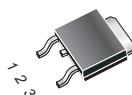


Description

Passivated high commutation triacs in a plastic envelope intended for use in circuits where high static and dynamic dV/dt and high dI/dt can occur. These devices will commute the full rated ms current at the maximum rated junction temperature without the aid of a snubber.

Symbol 		Simplified outline  TO-252	
Pin	Description		
1	Main terminal 1 (T1)		
2	Main terminal 2 (T2)		
3	gate (G)		
TAB	Main teminal 2(T2)		

Applications:

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

Features

- ◆ Blocking voltage to 800 V
- ◆ On-state RMS current to 4 A

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages	800	V
$I_T (RMS)$	RMS on-state current (full sine wave)	4	A
I_{TSM}	Non-repetitive peak on-state current (full cycle, $T_j = 125^\circ C$)	40	A

SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta jc}$	Thermal Resistance - Junction-to-case	-	3.5	-	$^\circ C/W$
$R_{\theta ja}$	Thermal resistance - Junction to ambient	-	88	-	$^\circ C/W$

HAOPIN MICROELECTRONICS CO.,LTD.

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V_{DRM}	Repetitive peak off-state Voltages	$T_j = -40$ to 125°C , sine wave, 50 to 60 Hz, Gate open	-	800	V
$I_{T(RMS)}$	RMS on-state current Full sine wave 60 Hz	$T_c = 110^{\circ}\text{C}$	-	4	A
I^2t	Circuit fusing consideration	$t = 8.3\text{ms}$	-	6.6	A^2s
I_{GM}	Peak gate current	Pulse width $\leq 10 \mu\text{s}$ $T_c = 108^{\circ}\text{C}$	-	0.5	A
V_{GM}	Peak gate voltage	Pulse width $\leq 10 \mu\text{s}$ $T_c = 108^{\circ}\text{C}$	-	5	V
P_{GM}	Peak gate power	Pulse width $\leq 10 \mu\text{s}$ $T_c = 108^{\circ}\text{C}$	-	0.5	W
$P_{G(AV)}$	Average gate power	$t = 8.3\text{ms}$ $T_c = 108^{\circ}\text{C}$	-	0.1	W
T_{stg}	Storage temperature		-40	150	$^{\circ}\text{C}$
T_j	Operating junction Temperature range		-40	125	$^{\circ}\text{C}$

$T_j = 25^{\circ}\text{C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	Gate trigger current	$V_o = 12\text{V}; R_L = 100 \Omega$ MT2(+),G(+) MT2(+),G(-) MT2(-),G(-)	8 8 8	12 18 22	35 35 35	mA
V_{GT}	Gate trigger voltage	$V_o = 12\text{V}; R_L = 100 \Omega$ MT2(+),G(+) MT2(+),G(-) MT2(-),G(-)	0.5 0.5 0.5	0.8 0.8 0.8	1.3 1.3 1.3	V
I_L	Latching current	$V_o = 12\text{V}, I_g = 35 \text{mA}$ MT2(+),G(+) MT2(+),G(-) MT2(-),G(-)	-	30 50 20	60 80 60	mA
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$	$T_j = 25^{\circ}\text{C}$ $T_j = 125^{\circ}\text{C}$	-	-	0.01 2.0	mA
I_H	Holding current	$V_o = 12\text{V}$, gate open, Initiating current = $\pm 200\text{mA}$	6	22	35	mA
V_{TM}	Peak on-state voltage	$I_{TM} = \pm 6.0\text{A}$	-	1.3	1.6	V
V_{GD}	Gate non-trigger voltage	$V_o = 12\text{V}; R_L = 100 \Omega$ $T_j = 125^{\circ}\text{C}$	0.2	0.4	-	V

Dynamic Characteristics

dV/dt	Critical rate of rise of Off-state voltage	$V_o = 67\% V_{DRM}$ gate open; $T_j = 125^{\circ}\text{C}$;	500	1700	-	$\text{V}/\mu\text{s}$
$(di/dt)_c$	Rate of change of commutating current	$V_o = 400\text{V}$, $I_{TM} = 4.0\text{A}$ $dv/dt = 18\text{V}/\mu\text{s}$ $T_j = 125^{\circ}\text{C}$	6.0	8.4	-	A/ms

Description

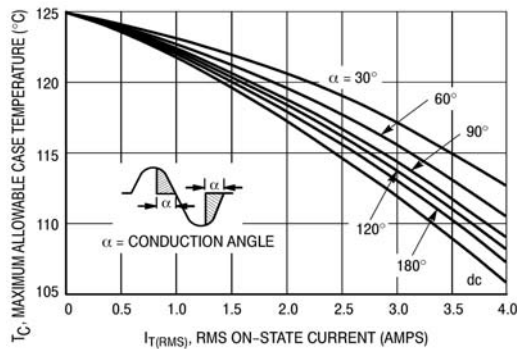


Figure 1. RMS Current Derating

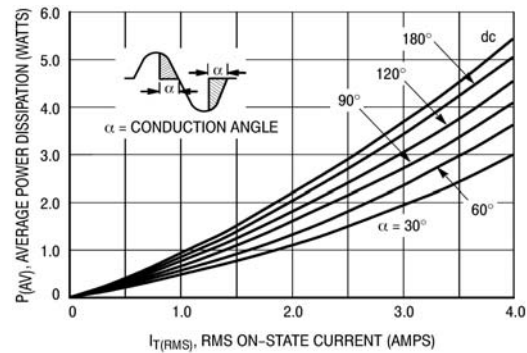


Figure 2. On-State Power Dissipation

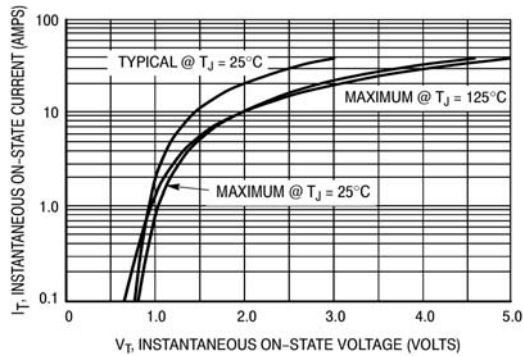


Figure 3. On-State Characteristics

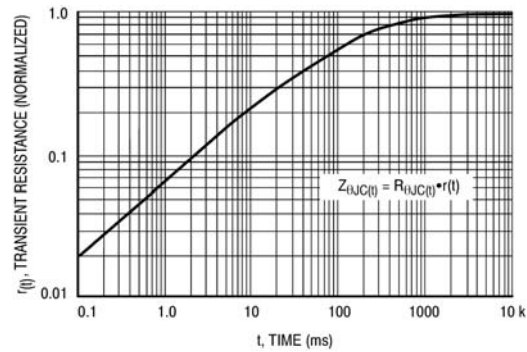


Figure 4. Transient Thermal Response

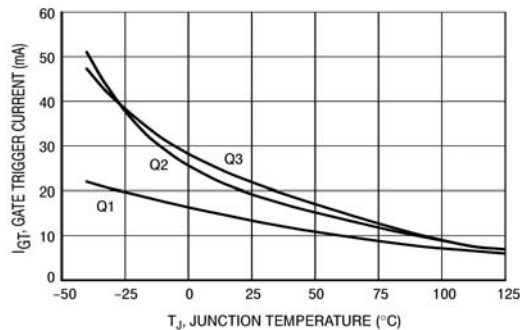


Figure 5. Typical Gate Trigger Current versus Junction Temperature

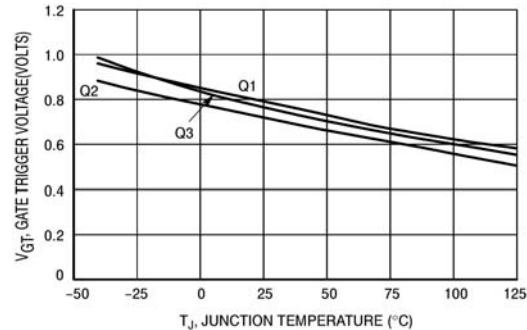


Figure 6. Typical Gate Trigger Voltage versus Junction Temperature

Description

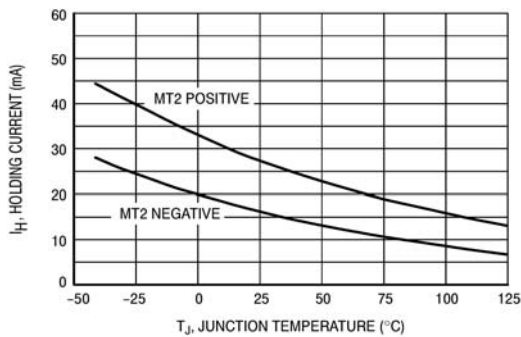


Figure 7. Typical Holding Current versus Junction Temperature

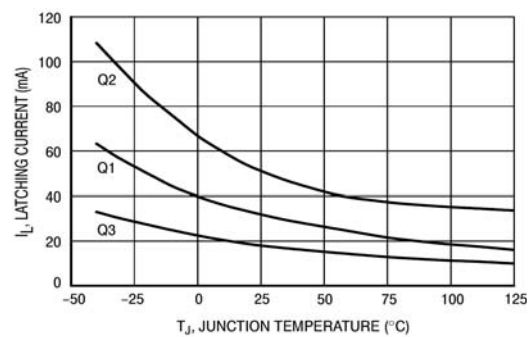


Figure 8. Typical Latching Current versus Junction Temperature

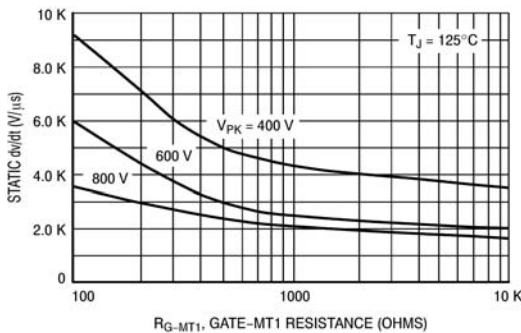


Figure 9. Exponential Static dv/dt versus Gate-MT1 Resistance, MT2(+)

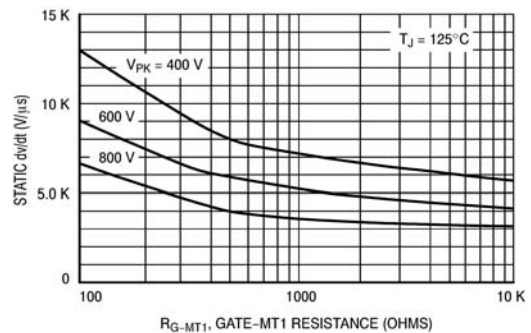


Figure 10. Exponential Static dv/dt versus Gate-MT1 Resistance, MT2(-)

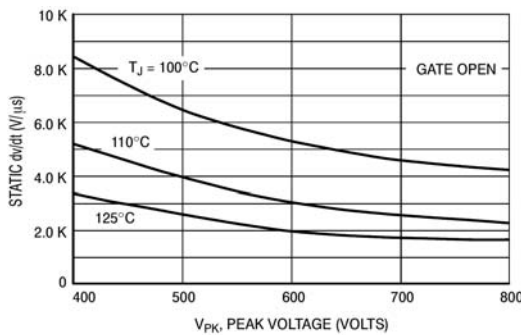


Figure 11. Exponential Static dv/dt versus Peak Voltage, MT2(+)

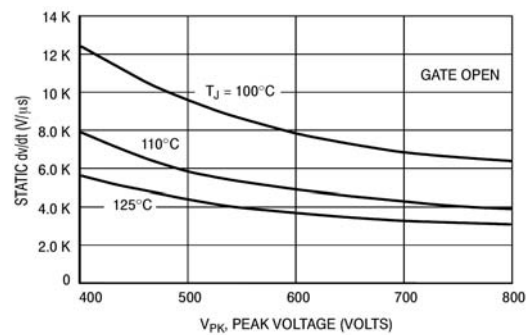


Figure 12. Exponential Static dv/dt versus Peak Voltage, MT2(-)

Description

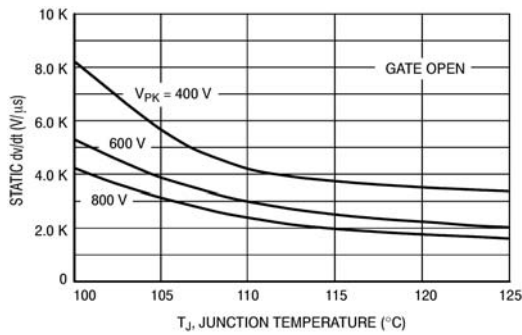


Figure 13. Typical Exponential Static dv/dt versus Junction Temperature, MT2(+)

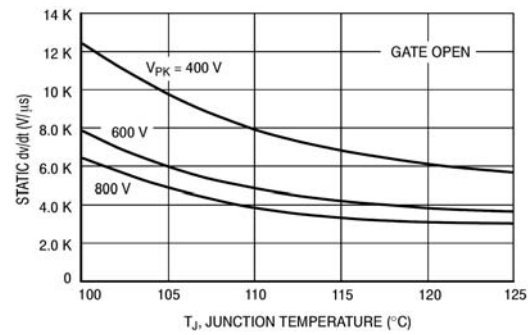


Figure 14. Typical Exponential Static dv/dt versus Junction Temperature, MT2(-)

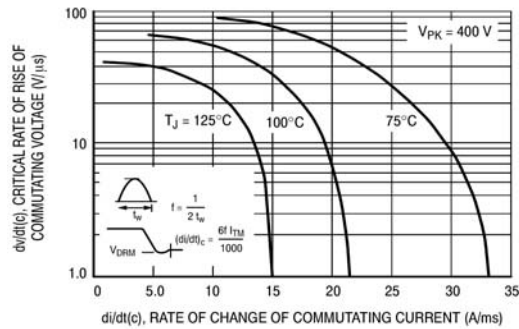
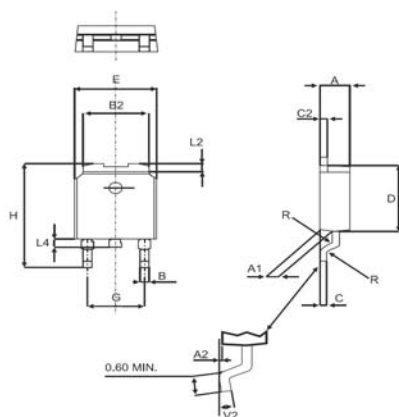


Figure 15. Critical Rate of Rise of Commutating Voltage

MECHANICAL DATA

Dimensions in mm
Net Mass: 0.4 g
TO-252



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max	Min.	Max.
A	2.20	2.40	0.086	0.094
A1	0.90	1.10	0.035	0.043
A2	0.03	0.23	0.001	0.009
B	0.64	0.90	0.025	0.035
B2	5.20	5.40	0.204	0.212
C	0.45	0.60	0.017	0.023
C2	0.48	0.60	0.018	0.023
D	6.00	6.20	0.236	0.244
E	6.40	6.60	0.251	0.259
G	4.40	4.60	0.173	0.181
H	9.35	10.10	0.368	0.397
L2	0.80 typ.		0.031 typ.	
L4	0.60	1.00	0.023	0.039
R	0.2 typ.		0.007 typ.	
V2	0°	8°	0°	8°