
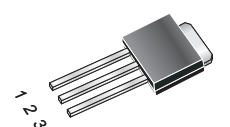


### Description

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.

<p>Symbol</p> 		<p>Simplified outline</p>  <p>TO-251</p>	
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 4 A

SYMBOL	PARAMETER	Value	Unit
$V_{DRM}$	Repetitive peak off-state voltages	600	V
$I_{T(RMS)}$	RMS on-state current	4	A
$I_{TSM}$	Non-repetitive surge current (One full cycle sine wave, 60Hz, $T_j=125^{\circ}C$ )	40	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{\theta jc}$	Thermal Resistance, Junction to case		-	3.5	-	$^{\circ}C/W$
$R_{\theta jA}$	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	Value	UNIT
$V_{DRM}$	Repetitive peak off-state Voltages		-	600	V
$I_{T(RMS)}$	RMS on-state current	Full cycle sine wave;60Hz $T_c=108^\circ\text{C}$	-	4	A
$I_{TSM}$	Non repetitive surge peak on-state current	full cycle,60Hz $T_j=125^\circ\text{C}$	-	40	A
$I^2t$	Circuit fusing consideration	$T=8.3\text{ms}$	-	6.6	$\text{A}^2\text{S}$
$I_{GM}$	Peak gate current	Pulse width $\leq 10 \mu \text{ sec}$ , $T_c=108^\circ\text{C}$	-	0.2	A
$V_{GM}$	Peak gate voltage	Pulse width $\leq 10 \mu \text{ sec}$ , $T_c=108^\circ\text{C}$	-	5	V
$P_{GM}$	Peak gate power	Pulse width $\leq 10 \mu \text{ sec}$ , $T_c=108^\circ\text{C}$	-	0.5	W
$P_{G(AV)}$	Average gate power	$t=8.3\text{msec}$ ., $T_c=108^\circ\text{C}$	-	0.1	W
$T_{stg}$	Storage temperature range		-40	150	$^\circ\text{C}$
$T_j$	Operating junction Temperature range		-40	125	$^\circ\text{C}$

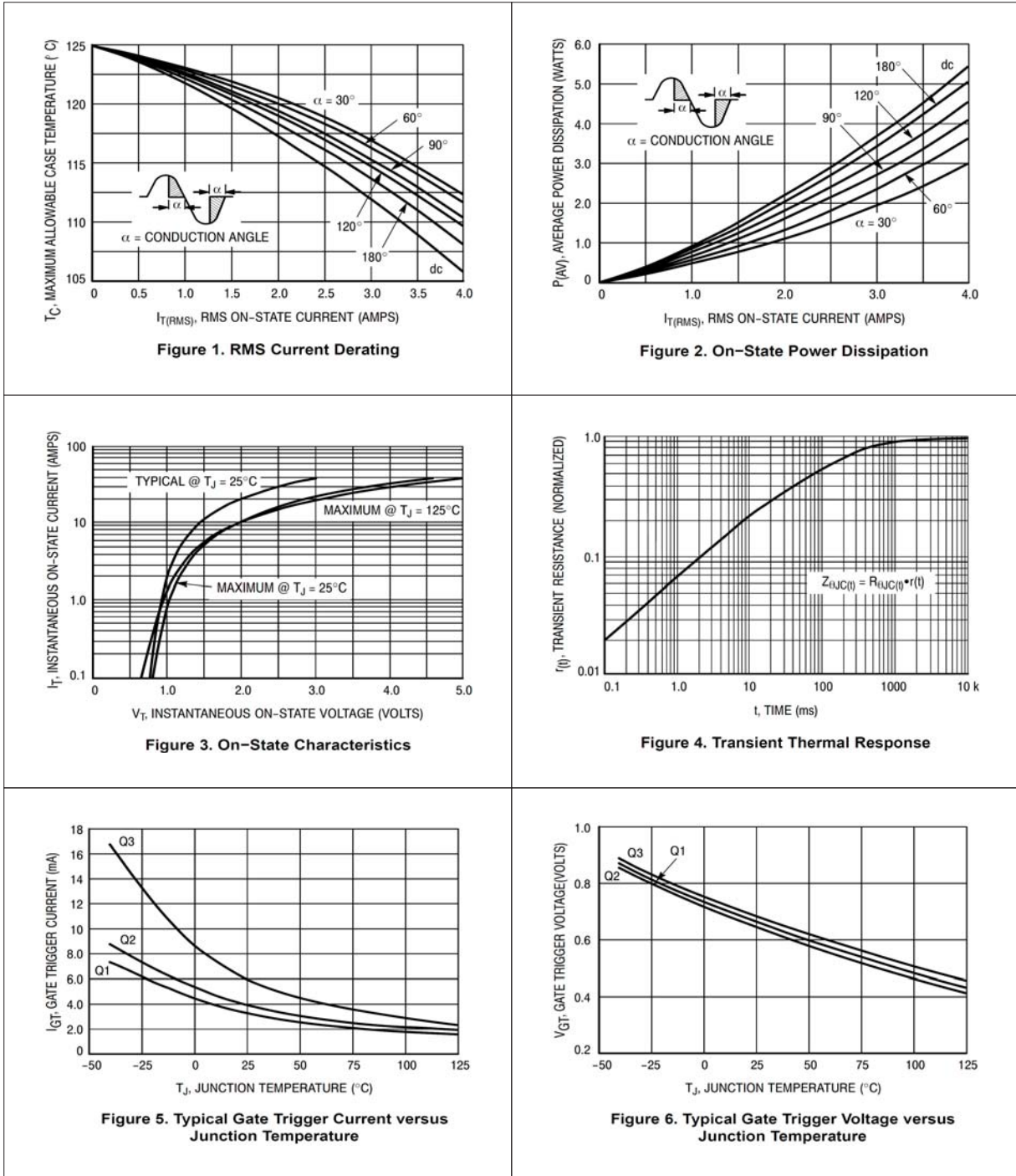
$T_j=25^\circ\text{C}$  unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
$I_{GT}$	Gate trigger current (continuous dc)	$V_D=12\text{V}$ ; $R_L=100 \Omega$ MT2(+),G(+) MT2(+),G(-) MT2(-),G(-)	2.9 2.9 2.9	4.0 5.0 7.0	10 10 10	mA
$V_{GT}$	Gate trigger voltage (continuous dc)	$V_D=12\text{V}$ ; $R_L=100 \Omega$ MT2(+),G(+) MT2(+),G(-) MT2(-),G(-)	0.5 0.5 0.5	0.7 0.65 0.7	1.3 1.3 1.3	V
$I_L$	Latching current	$V_D=12\text{V}$ , $I_G=10\text{mA}$ MT2(+),G(+) MT2(+),G(-) MT2(-),G(-)	- - -	6.0 10 6.0	30 30 30	mA
$I_H$	Holding current	$V_D=12\text{V}$ , Gate open, Initiating current $I_i = \pm 200\text{mA}$	2.0	5.5	15	mA
$V_{GD}$	Gate non-Trigger Voltage	$V_D=12\text{V}$ $R_L=100 \Omega$ $T_j=125^\circ\text{C}$	0.2	0.4	-	V
$di/dt(c)$	Rate of change of commutating current	$V_D=400\text{V}$ $I_{TM}=3.5\text{A}$ ; $dv/dt=10\text{V}/\mu\text{s}$ , $T_j=125^\circ\text{C}$ $f=500\text{Hz}$ $CL=5 \mu\text{F}$ $LL=20\text{mH}$	3.0	4.0	-	A/ms
$dv/dt$	Critical rate of rise of off-state voltage	$V_D=0.67 \times \text{Rated } V_{DRM}$ , exponential Waveform, gate open $T_j=125^\circ\text{C}$	50	175	-	$\text{V}/\mu\text{s}$

### Dynamic Characteristics

$T_L$	Maximum Lead Temperature for soldering purposes		-	-	260	$^\circ\text{C}$
$V_{to}$ $R_d$	Peak repetitive Blocking current ( $V_D=\text{Rated } V_{DRM}$ , $V_{RRM}$ , Gate Open)	$T_j=25^\circ\text{C}$ $T_j=125^\circ\text{C}$	-	-	0.01 2.0	mA

### Description



### Description

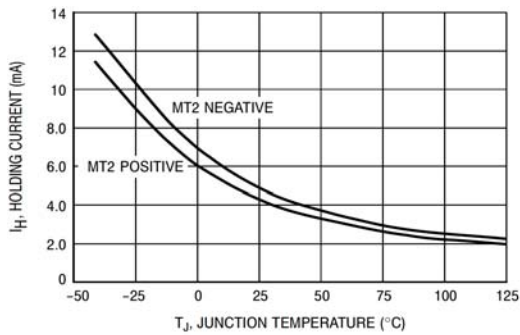


Figure 7. Typical Holding Current versus Junction Temperature

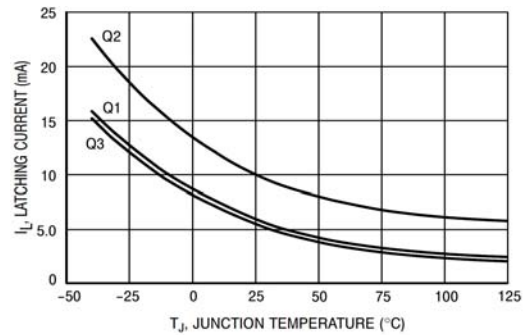


Figure 8. Typical Latching Current versus Junction Temperature

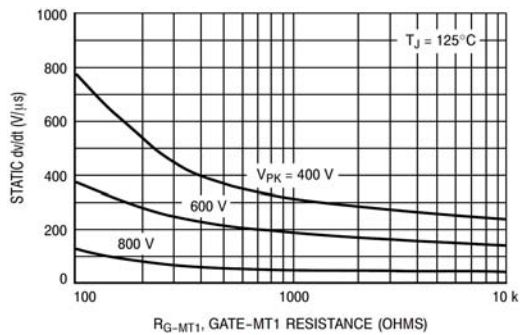


Figure 9. Exponential Static dv/dt versus Gate-MT1 Resistance, MT2(+)

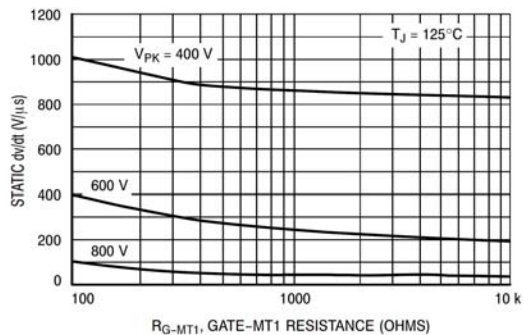


Figure 10. Exponential Static dv/dt versus Gate-MT1 Resistance, MT2(-)

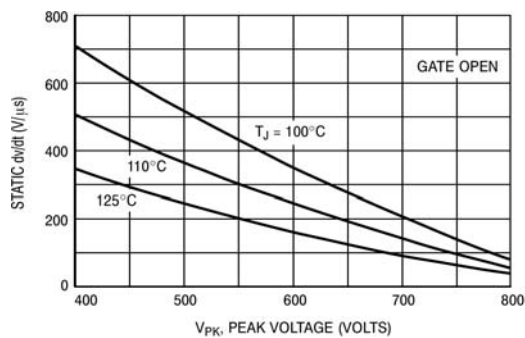


Figure 11. Exponential Static dv/dt versus Peak Voltage, MT2(+)

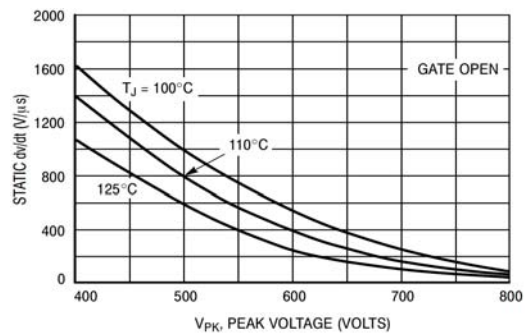


Figure 12. Exponential Static dv/dt versus Peak Voltage, MT2(-)

Description

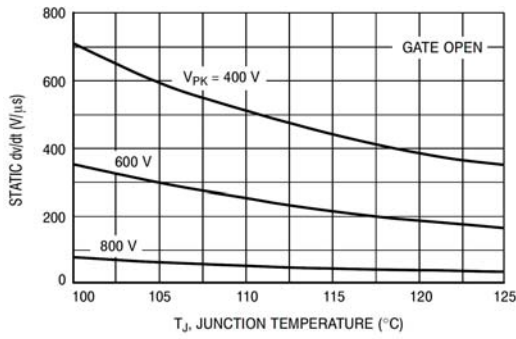


Figure 13. Typical Exponential Static dv/dt versus Junction Temperature, MT2(+)

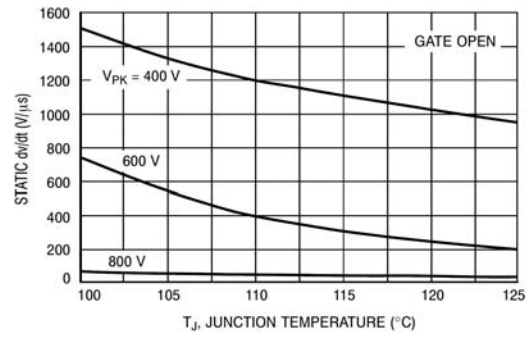


Figure 14. Typical Exponential Static dv/dt versus Junction Temperature, MT2(-)

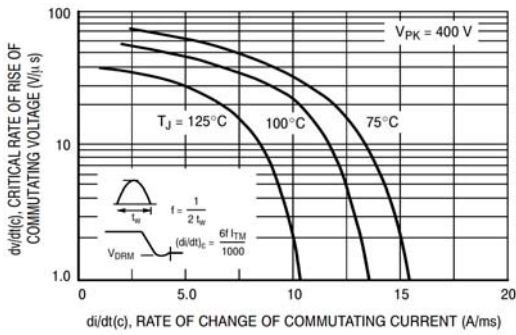


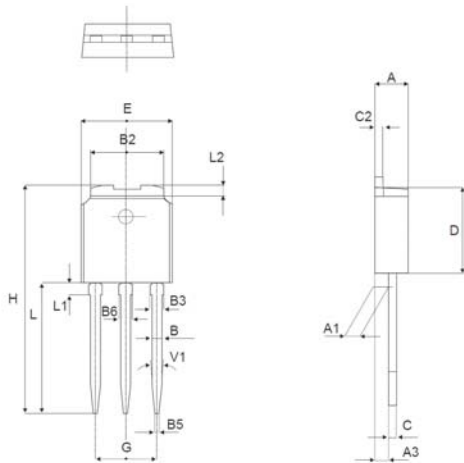
Figure 15. Critical Rate of Rise of Commutating Voltage

#### MECHANICAL DATA

Dimensions in mm

Net Mass:0.48 g

IPAK



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A3	0.7		1.3	0.027		0.051
B	0.64		0.9	0.025		0.035
B2	5.2		5.4	0.204		0.212
B3			0.85			0.033
B5		0.3			0.035	
B6			0.95			0.037
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	15.9		16.3	0.626		0.641
L	9		9.4	0.354		0.370
L1	0.8		1.2	0.031		0.047
L2		0.8	1		0.031	0.039
V1		10°			10°	