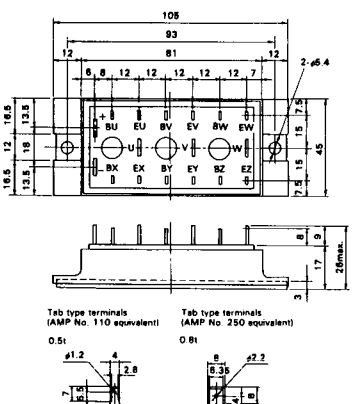
M-603



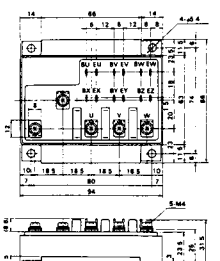
M-604



M-605

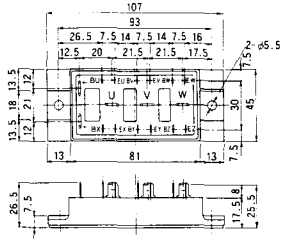


M-606

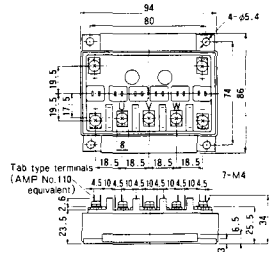


《寸法図単位：mm》

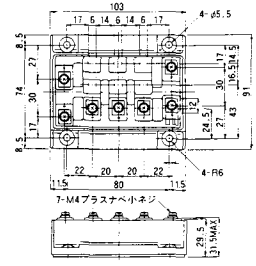
M-607



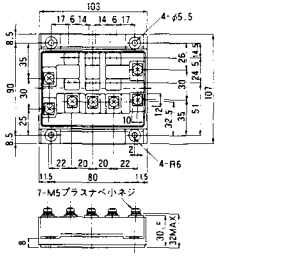
M-608



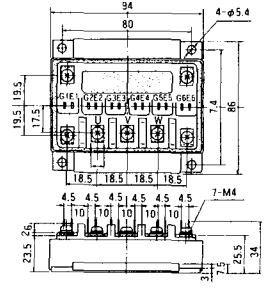
M-609



M-610

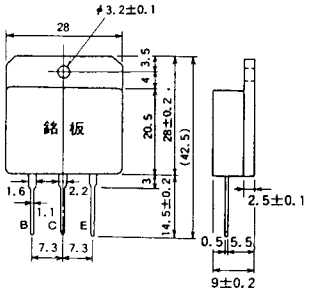


M-616

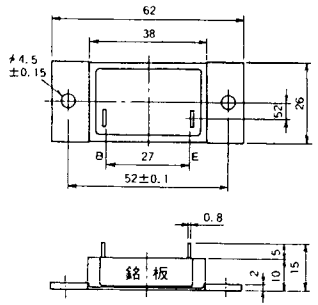


《寸法図単位:mm》

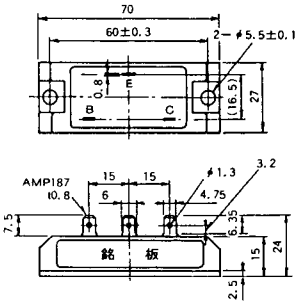
M-1A1A



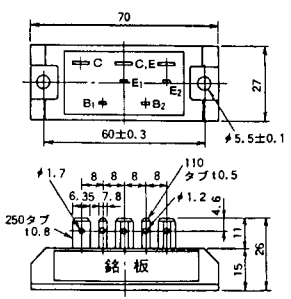
M-2A1A



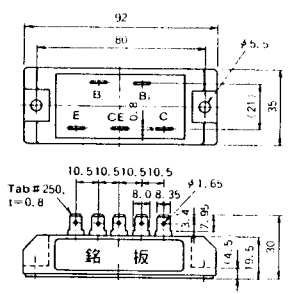
M-2B1A



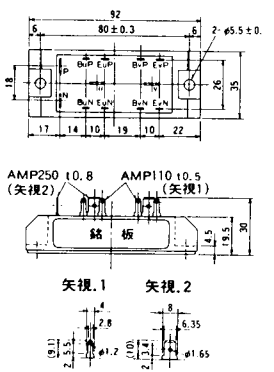
M-2B2A



M-2C2A

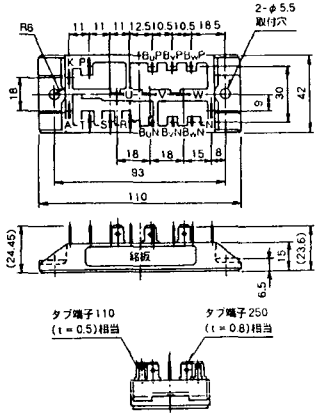


M-2D4A

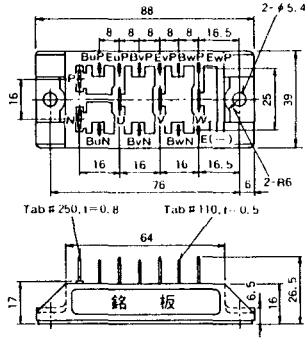


〈寸法図単位:mm〉

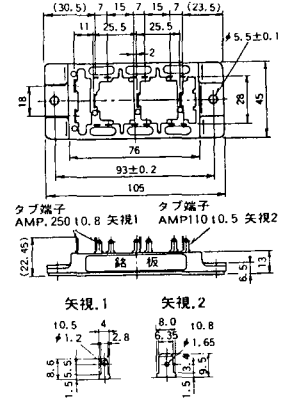
M-2E6A



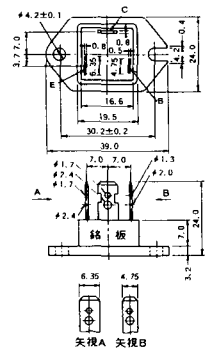
M-2F6A



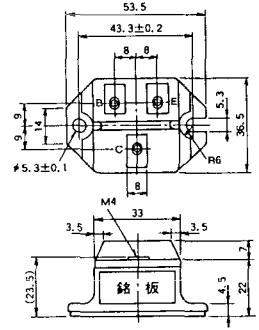
M-2G6A



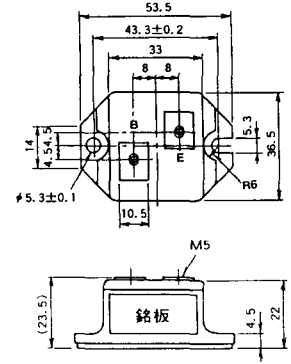
M-3A1A



M-3B1A

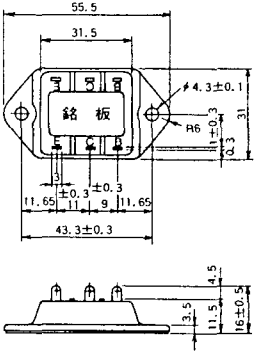


M-3B1B

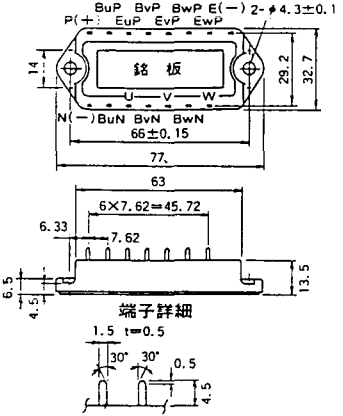


《寸法図単位:mm》

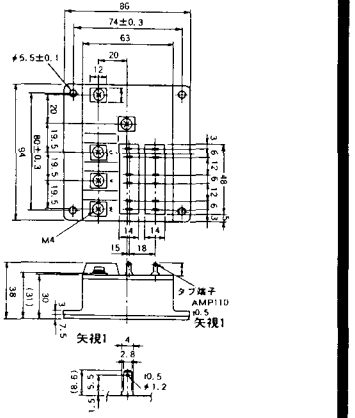
M-3C1A



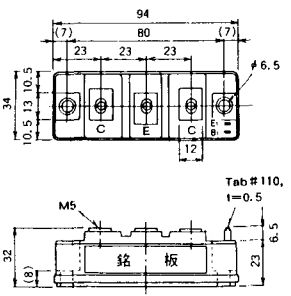
M-3D6A



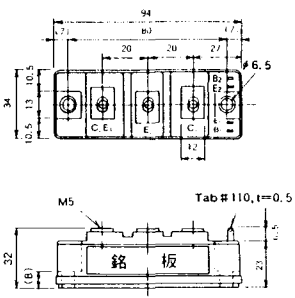
M-3E6A



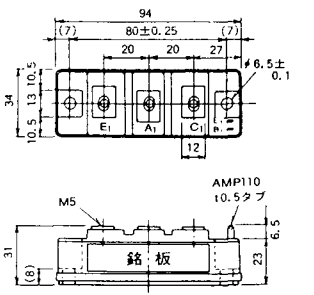
M-4A1A



M-4A2A

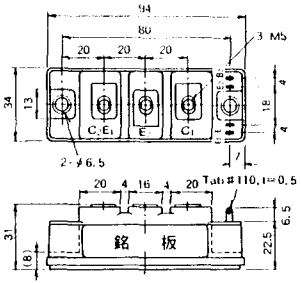


M-4A1B

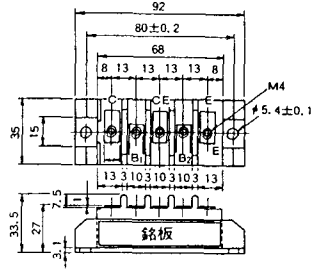


《寸法図単位:mm》

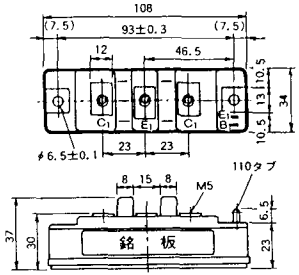
M-4A2B



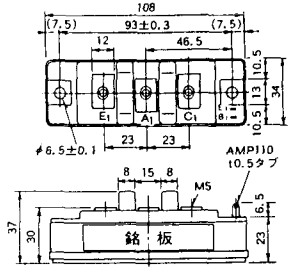
M-4B2A



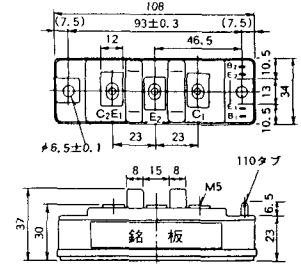
M-5A1A



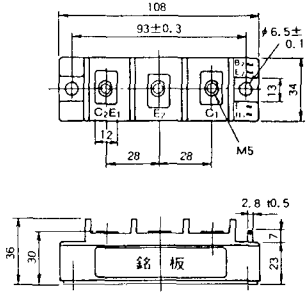
M-5A1B



M-5A2A

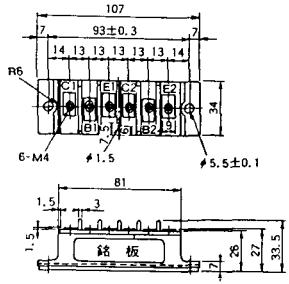


M-5B2A

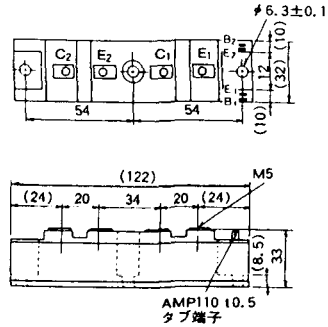


《寸法図単位:mm》

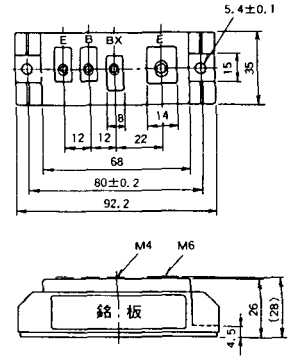
M-5C2A



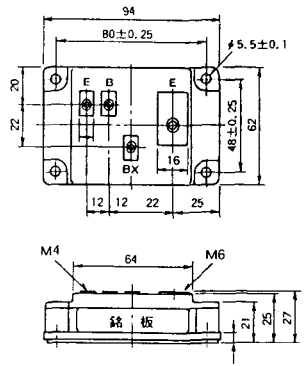
M-5D2A



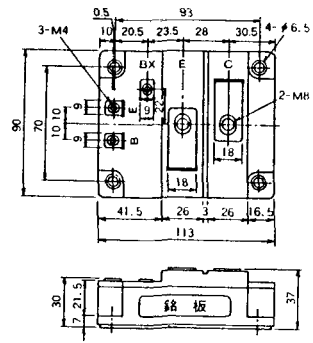
M-6A1A



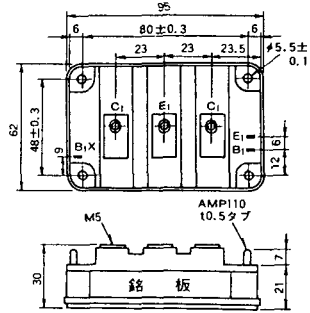
M-7A1A



M-7B1A

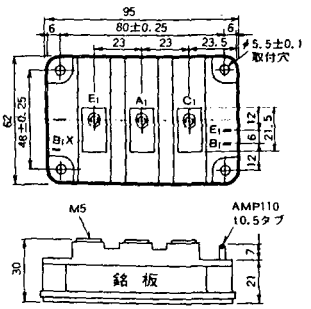


M-8A1A

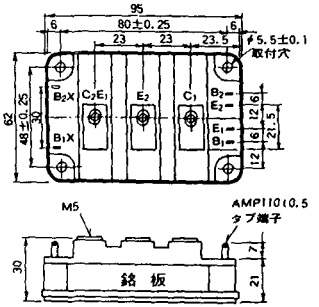


《寸法図単位:mm》

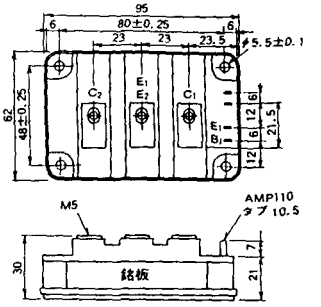
M-8A1B



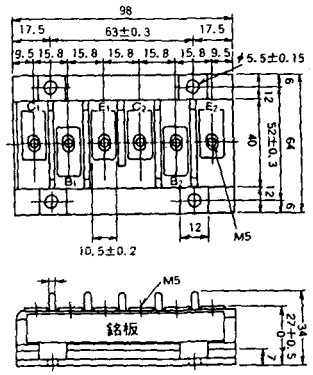
M-8A2A



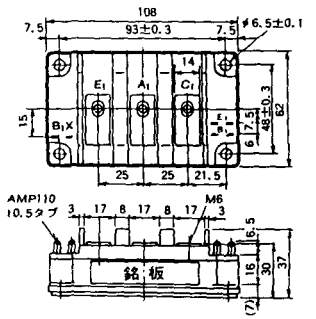
M-8A2B



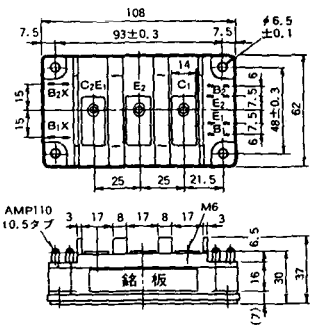
M-8B2A



M-9A1A

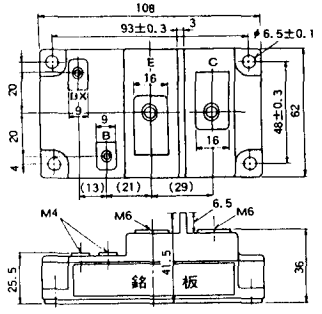


M-9A2A

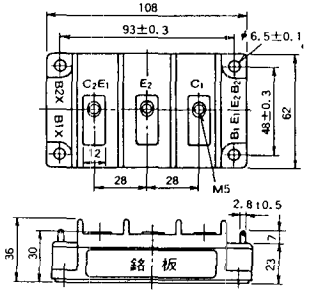


〈寸法図単位:mm〉

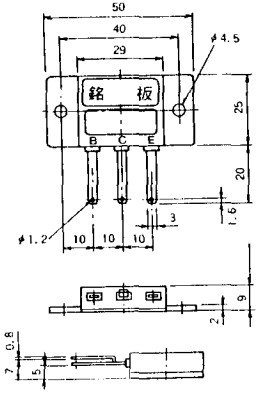
M-9B1A



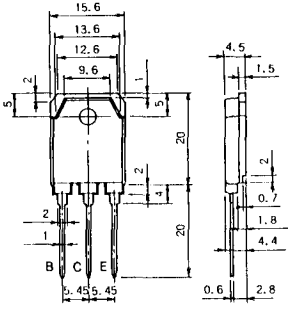
M-9C2A



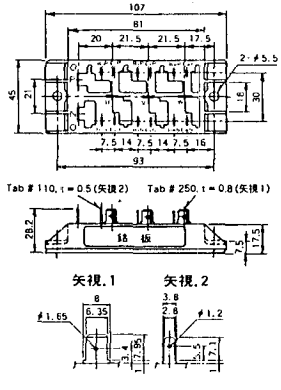
M-1A1B



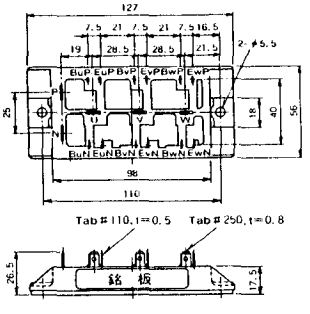
M-1A1C



M-2E6B

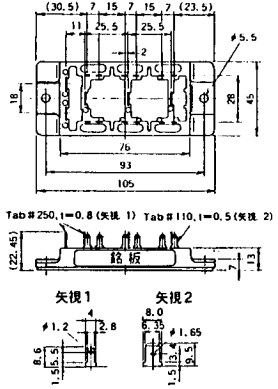


M-2E6C

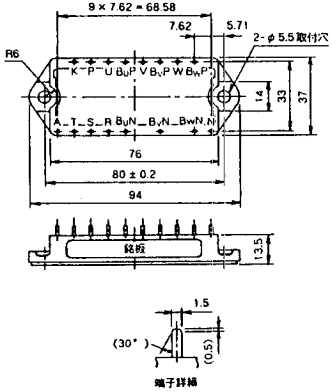


《寸法図単位:mm》

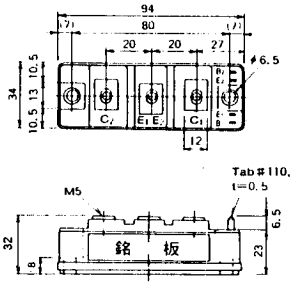
M-2G6B



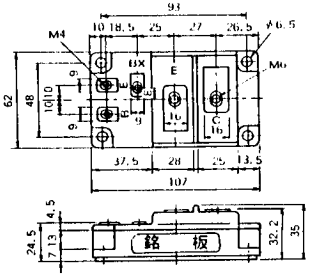
M-3D6B



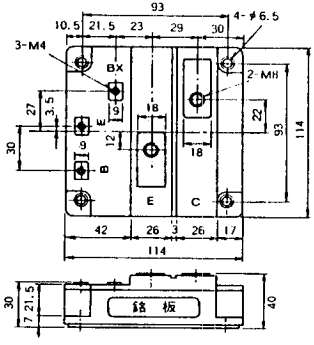
M-4A2C



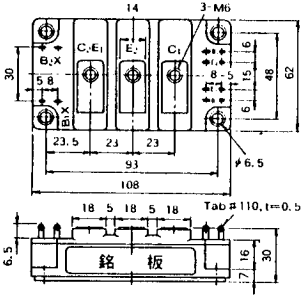
M-7A1B



M-7C1A

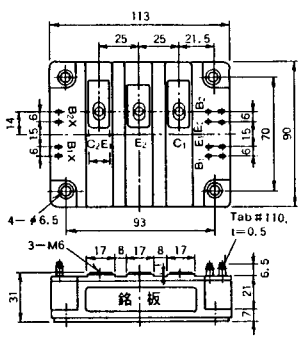


M-8A2C

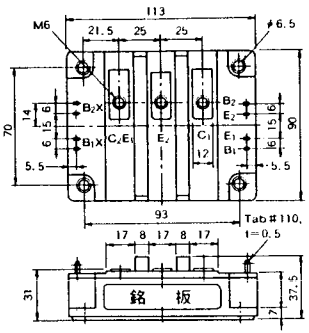


《寸法図単位：mm》

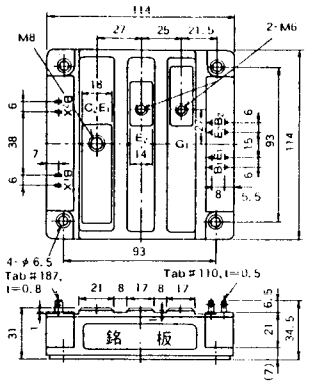
M-10A2A



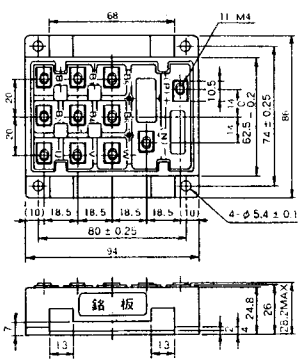
M-10A2B



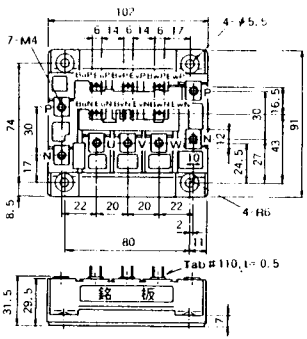
M-11A2A



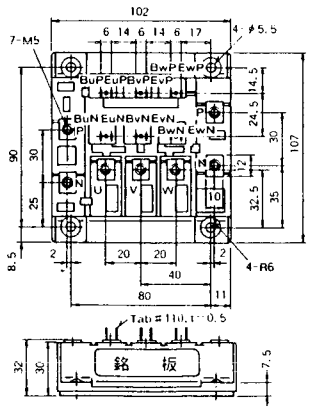
M-12A6A



M-12B6A

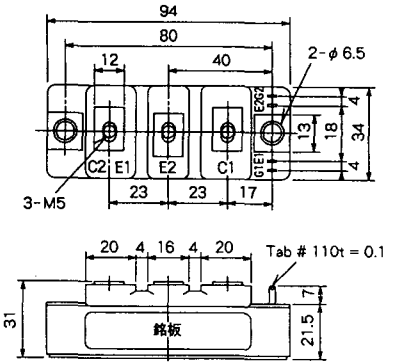


M-12B6B

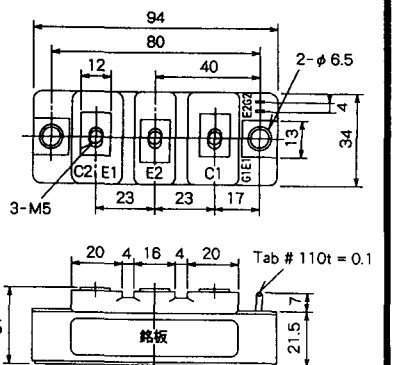


《寸法図単位：mm》

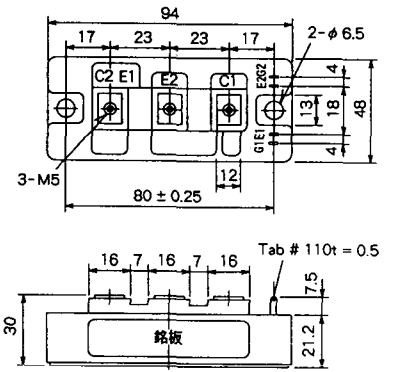
M-4A2D



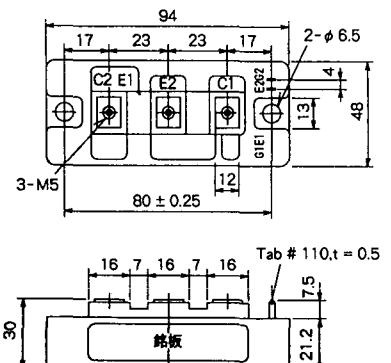
M-4A2E



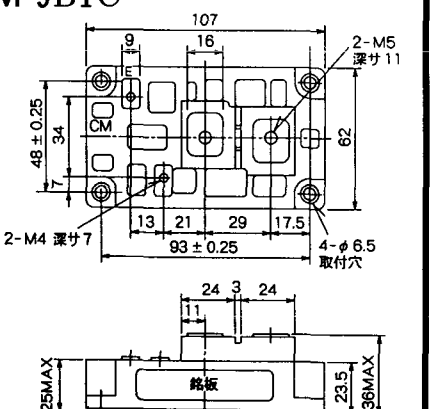
M-4C2A



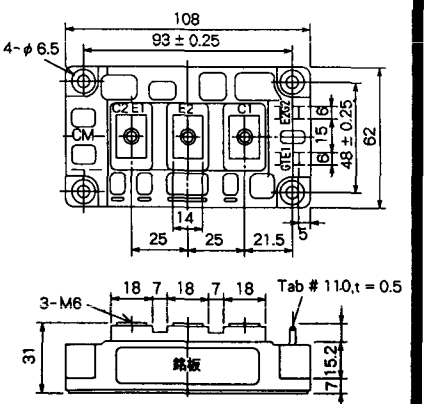
M-4C2B



M-9B1C

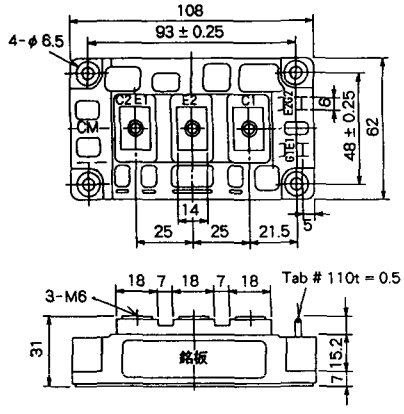


M-9D2A

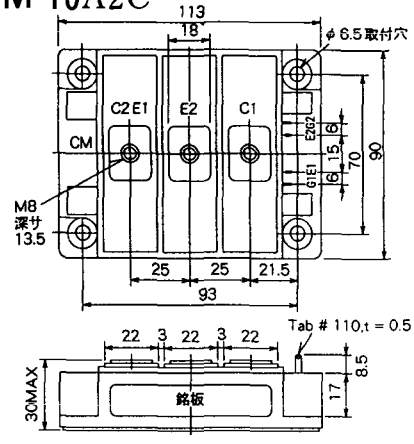


《寸法図単位：mm》

M-9D2B

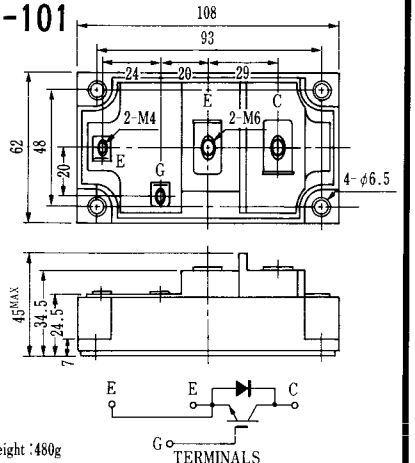


M-10A2C



《寸法図単位：mm》

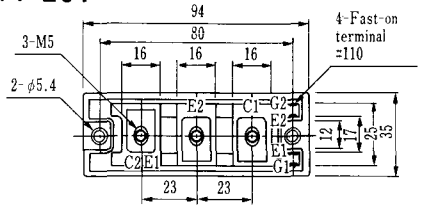
H-101

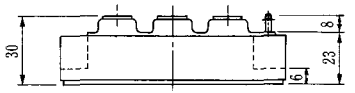


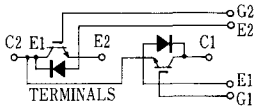
Weight :480g

《寸法図単位:mm》

H-201

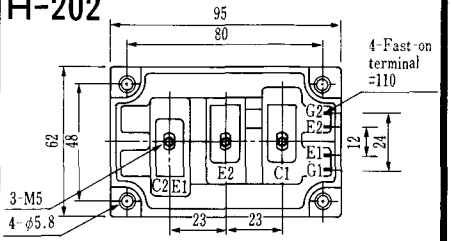


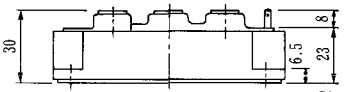


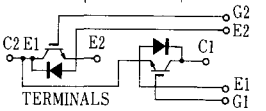


Weight:200g

H-202



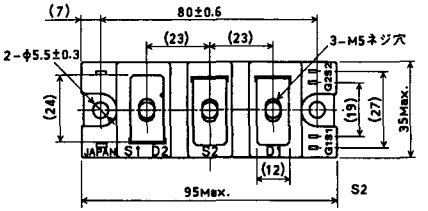


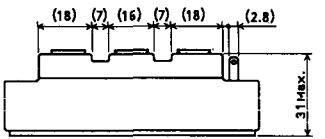


Weight:360g

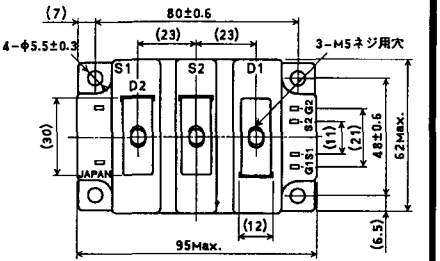
《寸法図単位:mm》

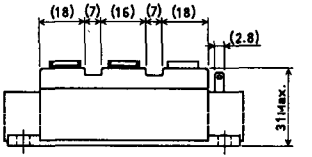
LF-J





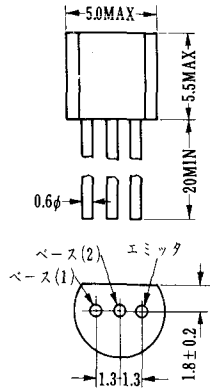
LF-K



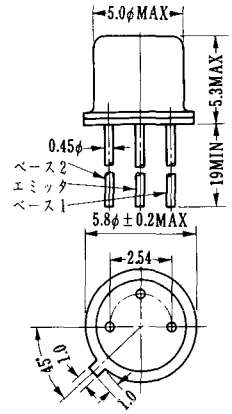


《寸法図単位：mm》

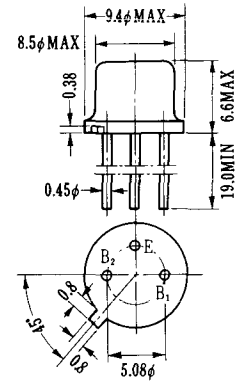
U-1



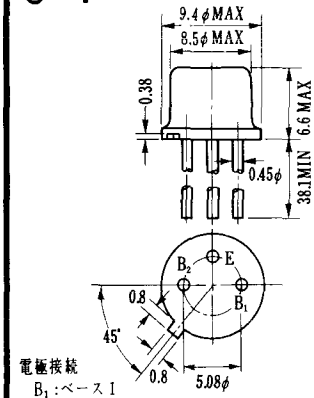
U-2



U-3

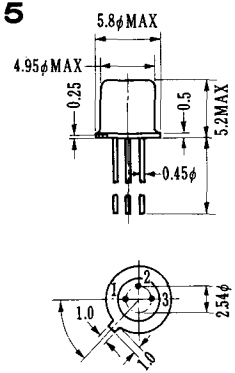


U-4



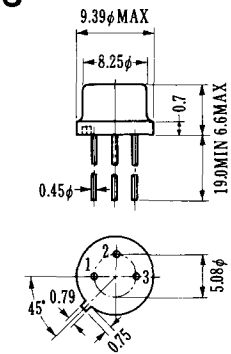
電極接続
B_1：ベースI
B_2：ベース2
E：エミッタ

U-5



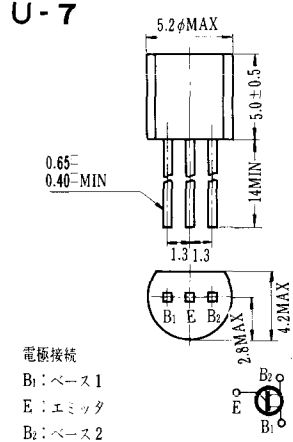
1. BASE 1
2. EMITTER
3. BASE 2 (CASE)

U-6



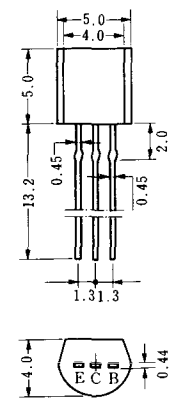
1. BASE(2)
2. EMITTER
3. BASE(1)

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〉