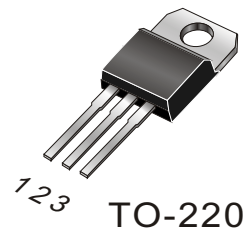
HP10T80LC

Triacs

HAOPIN MICROELECTRONICS CO.,LTD.

Description

Glass passivated triacs in a plastic envelope, intended for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting,heating and static switching.

Symbol	Simplified outline
	

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 800 V
- On-state RMS current to 10 A

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages	800	V
$I_{T(RMS)}$	RMS on-state current （full sine wave）	10	A
I_{TSM}	Non-repetitive peak on-state current (full cycle,Tj initial=25℃)	105	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{th(j-c)}$	Junction to case(AC)		-	2.4	-	℃/W
$R_{th(j-a)}$	Junction to ambient		-	60	-	℃/W

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

SYMBOL	PARAMETER	CONDITIONS			MIN	Value	UNIT
V_{DRM}	Repetitive peak off-state Voltages				-	800	V
$I_{T(RMS)}$	RMS on-state current	T_c=95℃			-	10	A
I_{TSM}	Non repetitive surge peak on-state current	Tj initial =25℃	F=50H_Z	t=20ms	-	100	A
			F=60H_Z	t=16.7ms	-	105	A
I^2t	I^2t value for fusing	T_p=10ms			-	55	A^2S
dI/dt	Critical rate of rise of on-state current	I_G=2×I_{GT} , tr≤100ns	F=120H_Z	Tj=125℃	-	50	A/μs
I_{GM}	Peak gate current	Tp=20μs		Tj=125℃	-	4	A
I_{DRM}	V_{DRM}=V_{RRM}			Tj=25℃	-	5	μA
I_{RRM}	V_{DRM}=V_{RRM}			Tj=125℃	-	1	mA
$P_{G(AV)}$	Average gate power			Tj=125℃	-	1	W
T_{stg}	Storage temperature range				-40	150	℃
T_j	Operating junction Temperature range				-40	125	℃

T_J=25°C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS		MIN	TYP	MAX	UNIT
Static characteristics							
I_{GT}		V_D=12V; R_L=33Ω	I-II-III	-	-	25	mA
			IV			50	mA
I_L		I_G=1.2 I_{GT}	I-III-IV	-	-	40	mA
			II	-	-	80	mA
I_H		I_T=500mA		-	-	25	mA
V_{GT}		V_D=12V; R_L=30Ω	ALL	-	-	1.3	V
V_{GD}		V_D=V_{DRM} R_L=3.3KΩ Tj=125℃	ALL	0.2	-	-	V
dV/dt		V_D=67%V_{DRM} gate open;T_J=125℃		200	-	-	V/μs
(dV/dt)c	(dI/dt)c=4.4A/ms	T_J=125℃		5	-	-	V/μs

Dynamic Characteristics

V_{TM}	I_{TM}=14A tp=380μs	T_J=25℃	-	-	1.55	V
V_{to}	Threshold voltage	T_J=125℃	-	-	0.85	V
R_d	Dynamic resistance	T_J=125℃	-	-	40	mΩ

Description

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

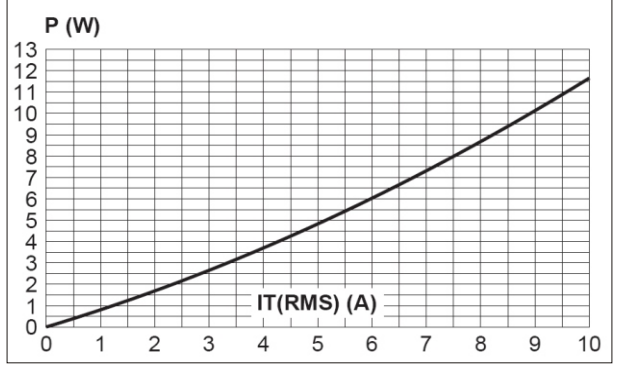


Fig. 2: RMS on-state current versus case temperature (full cycle).

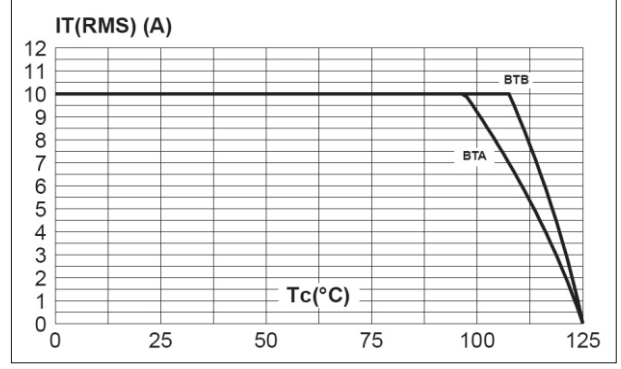


Fig. 3: Relative variation of thermal impedance versus pulse duration.

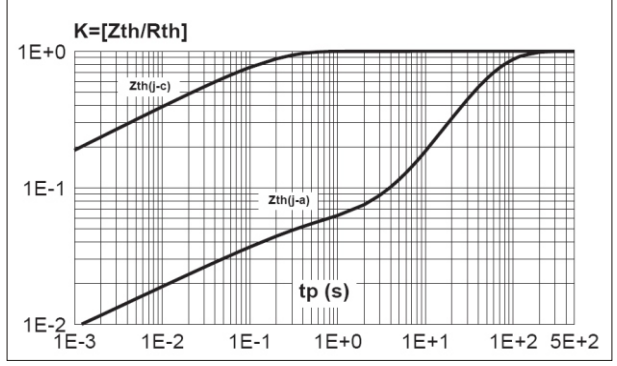


Fig. 4: On-state characteristics (maximum values).

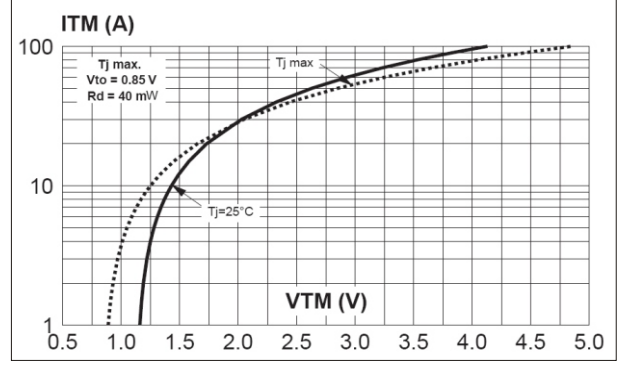


Fig. 5: Surge peak on-state current versus number of cycles.

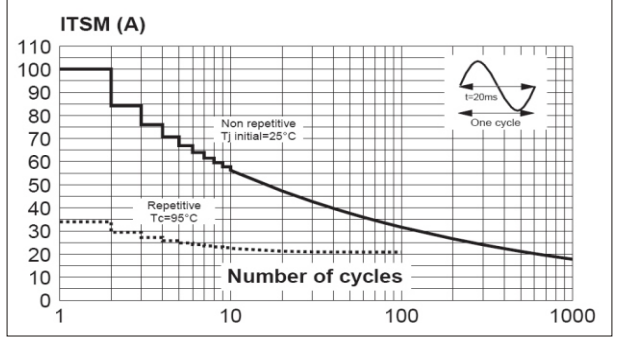
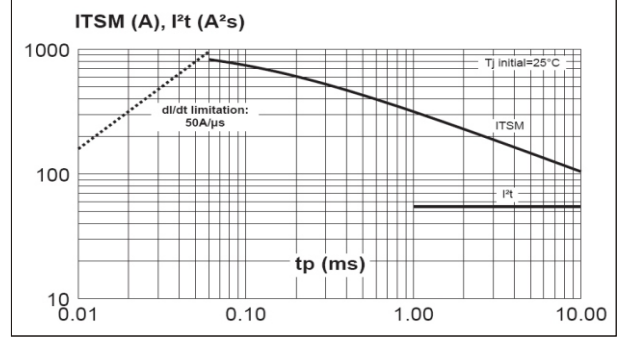


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I²t.



Description

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

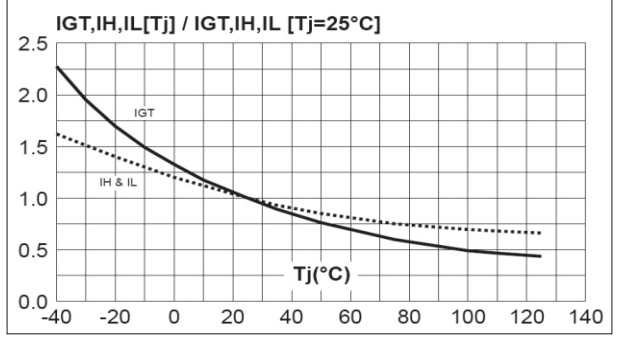


Fig. 8: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values).

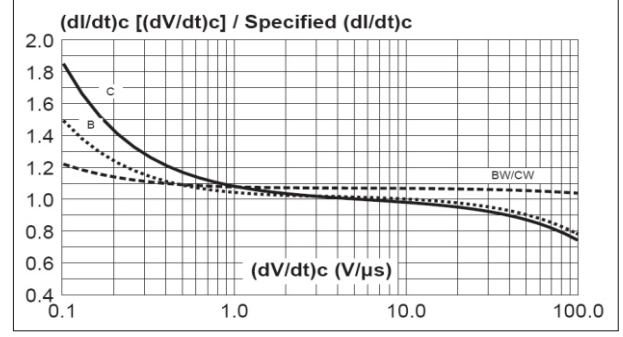
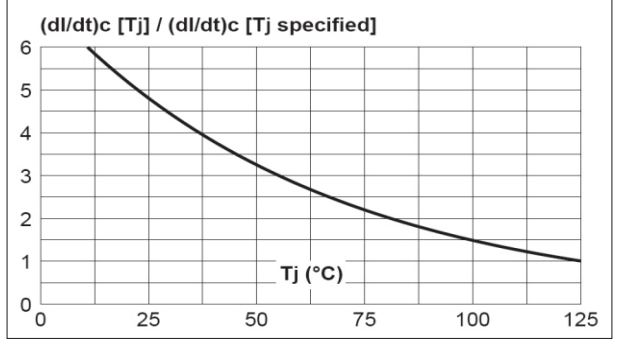


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature.

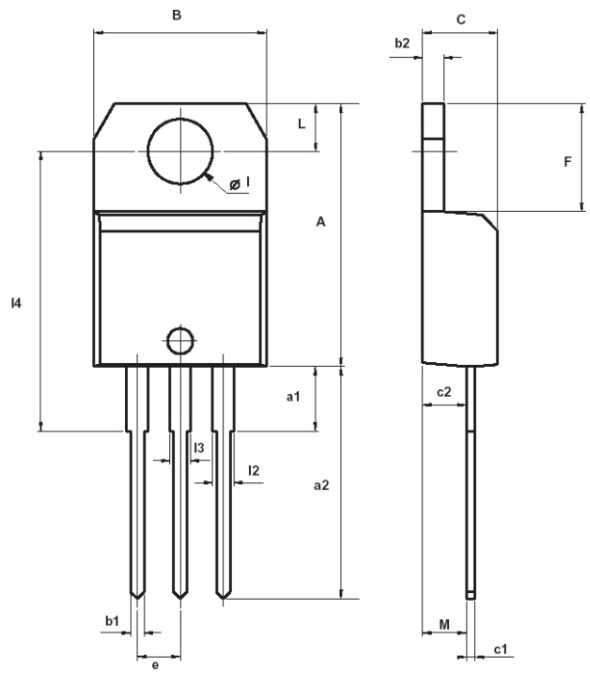


MECHANICAL DATA

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	