

トランジスタ・モジュール (NPN, 1アーム)

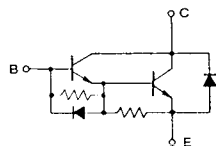
- ダーリントン・トランジスタ1個内蔵
- フリーホイール・ダイオード付
- 絶縁形
- UL認定品あり

Yellow Card No. : E80276 (N)

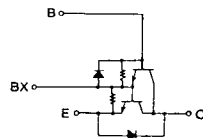
File No. : E80271

■等価回路

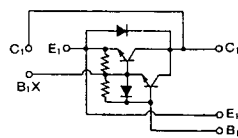
HA-1A



HA-1B



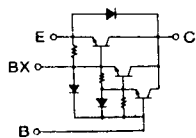
HA-1C



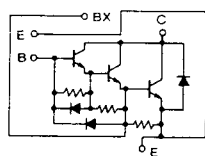
注1. $I_C = 1A$, $V_{EB} = 2V$, #印は V_{CEX} ($V_{EB} = 2V$)。 注2. 60Hz, 単相半波1サイクル波高値。 注3. $T_C = 25^\circ C$ 。 注4. AC, 1分間。

型 名	最 大 定 格 ($T_J = 25^\circ C$)											電 気 的 特 性							
	V_{CBO}	$V_{CEX(SUS)}$ (注1)	V_{EBO}	I_C	I_B	I_F	I_{FM} (注2)	P_C (注3)	T_J	T_{JLE}	$V_{I_{SO}}$ (注4)	I_{CEX} (mA)	V_{CE}	V_{EB}	I_{ERO} (mA)	V_{ER}	$V_{CEO(SUS)}$ (V)	I_C	h_{FE}
	(V)	(V)	(V)	(A)	(A)	(A)	(A)	(W)	($^\circ C$)	($^\circ C$)	(V)	最大	(V)	(V)	最大	(V)	最小	(A)	最小
QM5HG-24	1200	1200 #	7	5	2.0	—	—	100	150	-40~125	—	1	1200	2	50	7	—	—	5
QM10HB-2H	1000	1000	7	10	2.0	—	—	100	150	-40~125	2500	—	—	—	150	7	—	—	5
QM15HA-H	600	600	5	15	0.9	15	—	100	150	-40~125	2500	—	—	—	50	5	—	—	50/100
QM30HA-H	600	600	7	30	1.8	30	300	250	150	-40~125	2500	1	600	2	200	7	—	—	2/5
QM30HC-2H	1600	1600 #	10	30	5.0	30	300	310	150	-40~125	—	1	1600	2	400	10	—	—	5
QM30HQ-24	1200	1200	7	30	6.0	—	—	310	150	-40~125	2500	1	1200	2	200	7	—	—	1
QM30HY-2H	1000	1000	7	30	2.0	30	300	310	150	-40~125	2500	1	1000	2	200	7	—	—	2.8/5
QM50HA-H	600	600	7	50	3.0	50	500	310	150	-40~125	2500	1	600	2	200	7	—	—	2/5
QM50HC-H	900	900 #	10	50	3.0	30	300	310	150	-40~125	—	1	900	2	300	10	—	—	5
QM50HF-H	900	900 #	10	50	3.0	30	300	160	150	-40~125	1500	1	900	2	300	10	—	—	5
QM50HG-H	600	600	7	50	3.0	50	300	140	150	-40~125	2000	1	600	2	100	7	—	—	5
QM50HG-4	200	200	7	50	3.0	50	300	140	150	-40~125	1500	1	200	2	200	7	—	—	1.5
QM50HJ-H	900	900 #	10	50	3.0	30	300	178	150	-40~125	—	3	900	2	100	10	—	—	5
QM50HY-2H	1000	1000	7	50	3.0	50	500	400	150	-40~125	2500	1	1000	2	200	7	—	—	2.8/5
QM75HA-H	600	600	7	75	4.5	75	750	350	150	-40~125	2500	1	600	2	200	7	—	—	2/5
QM100HC-M	400	350	7	100	3.0	100	1000	420	150	-40~125	—	1	350	2	200	7	—	—	2/5
QM100HY-H	600	600	7	100	6.0	100	1000	620	150	-40~125	2500	2	600	2	100	7	—	—	2/5
QM100HY-2H	1000	1000	7	100	5.0	100	1000	800	150	-40~125	2500	2	1000	2	400	7	—	—	2.8/5
QM150HY-H	600	600	7	150	9.0	150	1500	690	150	-40~125	2500	2	600	2	150	7	—	—	2/5
QM150HY-2H	1000	1000	7	150	8.0	150	1500	1000	150	-40~125	2500	2	1000	2	200	7	—	—	2.8/5

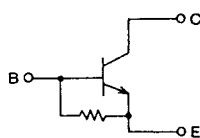
HA-2B



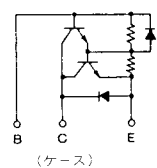
HA-2C



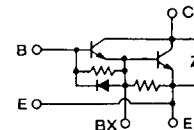
HB-1A



HC-1A



HC-1B



(T _J = 25℃)										エミッタ・コレクタ間ダイオード						熱抵抗		等価回路	外形図	記事	型名	
飽和電圧 (V)		I _C	I _B	スイッチング時間 (μs)			I _{B1}	I _{B2}	V _{CC}	I _C	V _F (V)	I _F	t _{rr} (μs)	I _F	V _{BR} (V)	di/dt (A/μs)	θ _{J-C} (℃/W)					
V _{CE}	V _{BE}			t _{on}	t _{off}	t _f											最大	最大	最大	最大	最大	最大
最大	最大	(A)	(A)	最大	最大	最大	(A)	(A)	(V)	(A)	最大	I _F	最大	(A)	(V)	(A/μs)	最大	最大				
1.0	1.5	3	0.6	1.0	4.0	0.8	0.6	-1.2	600	3	—	—					1.25		HB-1A	M-1A1C	非絶縁形	QM5HC-24
1.0	1.5	5	1.0	1.5	7.0	2.0	1.0	-1.0	600	15							1.2		HB-1A	M-1A1A	UL認定済	QM10HB-2H
2.0	2.5	15	0.3	1.5	8.0	2.0	0.3	-0.3	300	15	1.5	15					1.2		HA-1A	M-3A1A	UL認定済	QM15HA-H
2.0	2.5	30	0.4	1.5	12	3.0	0.6	-0.6	300	30	1.85	30					0.5	1.0	HA-1A	M-3B1A	UL認定済	QM30HA-H
2.0	2.5	30	2.0	4.0	5.0	3.0	2.0	-5.0	100	30	1.5	30					0.4	0.8	HC-1A	M-2A1A	非絶縁形	QM30HC-2H
1.0	1.5	15	3.0	1.5	7.0	2.0	3.0	-3.0	600	15	—	—					0.4		HB-1A	M-2B1A	FD無, UL認定済	QM30HQ-24
2.5	3.5	30	0.6	2.5	15	3.0	0.6	-0.6	600	30	1.8	30					0.4	1.5	HY-2A	M-4A1A	UL認定済	QM30HY-2H
2.0	2.5	50	0.65	1.5	12	3.0	1.0	-1.0	300	50	1.75	50					0.4	1.3	HA-1A	M-3B1A	UL認定済	QM50HA-H
2.0	2.5	50	1.0	2.0	5.0	2.0	1.0	-1.0	300	50	1.8	30					0.4	1.2	HC-1A	M-2A1A	非絶縁形	QM50HC-H
2.0	2.5	50	1.0	2.0	5.0	2.0	1.0	-5.0	300	50	1.8	50					0.8	1.3	HA-1A	M-3C1A		QM50HF-H
2.0	2.5	50	1.0	1.5	10	3.5	1.0	-1.0	300	50	1.8	50					0.9	1.5	HA-1A	M-3C1A		QM50HC-H
1.5	2.5	50	0.05	1.5	8	3.0	0.1	-1.0	100	50	1.8	50					0.9	1.5	HA-1A	M-3C1A		QM50HC-4
2.0	2.5	50	1.0	2.0	5.0	2.0	1.0	-5.0	300	50	1.8	50					0.7	1.4	HA-1A	M-1A1B	非絶縁形	QM50HJ-H
2.5	3.5	50	1.0	2.5	15	3.0	1.0	-1.0	600	50	1.8	50					0.31	1.2	HY-2A	M-4A1A	UL認定済	QM50HY-2H
2.0	2.5	75	1.0	2.5	12	3.0	1.5	-1.5	300	75	1.85	75					0.35	1.3	HA-1A	M-3B1A		QM75HA-H
2.0	2.5	100	1.0	2.0	10	3.0	2.0	-2.0	200	100	1.5	100					0.3	0.5	HA-1A	M-3B1B	非絶縁形	QM100HC-M
2.0	2.5	100	1.3	2.0	12	3.0	2.0	-2.0	300	100	1.75	100					0.2	0.65	HY-1A	M-4A1A	UL認定済	QM100HY-H
2.5	3.5	100	2.0	3.0	15	3.0	2.0	-2.0	600	100	1.8	100					0.155	0.65	HY-2A	M-4A1A	UL認定済	QM100HY-2H
2.0	2.5	150	2.0	2.5	12	3.0	3.0	-3.0	600	150	1.8	150					0.18	0.6	HY-1A	M-4A1A	UL認定済	QM150HY-H
2.5	3.5	150	3.0	3.0	15	3.0	3.0	-3.0	600	150	1.8	150					0.125	0.6	HY-2A	M-5A1A	UL認定済	QM150HY-2H

FD-1



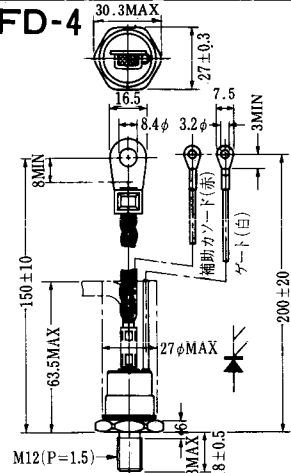
FD-2



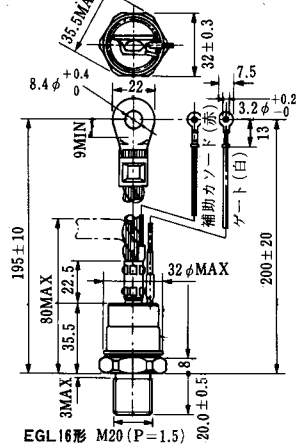
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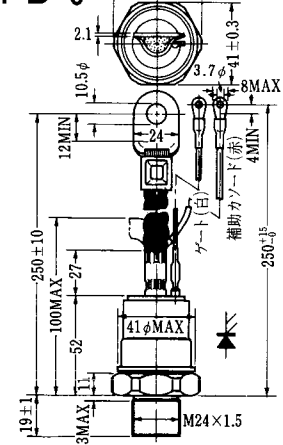
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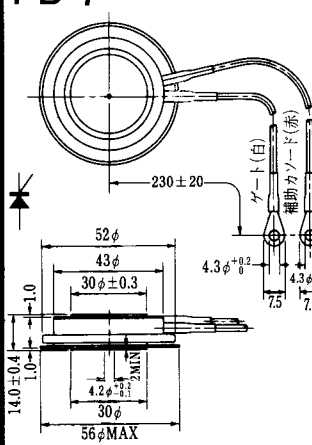
FD-5



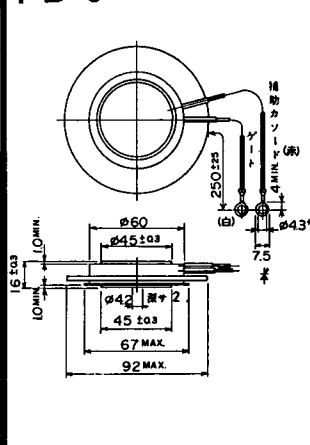
FD-6



FD-7



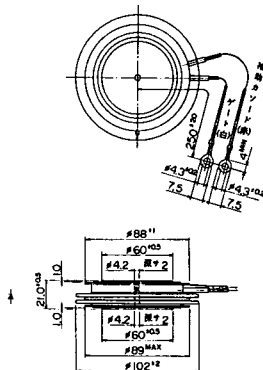
FD-8



FD-9

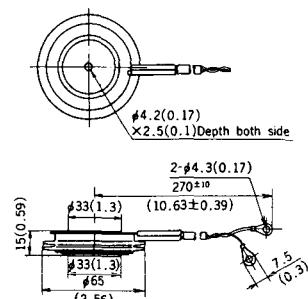
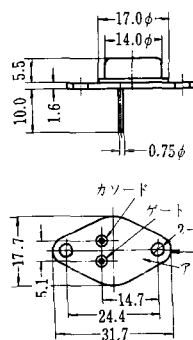
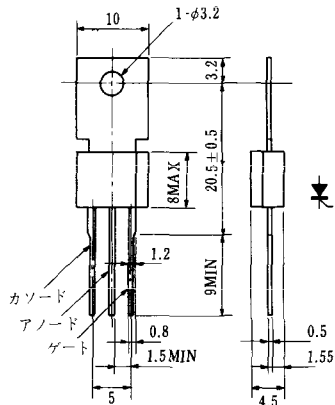


FD-10

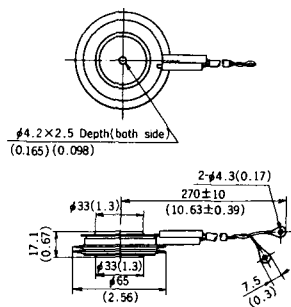


FD-11

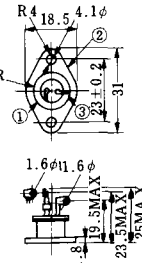
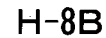
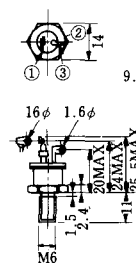
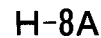
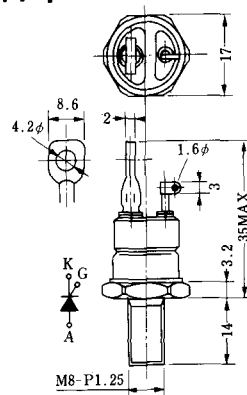
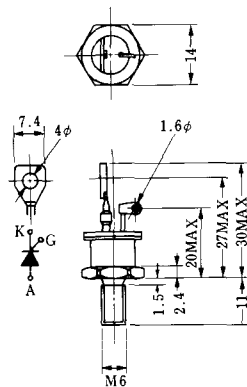
FD-12



Unit in mm (inch)



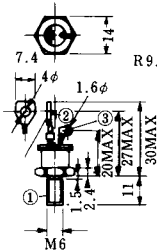
Unit in mm(inch)



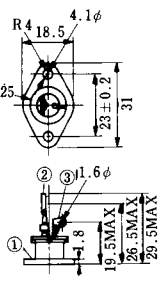
K_C

- ①アノード
②カソード
③ゲート

H-9A

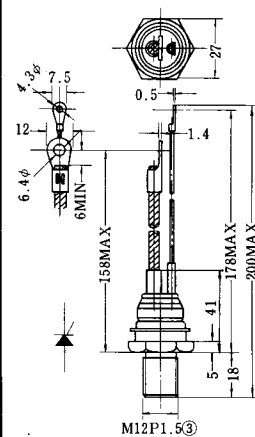


H-9B

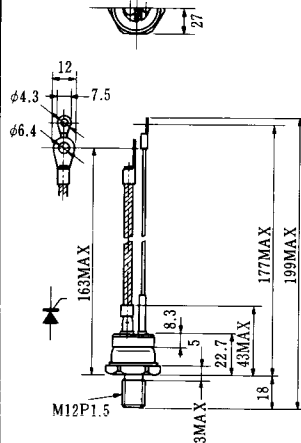


- ① アノード
- ② カソード
- ③ ゲート

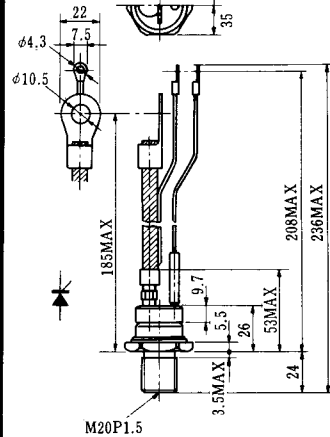
H-10



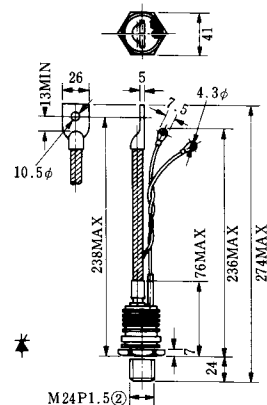
H-11



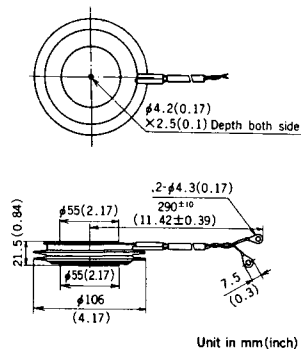
H-12



H-13

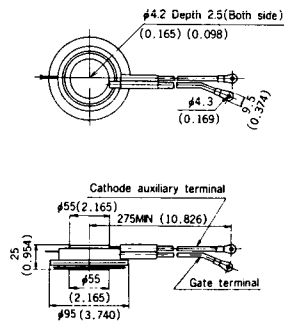


H-14



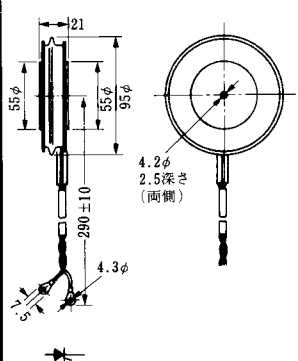
Unit in mm (inch)

H-15

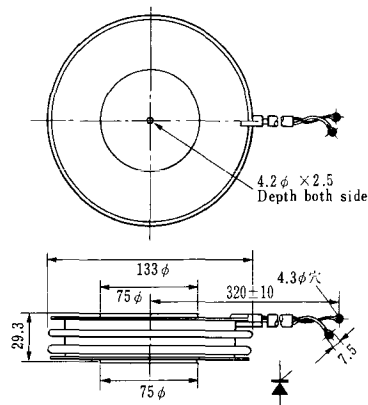


Unit in mm (inch)

H-16



H-17



H-18



H-19



H-20



H-21



H-22



H-23



H-24



H-25



H-26



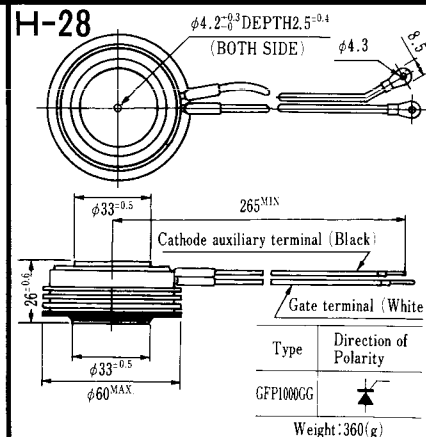
Type	Direction of polarity
CA12	

H-27



Type	Direction of polarity
CF11V	

H-28



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

H-29



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

H-30



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

HT-1



Unit in mm (inch)

HT-2



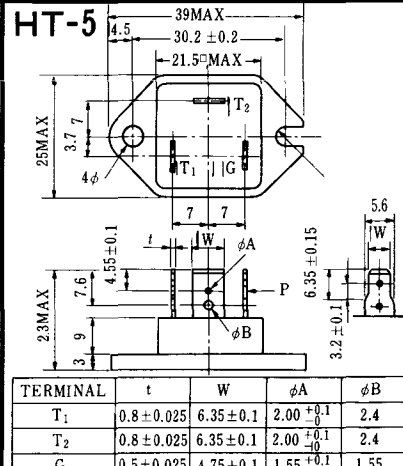
HT-3



HT-4



HT-5



《寸法図単位: mm》

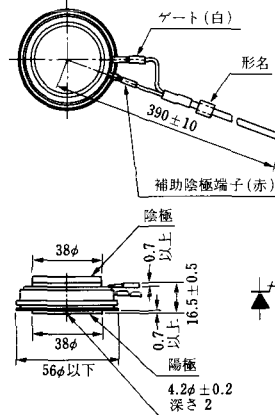
M-1



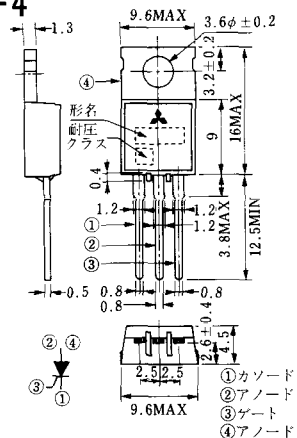
M-2



M-3



M-4



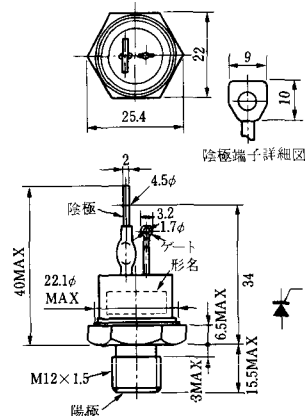
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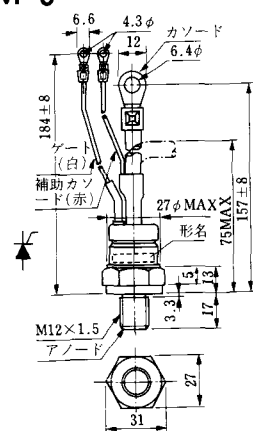
M-6



M-7



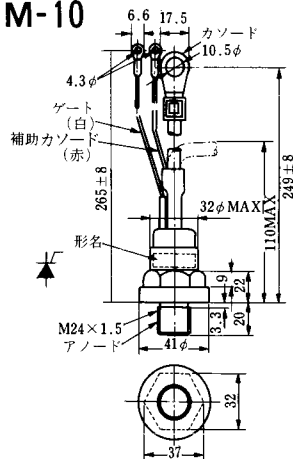
M-8



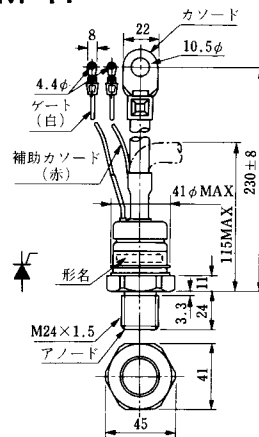
M-9



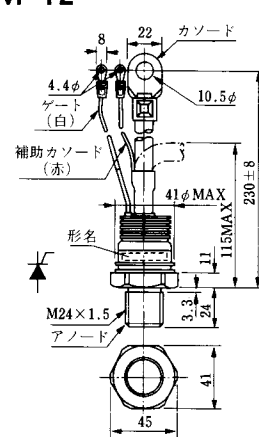
M-10



M-11



M-12



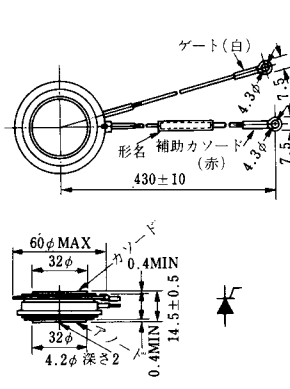
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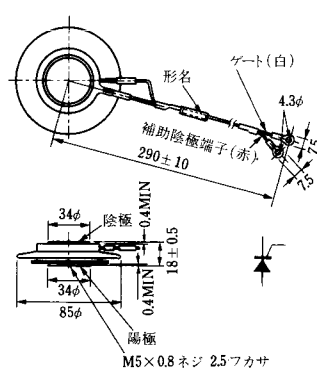
M-14



M-15



M-16



M-17



M-18



M-19



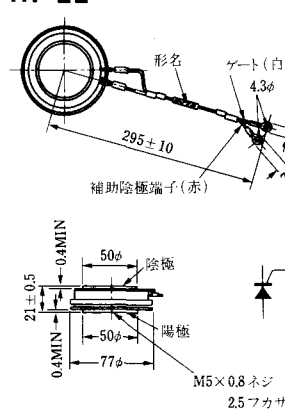
M-20



M-21



M-22



M-23



M-24



M-33



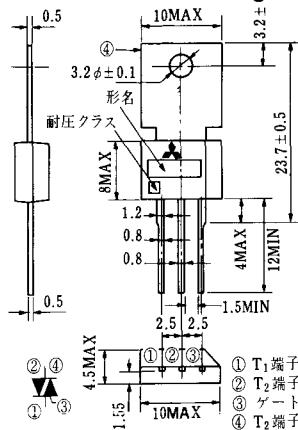
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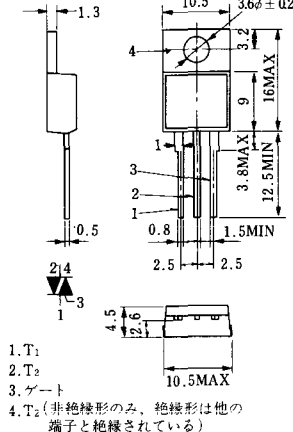
MT-1



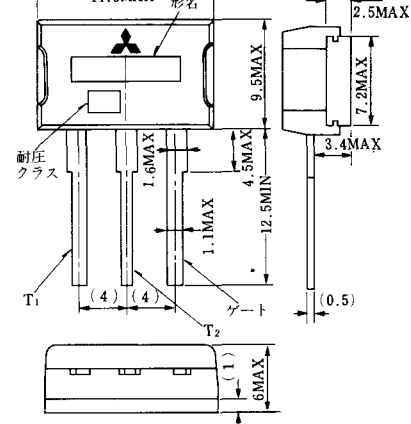
MT-2



MT-3



MT-4



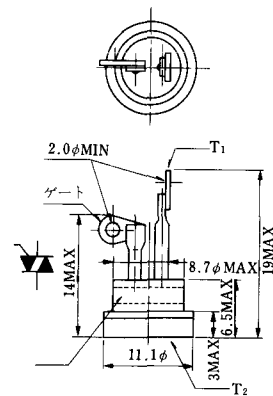
MT-5



MT-6



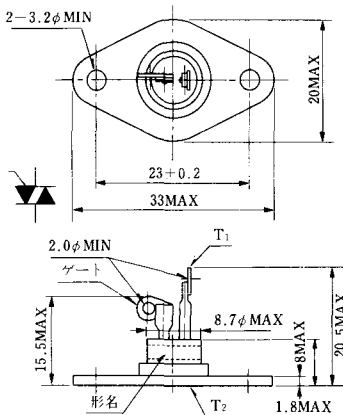
MT-7



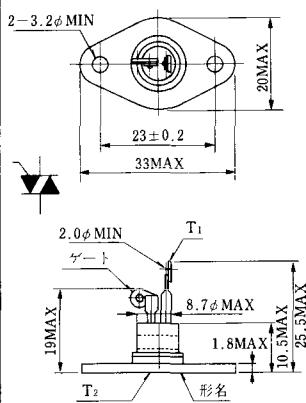
MT-8



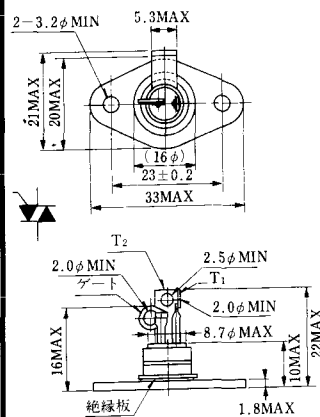
MT-9



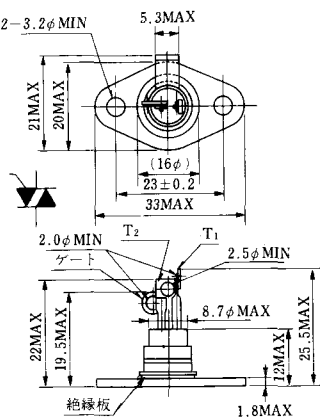
MT-10



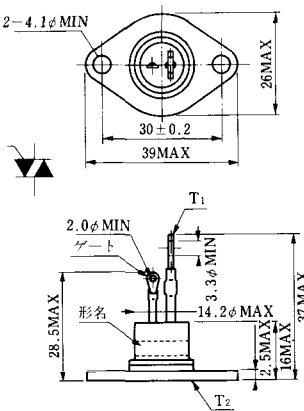
MT-11



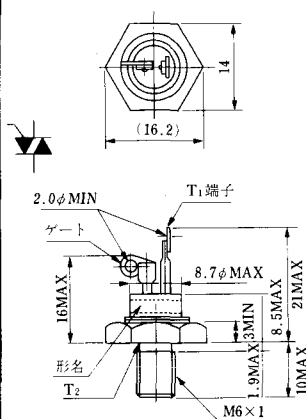
MT-12



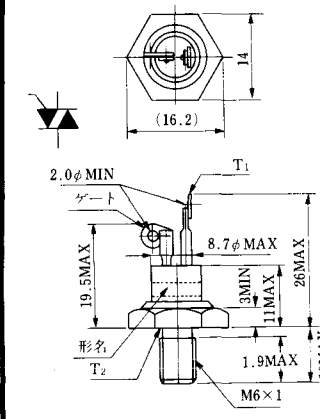
MT-13



MT-14



MT-15



MT-16



MT-17



MT-18



MT-19



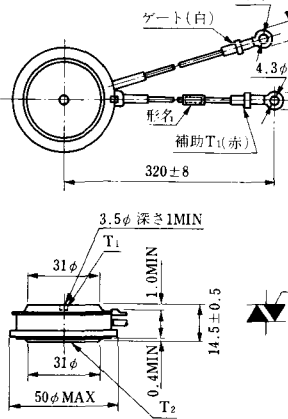
MT-20



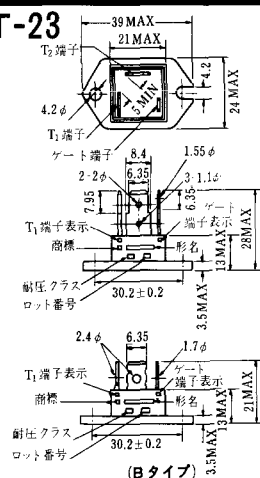
MT-21



MT-22



MT-23



MT-24



TO - 3P

- ① T1 端子
- ② T2 端子
- ③ ゲート端子
- ④ T2 端子

N-1



電極接続

- ① カソード
- ② ゲート
- ③ アノード

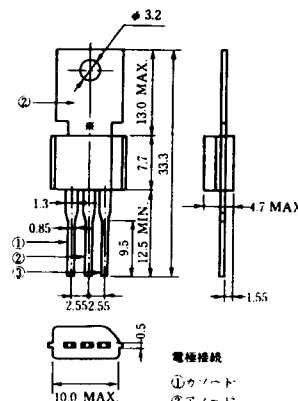
N-2



電極接続

- ① ゲート
- ② アノード
- ③ カソード

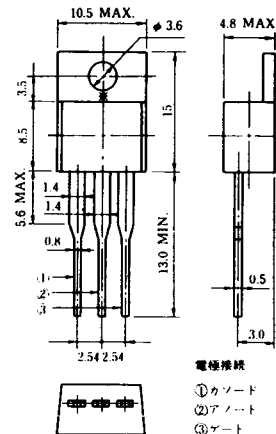
N-3



電極接続

- ① カソード
- ② アノード
- ③ ゲート

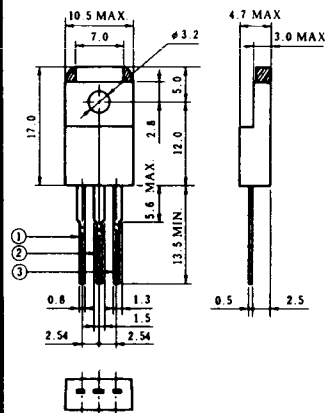
N-4



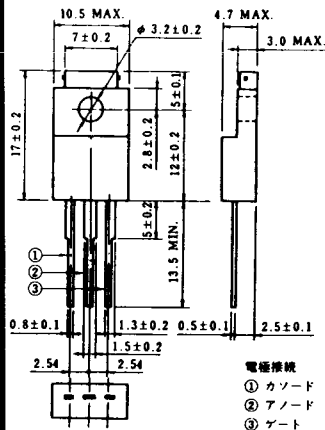
電極接続

- ① カソード
- ② アノード
- ③ ゲート

N-5



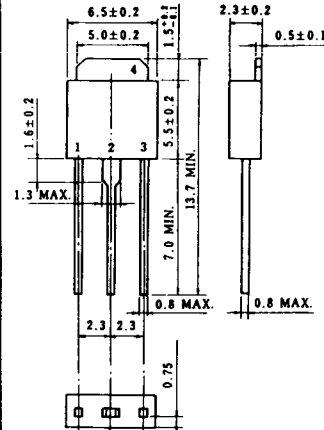
N-6



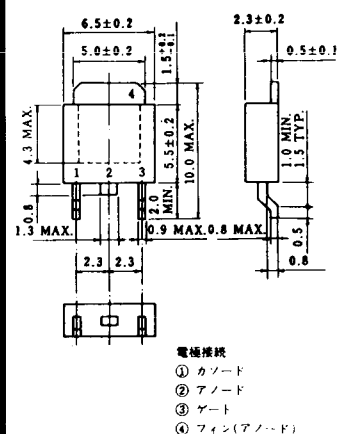
電極接続

- ① カソード
- ② アノード
- ③ ゲート

N-7



N-8



電極接続

- ① カソード
- ② アノード
- ③ ゲート
- ④ フィン(アノード)

N-9



電極接続

K : カソード

A : アノード

G : ゲート

NA-1



電極接続

1. ゲート
2. アノード
3. カソード

JEDEC: TO-92

NA-2



電極接続

1. カソード
2. アノード
3. ゲート

JEDEC: TO-202AA

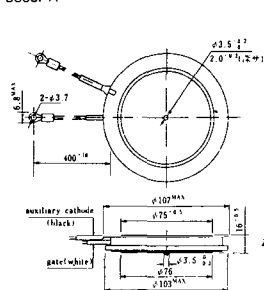
NI-16

503PLF
503PLH



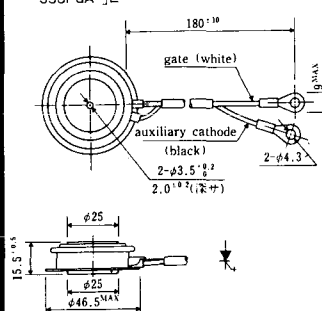
NI-17

3003PA



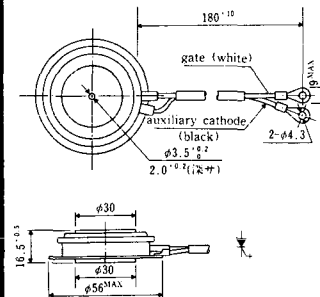
NI-18

353PGA「E



NI-19

603PGA, 603PGA「A, 803PGA



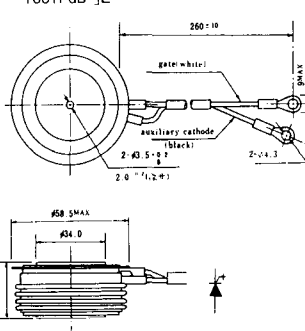
NI-20

603PGA「E



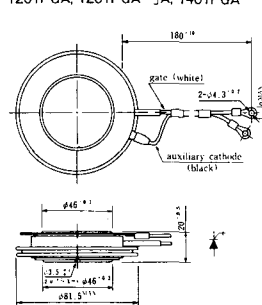
NI-21

1001PGB「E



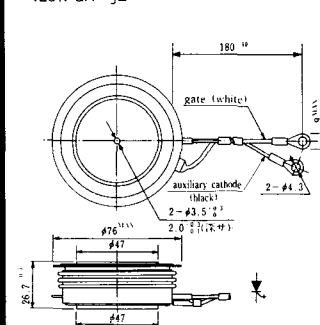
NI-22

1201PGA, 1201PGA「A, 1401PGA



NI-23

1201PGA「E



NI-24

2001PGB^r JE



NI-25

NI-26

NT-1



電極接続
① T₁
② ゲート
③ T₂

NT-2



電極接続
① T₁
② ゲート
③ T₂

NT-3



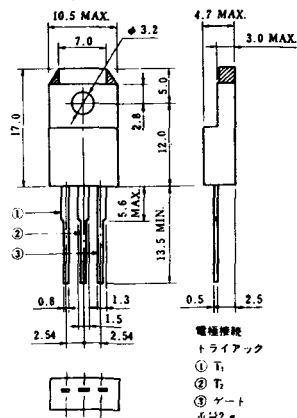
電極接続
① T₁
② T₂
③ ゲート

NT-4



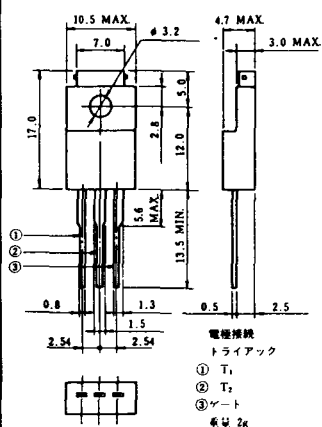
電極接続
① T₁
② T₂
③ G

NT-5



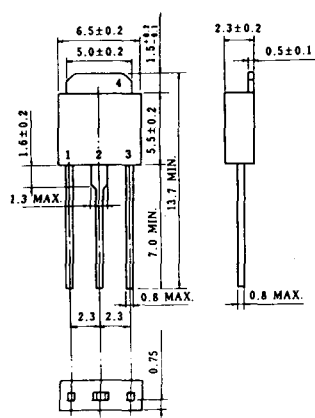
電極接続
トライアック
① T₁
② T₂
③ ゲート
④ 2K

NT-6

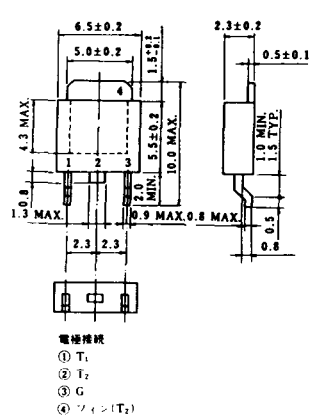


電極接続
トライアック
① T₁
② T₂
③ ゲート
④ 2K

NT-7



NT-8



電極接続
① T₁
② T₂
③ G
④ ϕ (T₂)

S-1



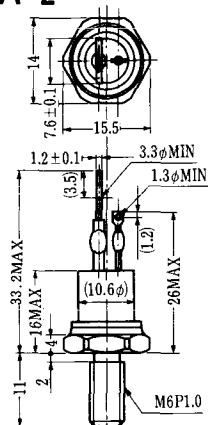
ST-1



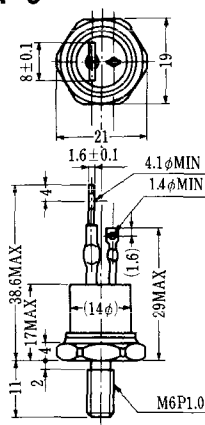
SA-1



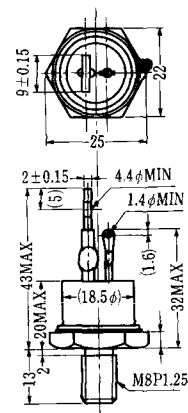
SA-2



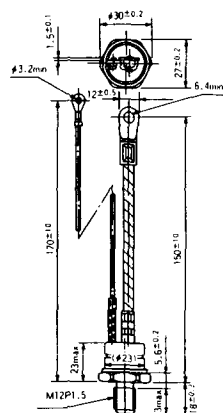
SA-3



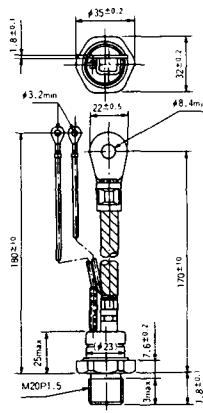
SA-4



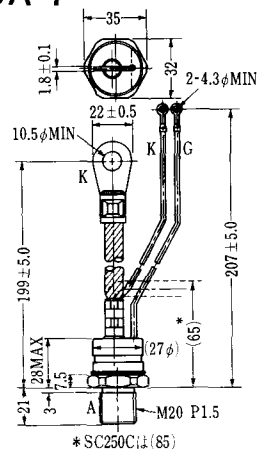
SA-5



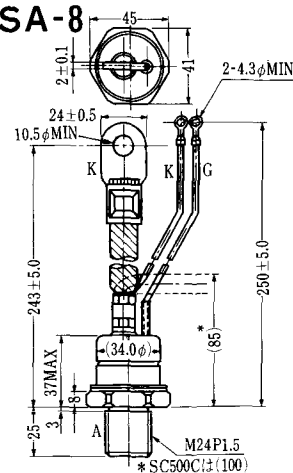
SA-6



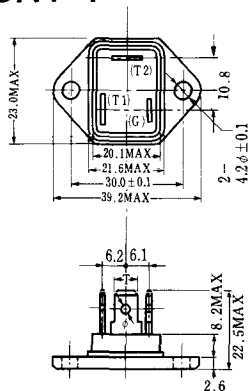
SA-7



SA-8



SAT-1

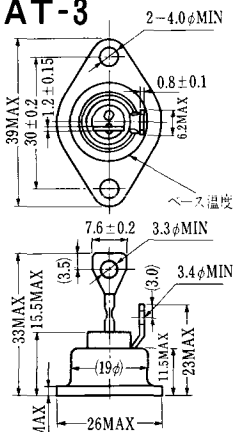


T1端子:ファストン250($T=6.35$, $t=0.8$, $\phi=1.65$)
T2端子:ファストン250($T=6.35$, $t=0.8$, $\phi=1.65$)
G端子:ファストン187($T=4.75$, $t=0.5$, $\phi=1.3$)

SAT-2



SAT-3



SAT-4



SAT-5



SAT-6



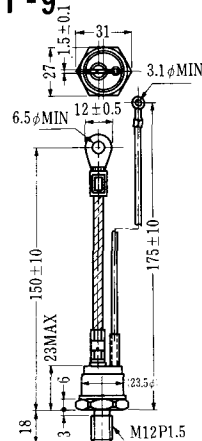
SAT-7



SAT-8



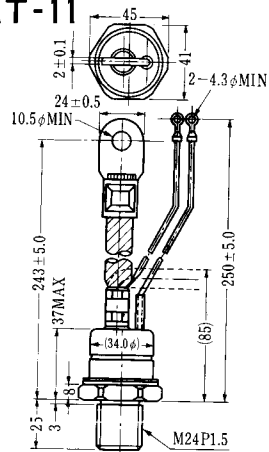
SAT-9.



SAT-10



SAT-11



SY-1(1096A)



SY-2(1151)



SY-3(1104)



SY-4(1150)



1097A



G: Gate

1102



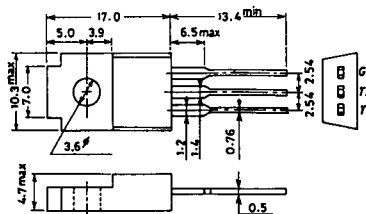
1141



1142



1144



1155



1192A

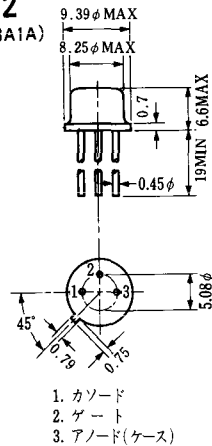


G: Gate

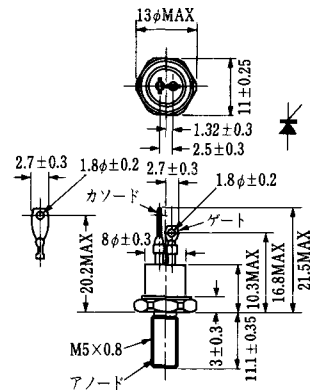
T-1 (13-5A1A)



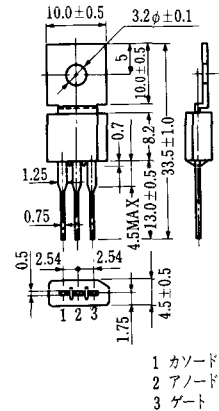
T-2 (13-8A1A)



T-3 (13-8C1A)



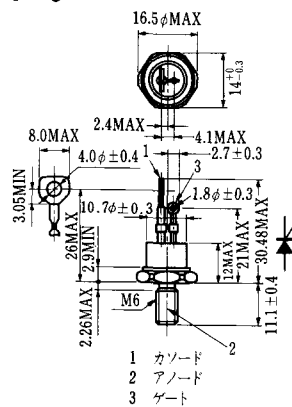
T-4 (13-10A1A)



T-5 (13-10B1A)



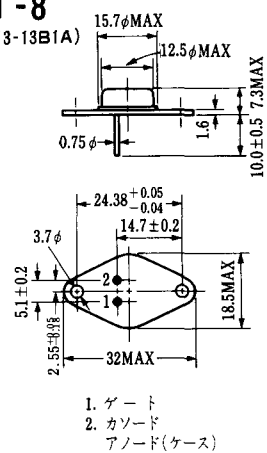
T-6 (13-11D1A)



T-7 (13-13A1A)



T-8 (13-13B1A)



T-17 (13-42A1A)



T-18 (13-45D1A)



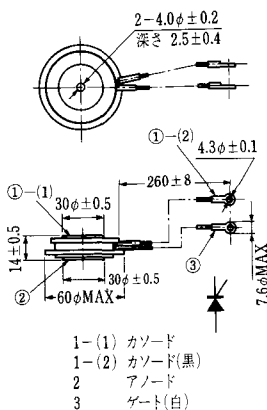
T-19 (13-52B1A)



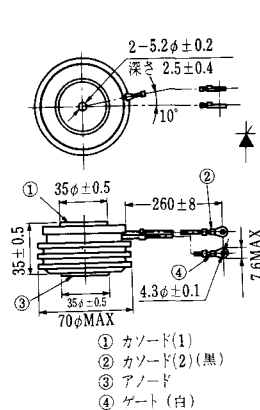
T-20 (13-52C1A)



T-21 (13-60A1A)



T-22 (13-70C1A)



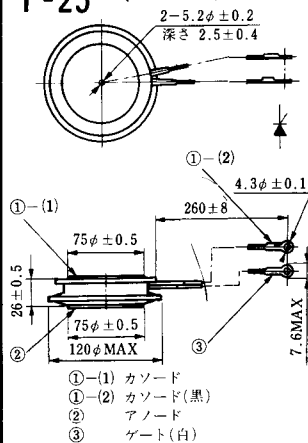
T-23 (13-78A1A)



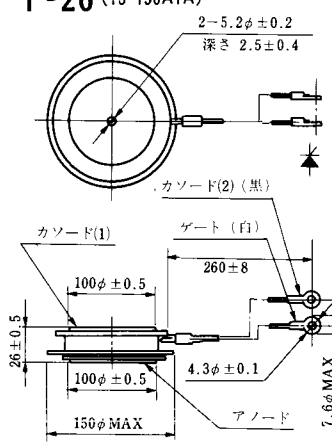
T-24 (13-100C1A)



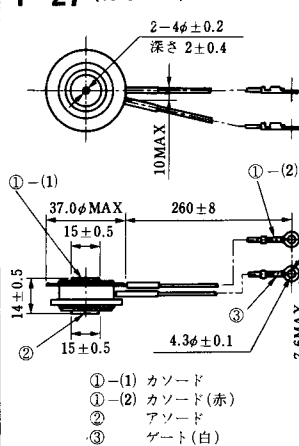
T-25 (13-120A2A)



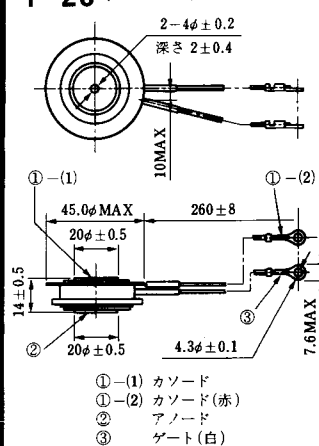
T-26 (13-150A1A)



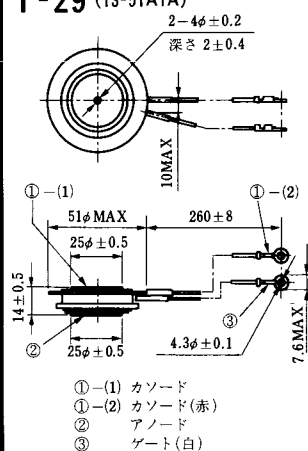
T-27 (13-37A1A)



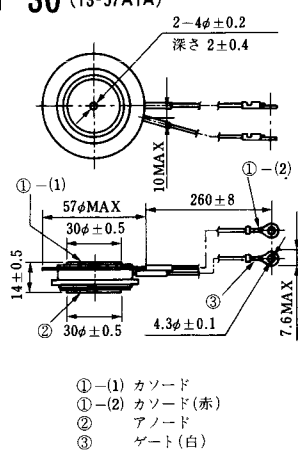
T-28 (13-45E1A)



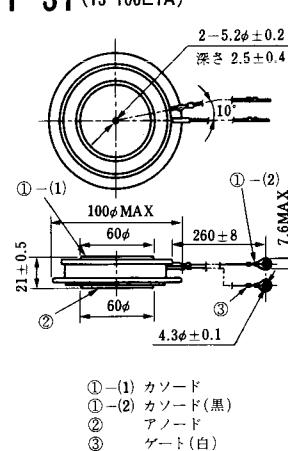
T-29 (13-51A1A)



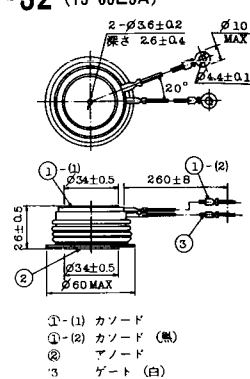
T-30 (13-57A1A)



T-31 (13-100E1A)



T-32 (13-60E3A)



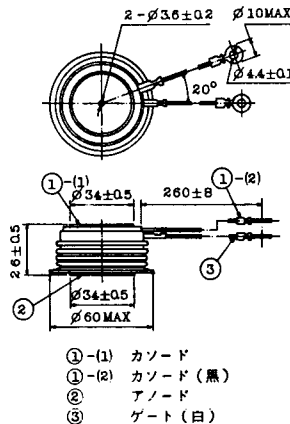
T-41 (13-28A2A)



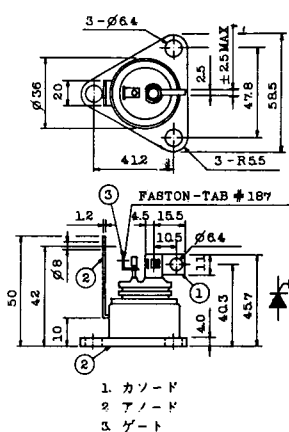
T-42 (13-45F1A)



T-43 (13-60E2A)



T-44 (13-36A1A)



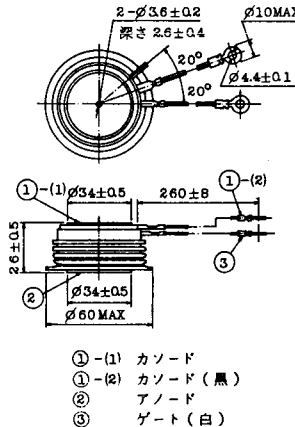
T-45 (13-51B1A)



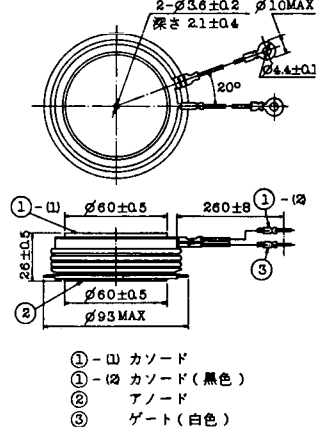
T-46 (13-36B1A)



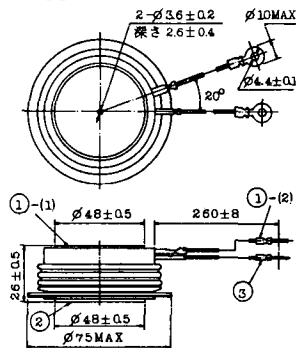
T-47 (13-60E1A)



T-48 (13-93C1A)

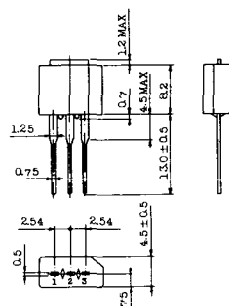


T-49 (13-75A1A)



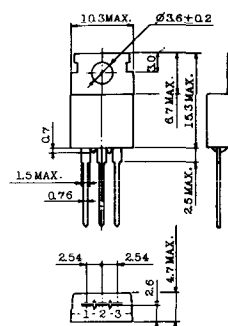
- 1-(1) カソード
- 1-(2) カソード (黒)
- 2 アノード
- 3 ゲート (白)

T-50 (13-10A3A)



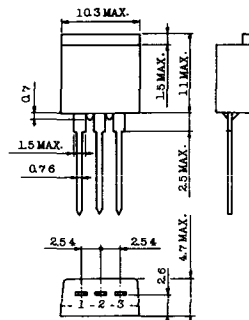
- 1 カソード
- 2 アノード
- 3 ゲート

T-51 (13-10D1A)



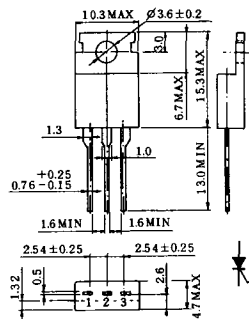
- 1 カソード
- 2 アノード
- 3 ゲート

T-52 (13-10D2A)



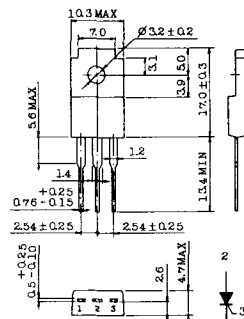
- 1 カソード
- 2 アノード
- 3 ゲート

T-53 (13-10E1B)



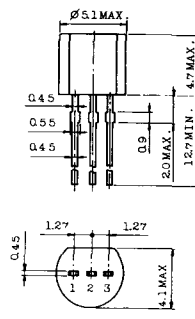
- 1 カソード
- 2 アノード
- 3 ゲート

T-54 (13-10F1B)



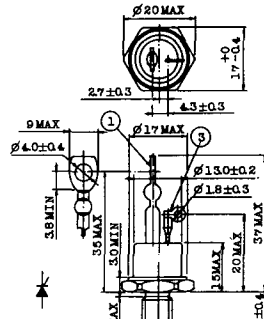
- 1 カソード
- 2 アノード
- 3 ゲート

T-55 (13-5A1D)



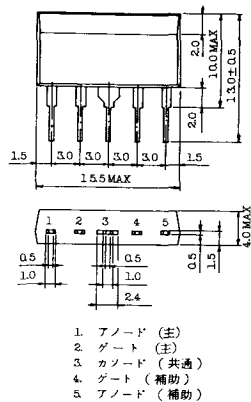
- 1 カソード
- 2 ゲート
- 3 アノード

T-56 (13-13C1A)

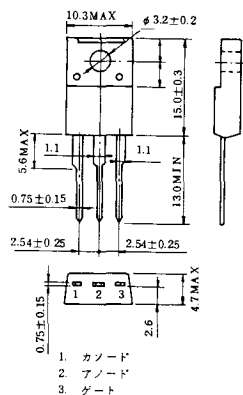


- 1 カソード
- 2 アノード
- 3 ゲート

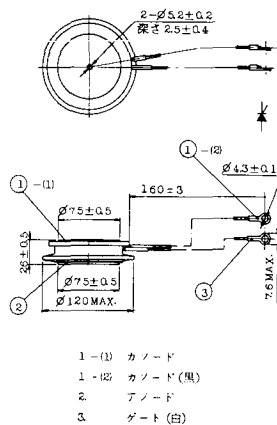
T-57 (12-16C1A)



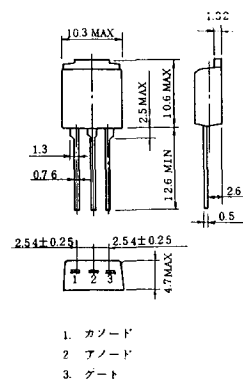
T-58 (13-10H1B)



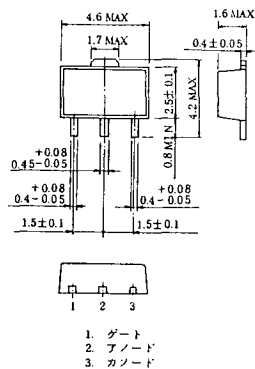
T-59 (13-120A1A)



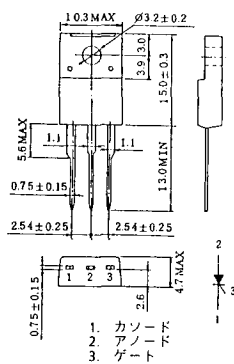
T-60



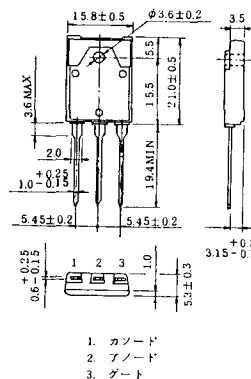
T-61 (13-5B1A)



T-62 (13-10H1A)



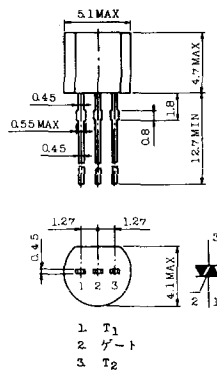
T-63 (13-16A1B)



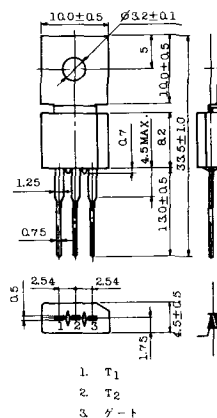
TT-1



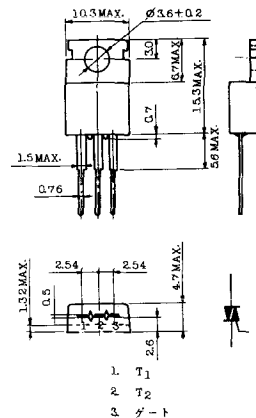
TT-2



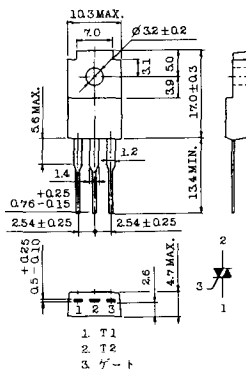
TT-3



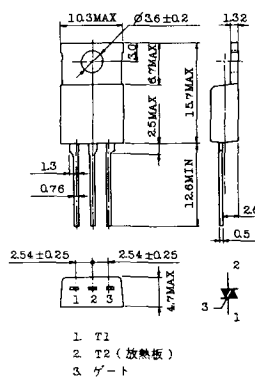
TT-4



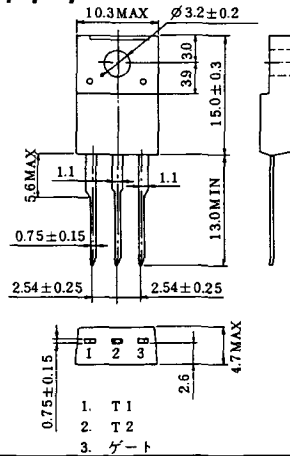
TT-5



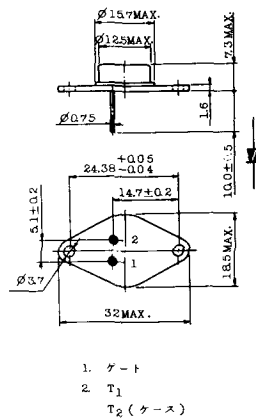
TT-6



TT-7



TT-8



TT-9



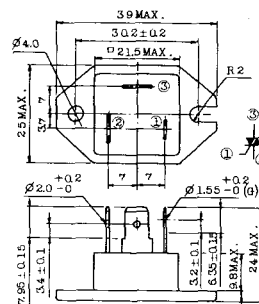
1. ゲート
2. T₁
3. T₂ (ケース)

TT-10



1. ゲート
2. T₁
3. T₂ (ケース)

TT-11



1. ゲート (ファストン端子 #187)
2. T₁ (" #250)
3. T₂ (" #250)

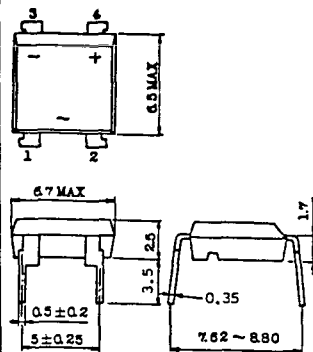
TT-12



ゲート端子詳細

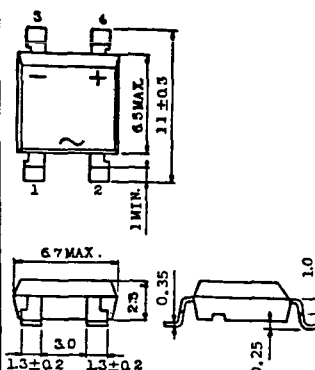
- ① ゲート (ファストン端子 #187)
- ② T₁ (" #250)
- ③ T₂ (" #250)

TT-13



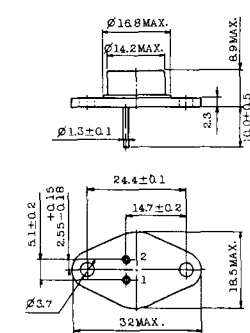
- 1, 2: T₂
- 3: GATE
- 4: T₁

TT-14



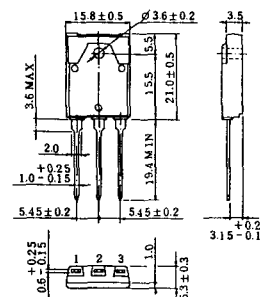
- 1, 2: T₂
- 3: GATE
- 4: T₁

TT-15 (13-14A1B)



1. ゲート
2. T₁
- T₂ (ケース)

TT-16 (13-16A1A)

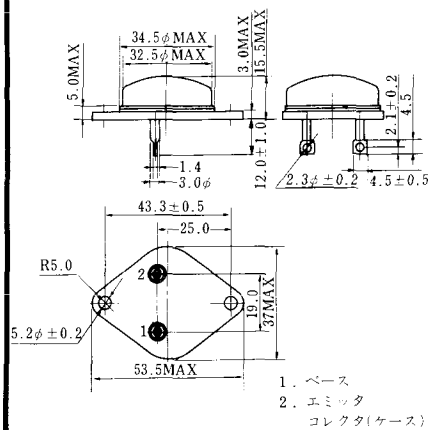


1. T₁
2. T₂
3. ゲート

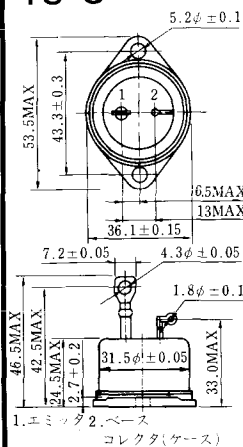
TS-1



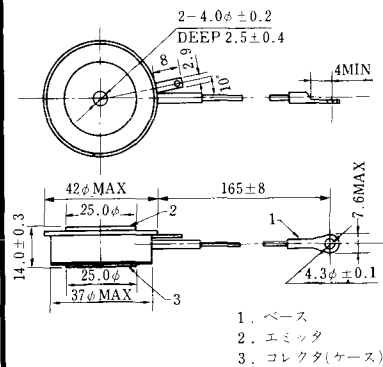
TS-2



TS-3



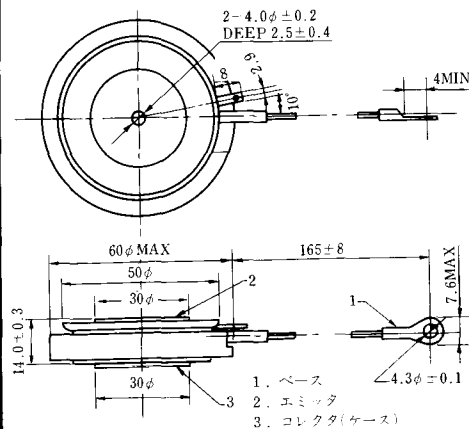
TS-4



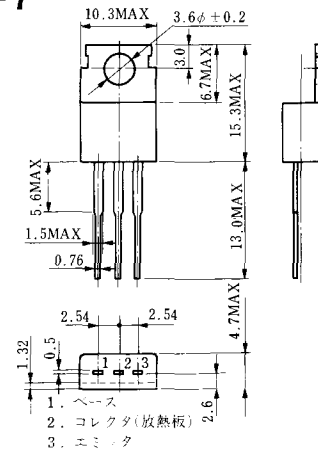
TS-5

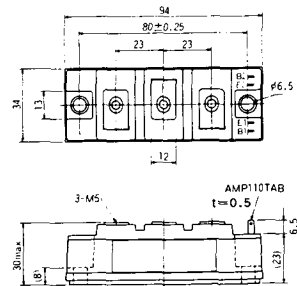
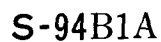
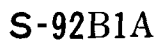
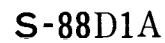
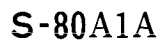


TS-6



TS-7

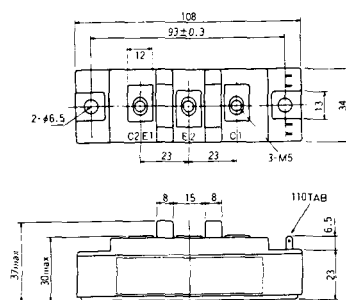




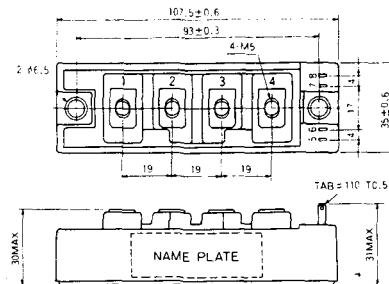
S-108B1A



S-108B1B



S-108B1C



S-108B2A



S-108B2B



2-22B1A



2-27A4A



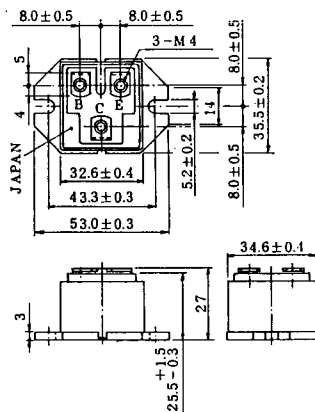
2-33C1A



2-33D1A



2-33F1A



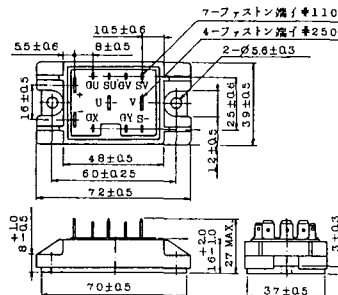
2-37A1A



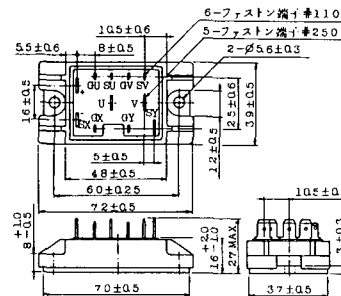
2-48A3A



2-48A3B



2-48A4A



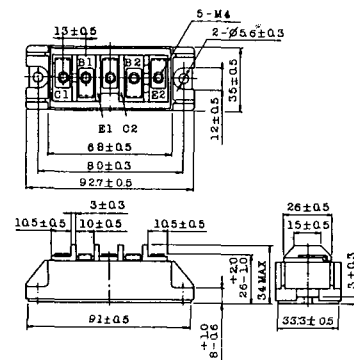
2-64A2A



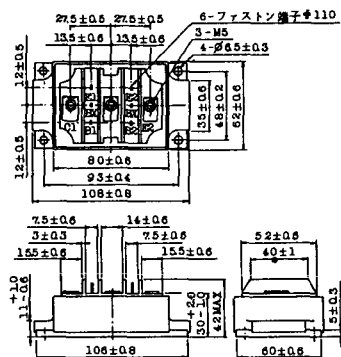
2-64A2B



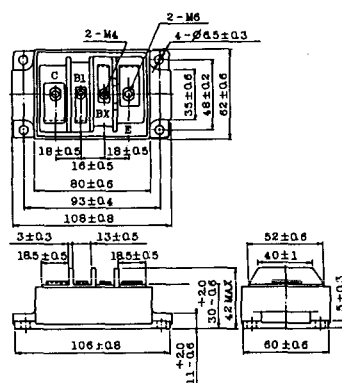
2-68A2A



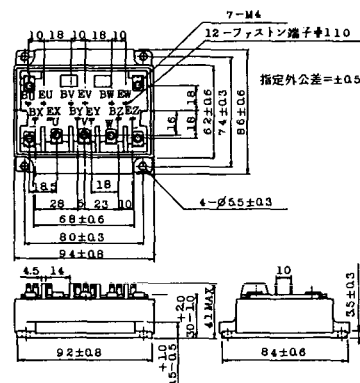
2-80C1A



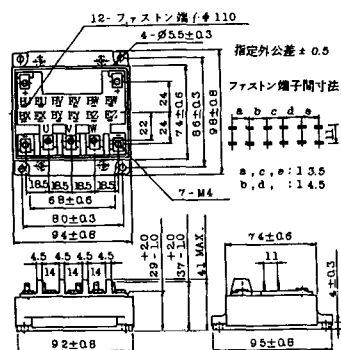
2-80D2A



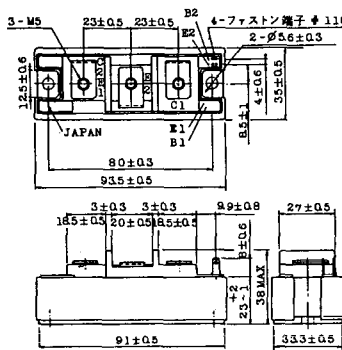
2-94A2A



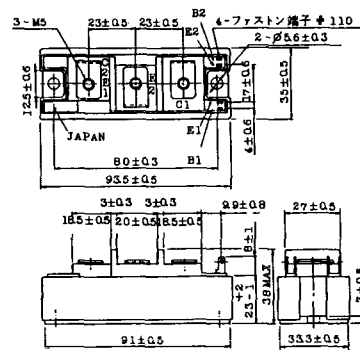
2-94B1A

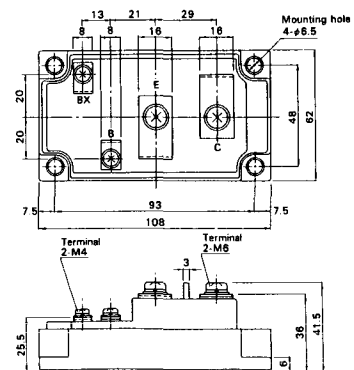
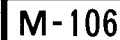
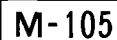
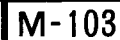
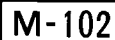


2-94C2A



2-94C3A





M-107



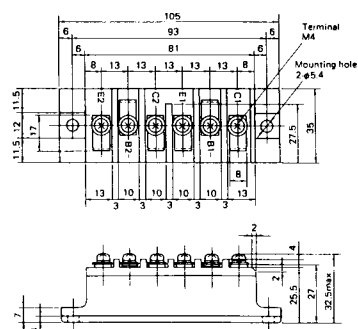
M-116



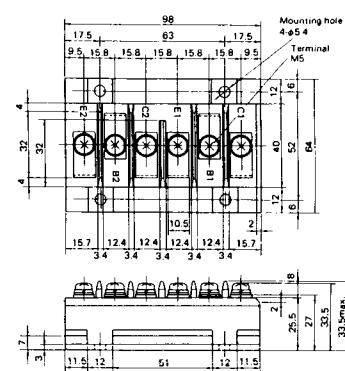
M-201



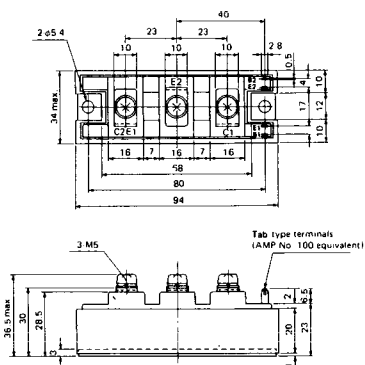
M-202



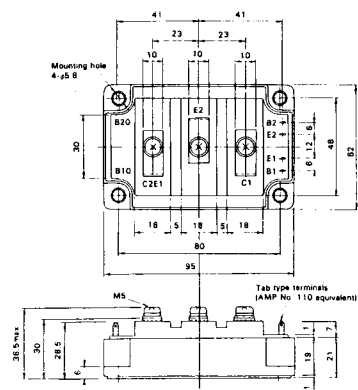
M-203



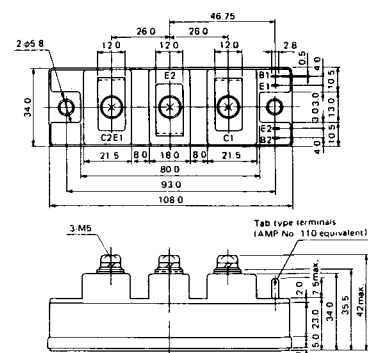
M-204



M-205



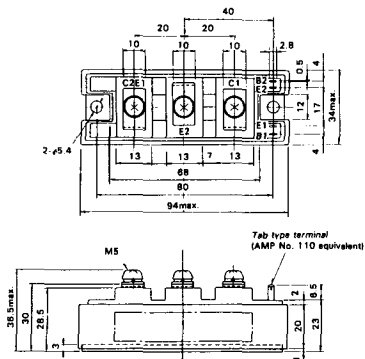
M-206



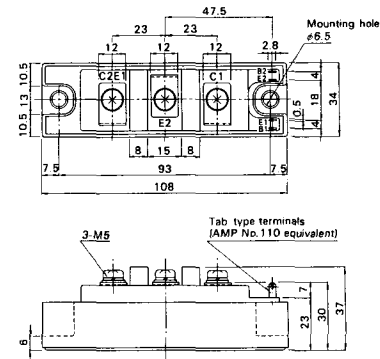
M-207



M-208



M-209



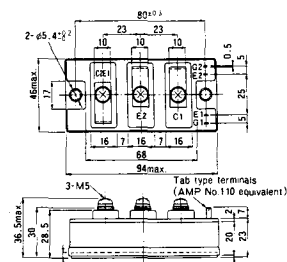
M-210

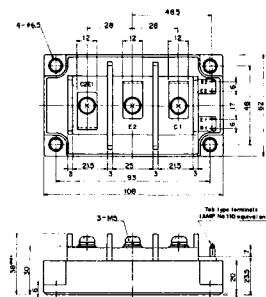
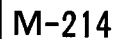


M-211

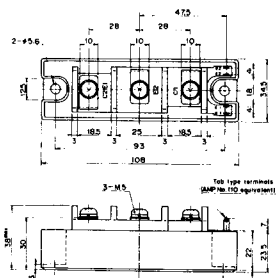
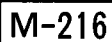


M-212

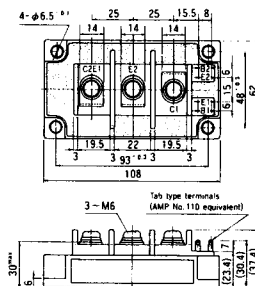




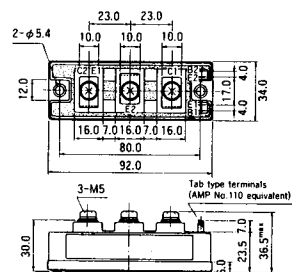
M-215



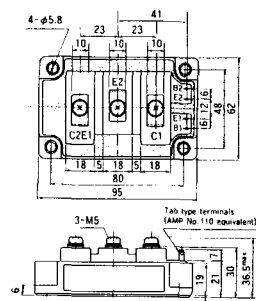
M-217



M-218



M-219



M-601



M-602



M-603



M-604



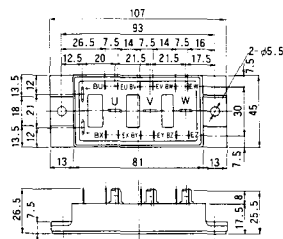
M-605



M-606



M-607



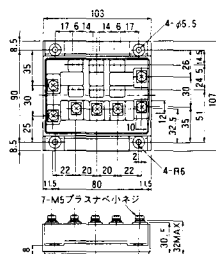
M-608



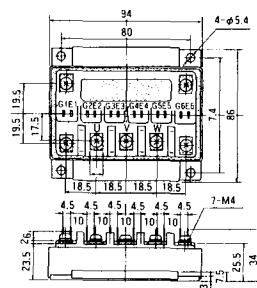
M-609



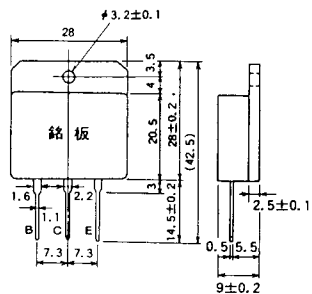
M-610



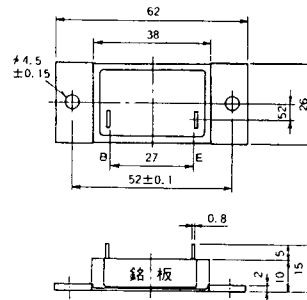
M-616



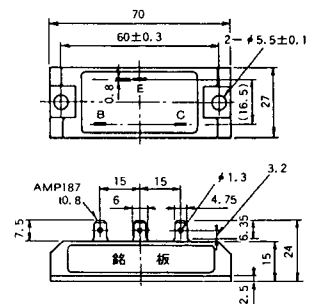
M-1A1A



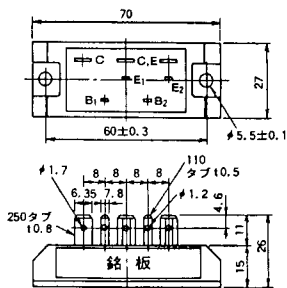
M-2A1A



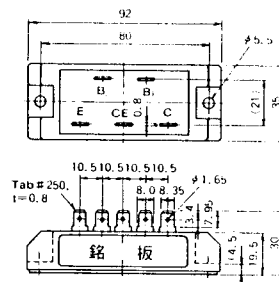
M-2B1A



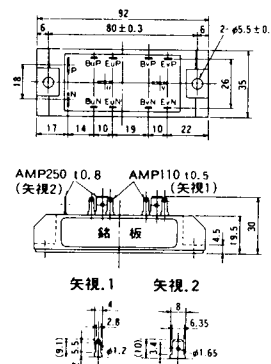
M-2B2A



M-2C2A



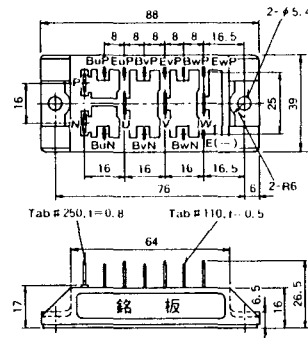
M-2D4A



M-2E6A



M-2F6A



M-2G6A



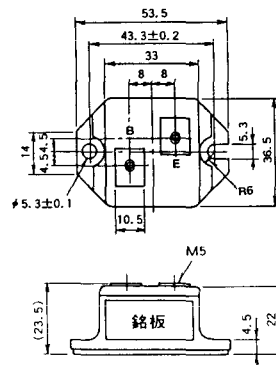
M-3A1A



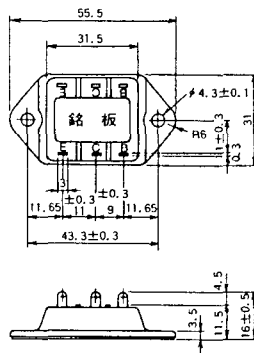
M-3B1A



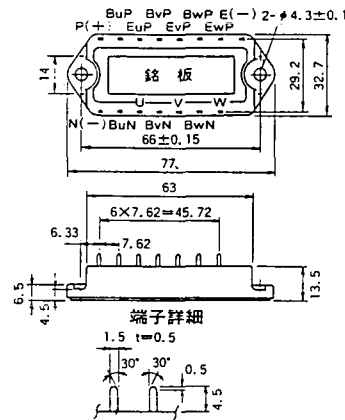
M-3B1B



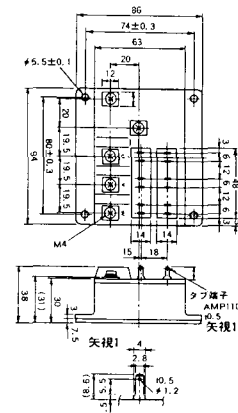
M-3C1A



M-3D6A



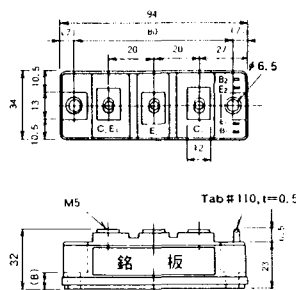
M-3E6A



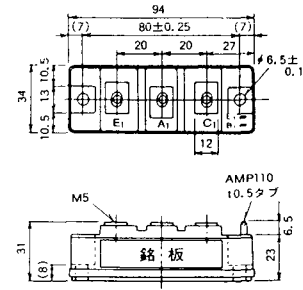
M-4A1A



M-4A2A



M-4A1B



M-4A2B



M-4B2A



M-5A1A



M-5A1B



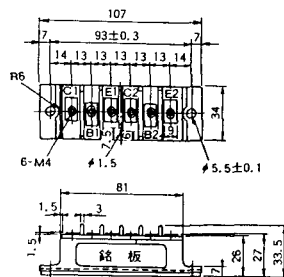
M-5A2A



M-5B2A



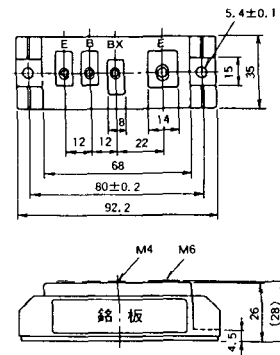
M-5C2A



M-5D2A



M-6A1A



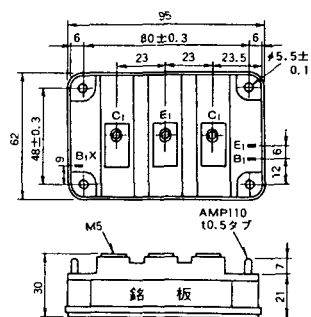
M-7A1A



M-7B1A



M-8A1A



M-8A1B



M-8A2A



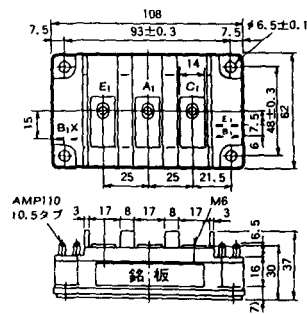
M-8A2B



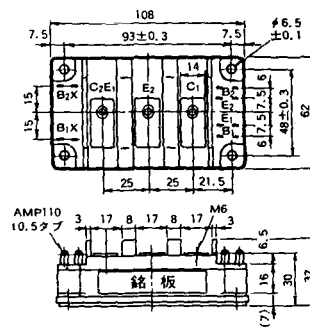
M-8B2A



M-9A1A



M-9A2A



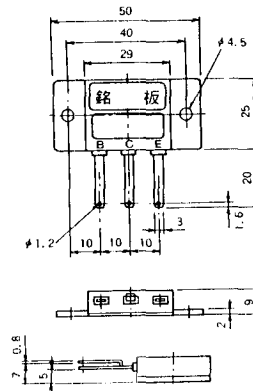
M-9B1A



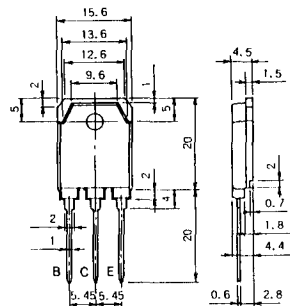
M-9C2A



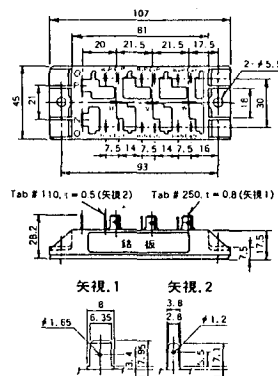
M-1A1B



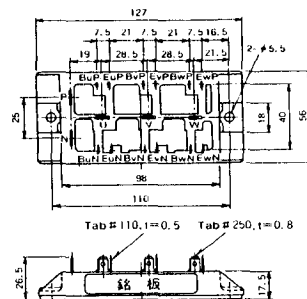
M-1A1C



M-2E6B



M-2E6C



M-4A2D



M-4A2E



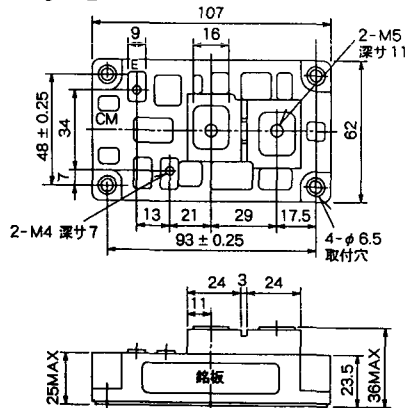
M-4C2A



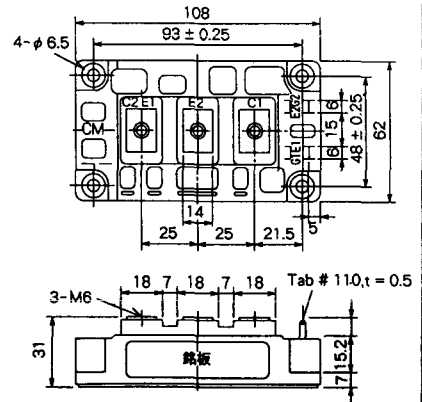
M-4C2B



M-9B1C



M-9D2A



M-9D2B



M-10A2C



H-101



Weight :480g

TERMINALS

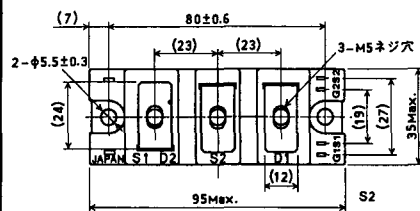
H-201



H-202



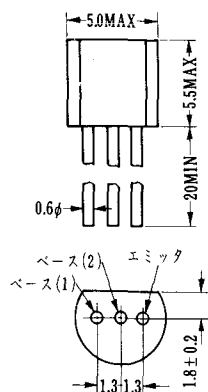
LF-J



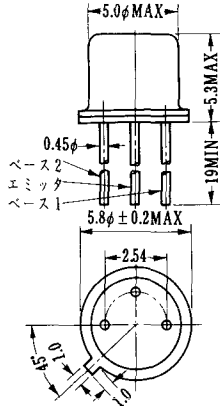
LF-K



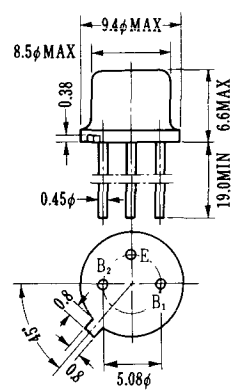
U-1



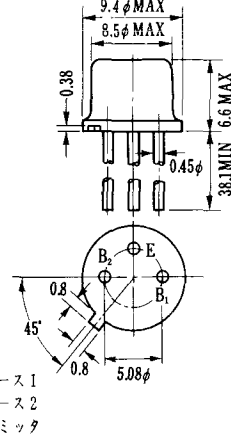
U-2



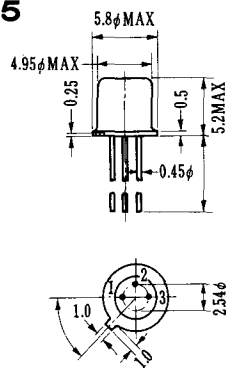
U-3



U-4

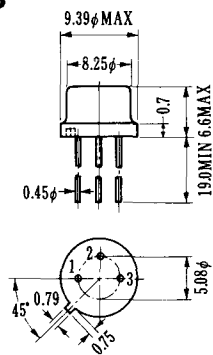


U-5



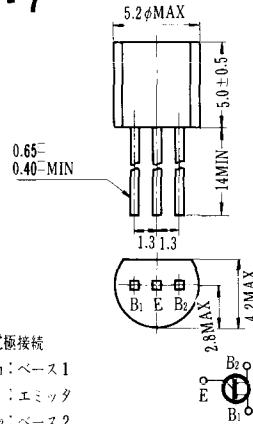
1. BASE 1
2. EMITTER
3. BASE 2 (CASE)

U-6



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

U-7



U-8

