
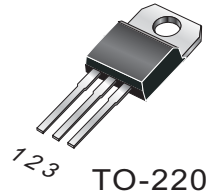


### Description

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-220</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 peak on-state current	38	A

SYMBOL	PARAMETER	Value	UNIT
$R_{th(j-c)}$	Junction to case (AC)	3	°C/W
$R_{th(j-a)}$	Junction to ambient	60	°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 sine wave	TO-220AB $T_c=105^\circ\text{C}$	-	4	A
$I_{TSM}$	Non repetitive surge peak on-state current	full cycle, $T_j$ initial= $25^\circ\text{C}$	F=50Hz t=20ms	-	35	A
			F=60Hz t=16.7ms	-	38	A
$I^2t$	$I^2t$ value for fusing	$T_p=10\text{ms}$		-	6	A <sup>2</sup> S
DI/dt	Critical rate of rise of on-state current	$I_G=2x I_{GT}$ , $tr \leq 100\text{ns}$	F=100Hz	-	50	A/ $\mu\text{s}$
$I_{GM}$	Peak gate		$T_p=20\mu\text{s}$ $T_j=125^\circ\text{C}$	-	4	A
$I_{DRM}$	$V_{DRM}=V_{RRM}$		$T_j=25^\circ\text{C}$	-	5	$\mu\text{A}$
$I_{RRM}$	$V_{DRM}=V_{RRM}$		$T_j=125^\circ\text{C}$	-	1	mA
$P_{G(AV)}$	Average gate power		$T_j=125^\circ\text{C}$	-	0.5	W
$T_{stg}$	Storage temperature range			-40	150	$^\circ\text{C}$
$T_j$	Operating junction Temperature range			-40	125	$^\circ\text{C}$

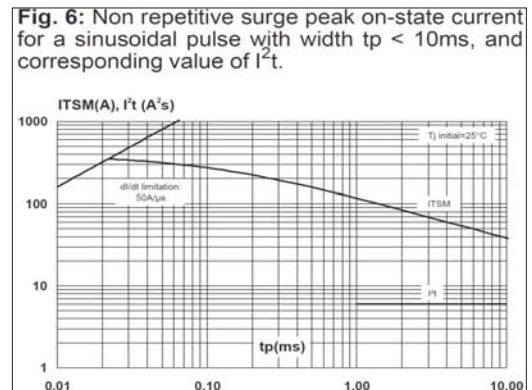
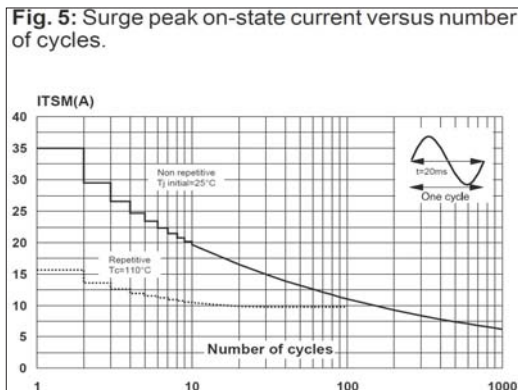
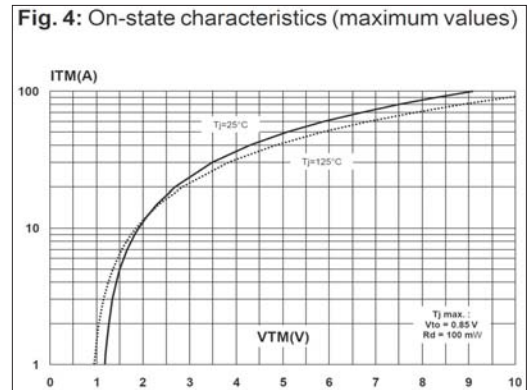
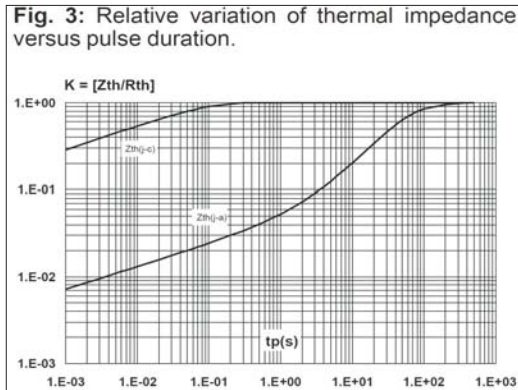
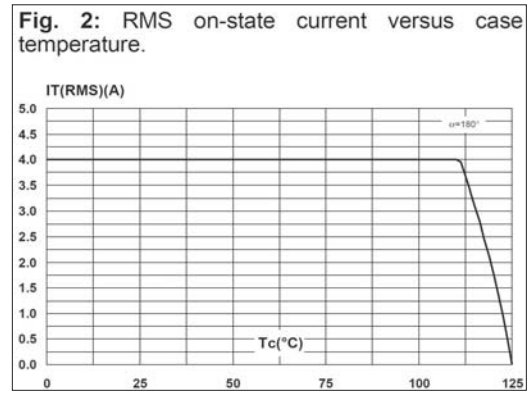
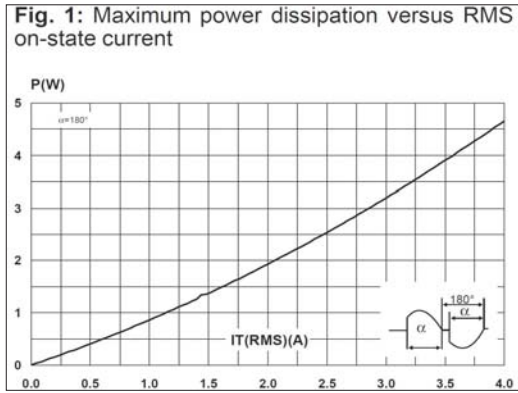
$T_j=25^\circ\text{C}$  unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT	
Static characteristics							
$I_{GT}$		$V_D=12\text{V}$ ; $R_L=30\Omega$	I-II-III	-	-	10	mA
			IV	-	-	25	
$I_L$	Latching current	$I_G=1.2 I_{GT}$	I-III-IV	-	-	15	mA
			II	-	-	25	
$I_H$		$I_T=100\text{mA}$	-	-	15	mA	
$V_{GT}$		$V_D=12\text{V}$ ; $R_L=30\Omega$	ALL	-	-	1.3	V
$V_{GD}$		$V_D=V_{DRM}$ $R_L=3.3\text{K}\Omega$ $T_j=125^\circ\text{C}$	ALL	0.2	-	-	V
dV/dt		$V_D=67\%V_{DRM}$ gate open; $T_j=125^\circ\text{C}$		75	-	-	V/ $\mu\text{s}$
(dv/dt)c		(dv/dt)c=1.8A/ms $T_j=125^\circ\text{C}$		10	-	-	V/ $\mu\text{s}$

### Dynamic Characteristics

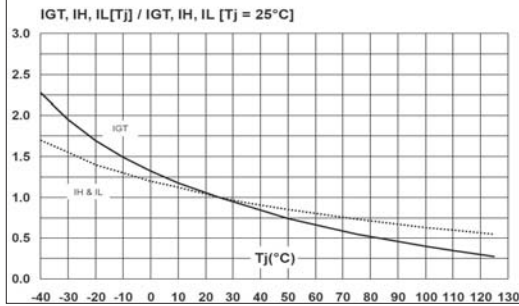
$V_{TM}$	$I_{TM}=5.5\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	-	-	1.5	V
$V_{to}$	Threshold voltage	$T_j=125^\circ\text{C}$	-	-	0.85	V
$R_d$	Dynamic resistance	$T_j=125^\circ\text{C}$	-	-	100	$\text{m}\Omega$

### Description

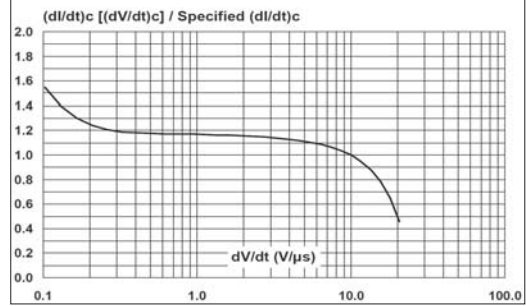


Description

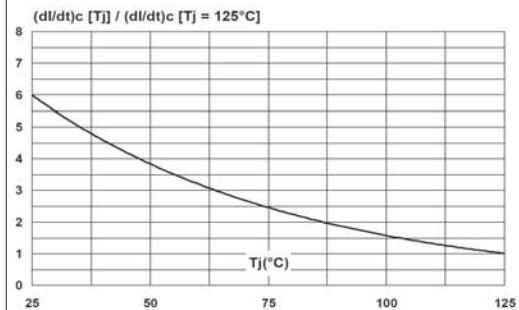
**Fig. 7:** Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).



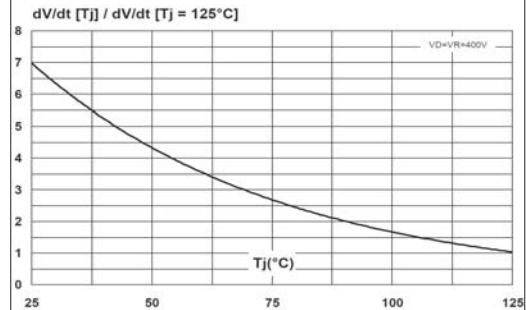
**Fig. 8:** Relative variation of critical rate of decrease of main current versus reapplied dV/dt (typical values).



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



**Fig. 10:** Relative variation of static dV/dt immunity versus junction temperature.

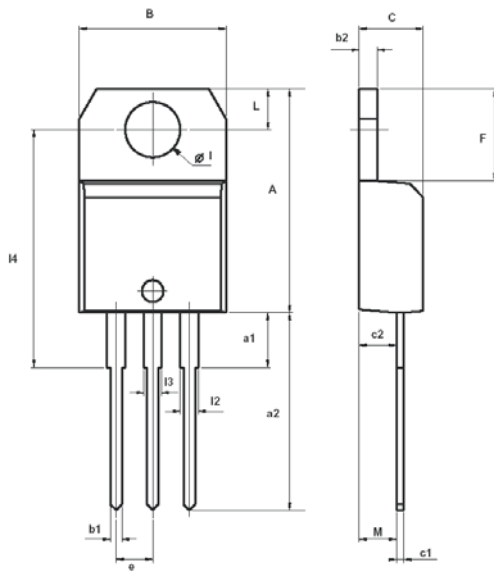


MECHANICAL DATA

Dimensions in mm

Net Mass: 2g

TO-220AB



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	2.40		2.70	0.094		0.106
F	6.20		6.60	0.244		0.259
I	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
I3	1.14		1.70	0.044		0.066
M		2.60			0.102	