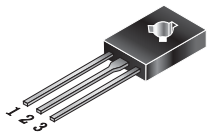
AC05F

Sensitive Gate Triacs

HAOPIN MICROELECTRONICS CO.,LTD.

Description

Passivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

Symbol	Simplified outline
	 TO-126

Pin	Description
1	Main terminal 1 (T1)
2	Main terminal 2 (T2)
3	gate (G)
TAB	Main terminal 2 (T2)

Applications:

- Motor control
- Industrial and domestic lighting
- Heating
- Static switching

Features

- Blocking voltage to 600 V
- On-state RMS current to 8 A

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages	600	V
$I_{T\ (RMS)}$	RMS on-state current	8	A
I_{TSM}	Non-repetitive surge current (One full cycle sine wave,60Hz,Tj=125℃)	50	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Rth j-mb	Thermal resistance Junction to mounting base	Full cycle	-	-	3.0	K/W
		Half cycle	-	-	3.7	K/W
Rth j-c	Thermal resistance Junction to Case		-	-	3.0	℃/W

Limiting values in accordance with the Maximum system(IEC 134)

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V_{DRM}	Repetitive peak off-state Voltages		-	600	V
$I_{T(RMS)}$	RMS on-state current	Tc=107℃	-	8	A
V_{DSM}	Non-repetitive peak off Voltage		-	600	V
IT^2dt	Fusing Current	1 ms<=t<=10ms	-	10	A^2S
DI_T/dt	Repetitive rate of vise of on-state current after trigering		-		
			-	50	A/μs
			-	50	A/μs
			-	50	A/μs
			-	10	A/μs
I_{FGM}	Peak gate current	f>=50Hz,Duty<=10%	-	±3	A
V_{GM}	Peak gate voltage		-	-	V
P_{GM}	Peak gate power	f>=50Hz,Duty<=10%	-	3	W
$P_{G(AV)}$	Average gate power		-	0.3	W
T_{stg}	Storage temperature		-40	150	℃
T_j	Junction Temperature		-40	125	℃

T_J=25°C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS		MIN	TYP	MAX	UNIT
Static characteristics							
I_{GT}	Gate trigger current	V_{DM}=12V;R_L=30Ω	I	-	-	5	mA
			II	-	-	5	mA
			III	-	-	5	mA
			Iv	-	-	10	mA
V_{GT}	Gate trigger voltage	V_{DM}=12V;R_L=30Ω	I	-	-	1.5	V
			II	-	-	2.0	V
			III	-	-	1.5	V
			Iv	-	-	1.5	V
I_H	Holding Current	V_D=24V; I_{TM}=5A		-	10	-	mA
V_{GD}	GateNon-Trigger voltage	Tj=125℃,V_{DM}=1/2V_{DRM}		0.2	-	-	V
V_{TM}	On-state Voltage	I_{TM}=5A		-	-	1.8	V
I_{DRM}	Peak off-State Current	V_{DM}=V_{DRM};T_J=125℃		-	-	1	mA

Dynamic Characteristics

(dv/dt)C	Commutating dv/dt	Tj=125℃;(diT/dt)c=-2.7A/ms VD=400V	5	-	-	V/μs
t_{gt}	Gate controlled turn-on time		-	2	-	μs

Description

Fig. 1 $i_T - v_T$ CHARACTERISTIC

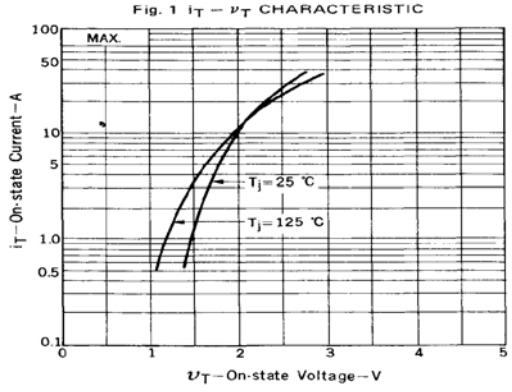


Fig. 2 I_{TSM} RATING

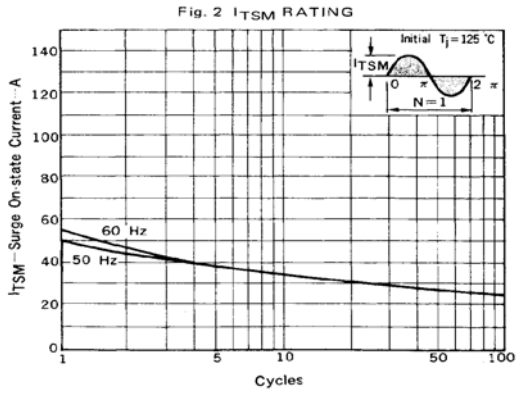


Fig. 3 $V_G - I_G$ RATING

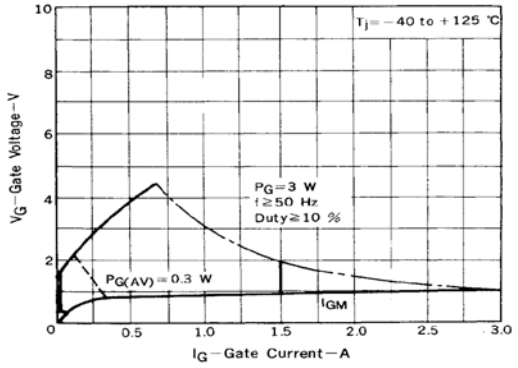


Fig. 4 $V_{GT} - I_{GT}$ CHARACTERISTIC

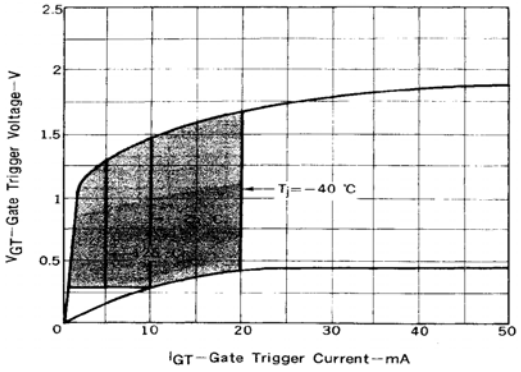


Fig. 5 $I_{GT} - T_a$ TYPICAL DISTRIBUTION

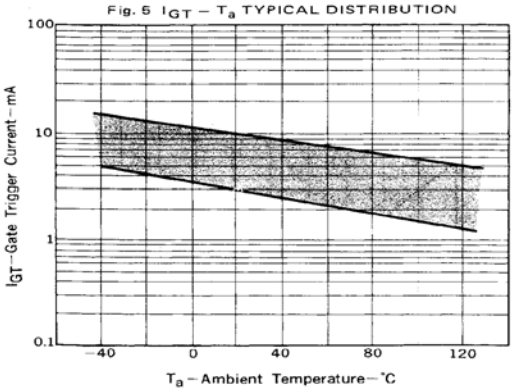
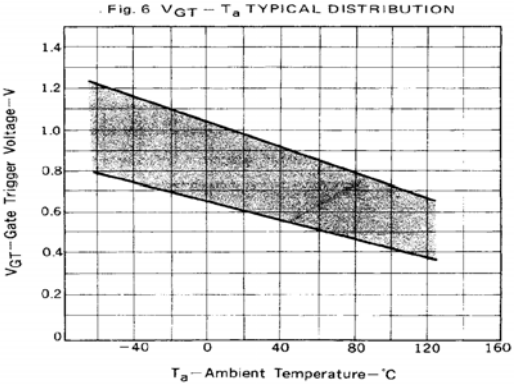


Fig. 6 $V_{GT} - T_a$ TYPICAL DISTRIBUTION



Description

Fig. 7 $i_{GT} - \tau$ TYPICAL DISTRIBUTION

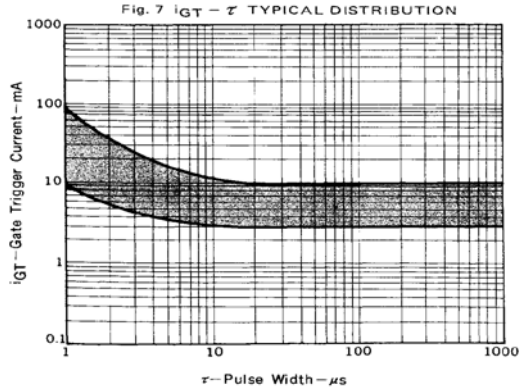


Fig. 8 $v_{GT} - \tau$ TYPICAL DISTRIBUTION

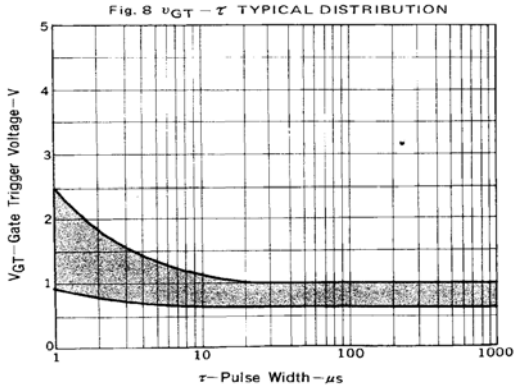


Fig. 9 $I_H - T_a$ TYPICAL DISTRIBUTION

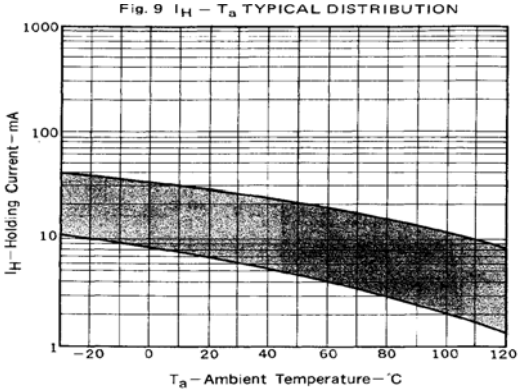


Fig. 10 $P_{T(AV)} - I_{T(RMS)}$ CHARACTERISTIC

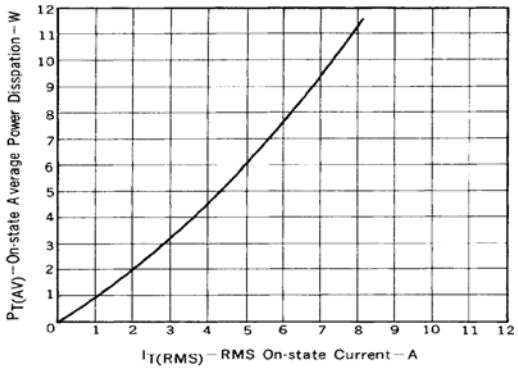


Fig. 11 $T_c - I_{T(RMS)}$ RATING

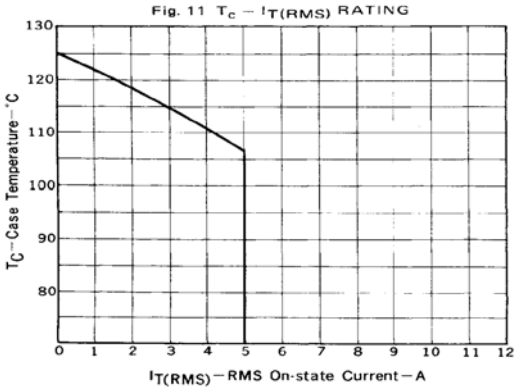
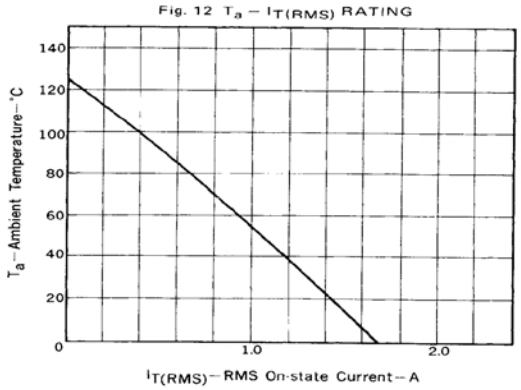


Fig. 12 $T_a - I_{T(RMS)}$ RATING



Description

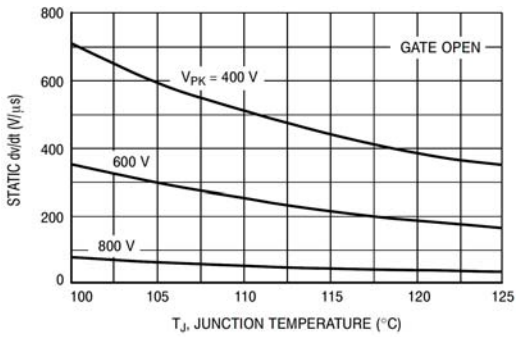


Figure 13. Typical Exponential Static dv/dt versus Junction Temperature, MT2(+)

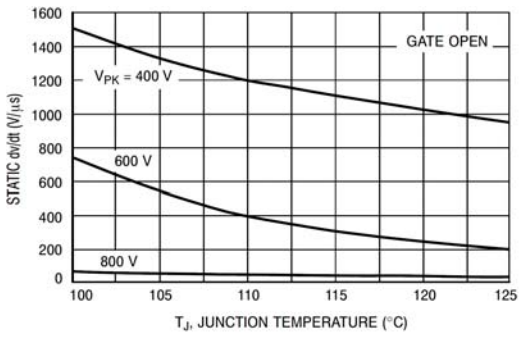


Figure 14. Typical Exponential Static dv/dt versus Junction Temperature, MT2(−)

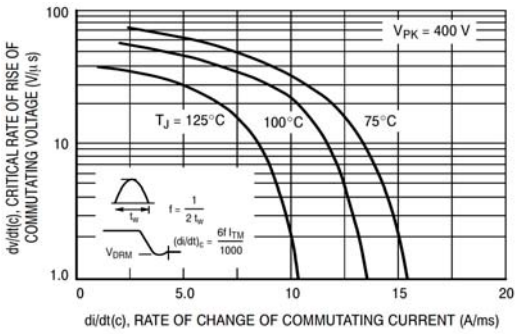


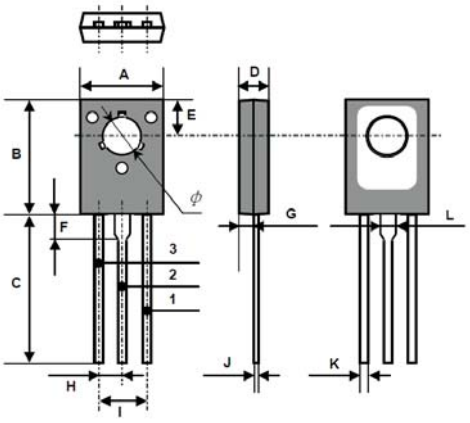
Figure 15. Critical Rate of Rise of Commutating Voltage

MECHANICAL DATA

Dimensions in mm

Net Mass:0.7 g

TO-126



TO-126 Package Dimension

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.5		7.9	0.295		0.311
B	10.8		11.2	0.425		0.441
C	14.2		14.7	0.559		0.579
D	2.7		2.9	0.106		0.114
E		3.8			0.150	
F		2.5			0.098	
G	1.2		1.5	0.047		0.059
H		2.3			0.091	
I		4.6			0.181	
J	0.48		0.62	0.019		0.024
K	0.7		0.86	0.028		0.034
L		1.4			0.055	
ϕ		3.2			0.126	