
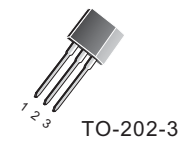


### HOPIN MICROELECTRONICS CO.,LTD.

#### 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.

<p>Symbol</p> 		<p>Simplified outline</p> 	
Pin	Description		
1	Main terminal 1 (T1)		
2	Main terminal 2 (T2)		
3	gate (G)		
TAB	Main terminal		

#### 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 peak on-state current	21	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	Value	UNIT
Rth(j-l)	Junction to lead (AC)	-	-	-	15	°C/W
Rth j-a	Junction to ambient	-	-	-	100	°C/W



# Z0409MF

## Sensitive Gate Triacs

HOPIN MICROELECTRONICS CO.,LTD.

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

SYMBOL	PARAMETER	CONDITIONS	MIN	Value	UNIT		
$V_{DSM}/V_{RSM}$			-	600	V		
$I_{T(RMS)}$	RMS on-state current	Full sine wave; $T_j=30^{\circ}C$	-	4	A		
$I_{TSM}$	Non repetitive surge peak on-state current	full cycle, $T_j$ initial= $25^{\circ}C$	F=50Hz	t=20ms	-	20	A
			F=60Hz	t=16.7ms	-	21	A
$I^2t$	$I^2t$ Value for fusing	$T_p=10ms$	-	2.2	A <sup>2</sup> S		
$DI/dt$	Critical rate of rise of on-state current	$I_G=2x I_{GT}, tr \leq 100ns$	F=120Hz	$T_j=125^{\circ}C$	-	20	A/ $\mu s$
$I_{GM}$	Peak gate current		tp=20us	$T_j=125^{\circ}C$	-	1.2	A
$I_{DRM}$	$V_{DRM}=V_{RRM}$			$T_j=25^{\circ}C$	-	5	$\mu A$
$I_{RRM}$	$V_{DRM}=V_{RRM}$			$T_j=125^{\circ}C$	-	0.5	mA
$P_{G(AV)}$	Average gate power			$T_j=125^{\circ}C$	-	0.2	W
$T_{stg}$	Storage temperature range		-40	150		$^{\circ}C$	
$T_j$	Operating junction Temperature range		-40	125		$^{\circ}C$	

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

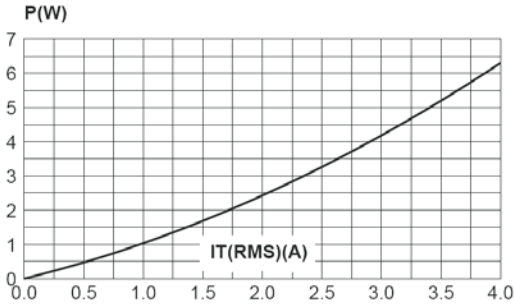
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
$I_{GT1}$ $V_{GT}$		$V_D=12V; RL=33\Omega$	ALL ALL	- -	10 1.3	mA V
$I_L$		$I_G=1.2 I_{GT}$	I-III-IV II	- -	15 25	mA mA
$I_{H2}$		$I_T=50mA$		-	10	mA
$V_{GD}$		$V_D=V_{DRM} R_L=3.3K\Omega T_j=125^{\circ}C$	ALL	0.2	-	V
$dV/dt2$		$V_D=67\%V_{DRM}$ gate open; $T_j=110^{\circ}C$		100	-	V/us
$(Dv/dt)c(2)$		$(DI/dt)c=1.8A/ms; T_j=110^{\circ}C$		2	-	V/us

### Dynamic Characteristics

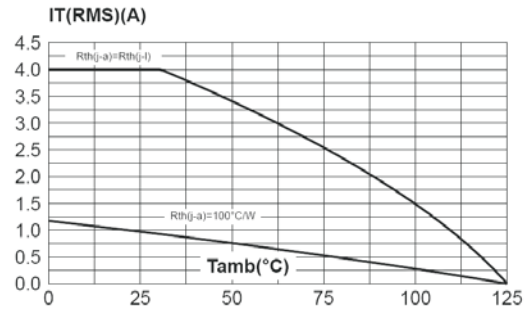
$V_{TM}(2)$	$I_{TM}=5.5A$ tp=380us	$T_j=25^{\circ}C$	-	-	2.0	V
$V_{to}$ $R_d$	Threshold voltage Dynamic resistance	$T_j=125^{\circ}C$ $T_j=125^{\circ}C$	-	-	0.95 180	V m $\Omega$

Description

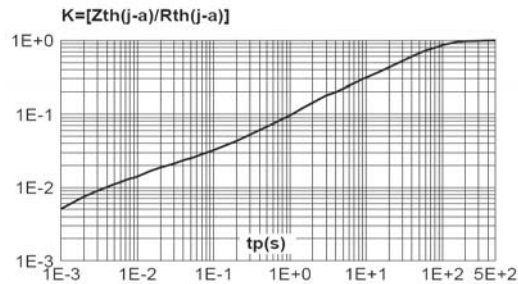
**Fig. 1:** Maximum power dissipation versus RMS on-state current (full cycle).



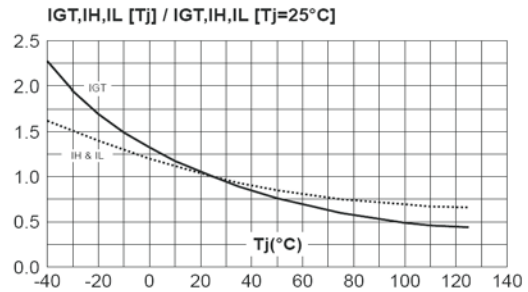
**Fig. 2:** RMS on-state current versus ambient temperature (full cycle).



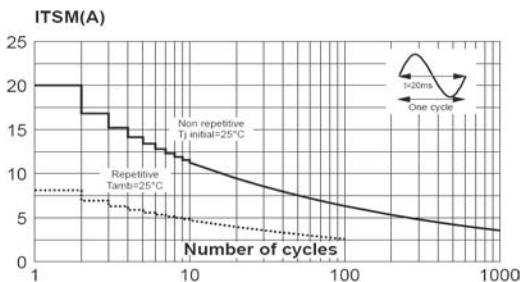
**Fig. 3:** Relative variation of thermal impedance junction to ambient versus pulse duration.



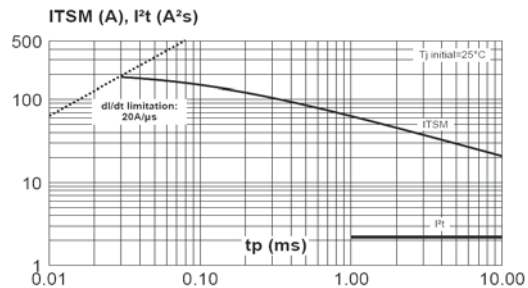
**Fig. 4:** Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).



**Fig. 5:** Surge peak on-state current versus number of cycles.

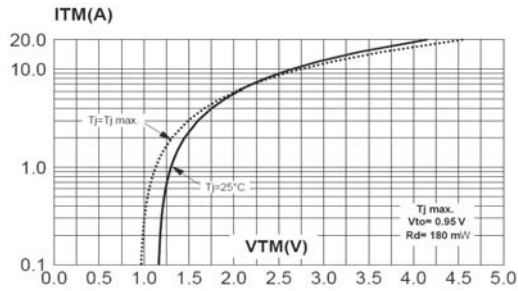


**Fig. 6:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$ .

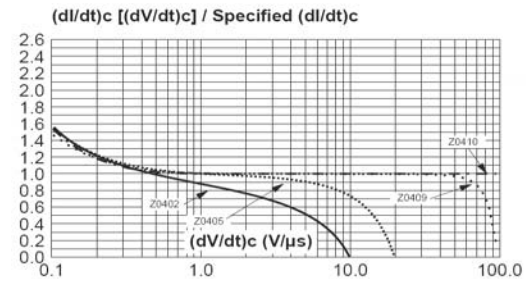


Description

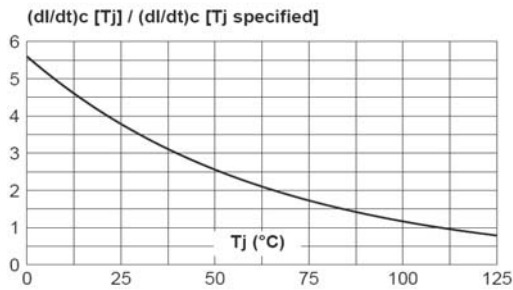
**Fig. 7:** On-state characteristics (maximum values).



**Fig. 8:** Relative variation of critical rate of decrease of main current versus  $(dV/dt)_c$  (typical values).



**Fig. 9:** Relative variation of critical rate of decrease of main current versus junction temperature.





# Z0409MF

## Sensitive Gate Triacs

---

**HOPIN MICROELECTRONICS CO.,LTD.**

### MECHANICAL DATA

Dimensions in mm

Net Mass: 0.8g

TO-202-3