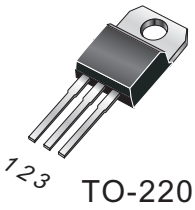
Q8016LH4

Three quadrant triacs

HAOPIN MICROELECTRONICS CO.,LTD.

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 commutate the full rated ms current at the maximum rated junction temperature without the aid of a snubber.

Symbol	Simplified outline
	

Pin	Description
1	Main terminal 1 (T1)
2	Main terminal 2 (T2)
3	gate (G)
TAB	isolated

Applications:

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

Features

- Blocking voltage to 800 V
- On-state RMS current to 16 A

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages	800	V
$I_{T(RMS)}$	RMS on-state current （full sine wave）	16	A
I_{TSM}	Non-repetitive peak on-state current (full cycle,Tj initial=25℃)	167	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
R_{thj-mb}	Thermal resistance Junction to mounting base	full cycle half cycle	- -	- -	1.2 1.7	K/W K/W
$R_{th\,j-a}$	Thermal resistance Junction to ambient	in free air	-	60	-	K/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		-	16	A
I_{TSM}	Non repetitive surge peak on-state current	full sine wave; Tj = 25℃ prior to surge 60Hz 50Hz	- -	200 167	A A
I^2t	I^2t for fusing	t=10ms	-	166	A^2S
dI/dt	Repetitive rate of rise of on-state current after triggering	I_{TM}=20A;I_G=0.2A_T, dI_G/dt=0.2A/μs	-	100	A/μs
I_{GTM}	Peak gate current		-	2	A
P_{GM}	Peak gate power		-	20	W
$P_{G(AV)}$	Average gate power	over any 20 ms period	-	0.5	W
T_{stg}	Storage temperature		-40	150	℃
T_j	Operating junction temperature		-	125	℃

T_J=25°C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
I_{GT}	Gate trigger current	V_D=12V; I_T=0.1A QI QII QIII	- - -	- - -	35 35 35	mA mA mA
V_{GT}	Gate trigger voltage	Tc=25℃	-	-	2	V
I_{DRM}	Latching current	Tc=25℃ Tc=100℃ Tc=125℃	- - -	- - -	0.1 1 3	mA mA mA
I_H	Holding current	V_D=12V; I_{GT}=0.1A	-	-	50	mA
V_{TM}	On-state voltage	Tc=25℃	-	-	1.6	V
dV/dt(c)	Critical rate of rise of off-state voltage	V_{DM}=67%$V_{DRM(max)}$;T_j=110℃; exponential waveform; gate open circuit	25	-	-	V/μs

Dynamic Characteristics

dI_{com}/dt	Critical rate of change of commutating current	V_{DM}=400V;T_j=125℃; $I_{T(RMS)}$=16A; dV_{com}/dt=10V/μs;gate open circuit	18	-	-	A/ms
dI_{com}/dt	Critical rate of change of commutating current	V_{DM}=400V;T_j=125℃; $I_{T(RMS)}$=16A; dV_{com}/dt=0.1V/μs;gate open circuit	50	-	-	A/ms

Description

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

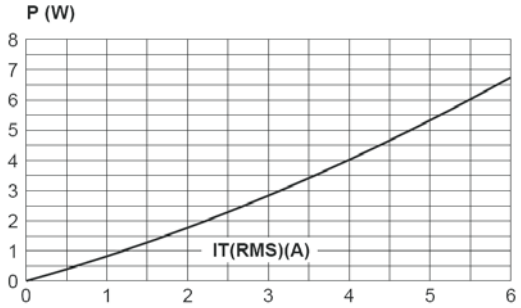


Fig. 2: RMS on-state current versus case temperature (full cycle).

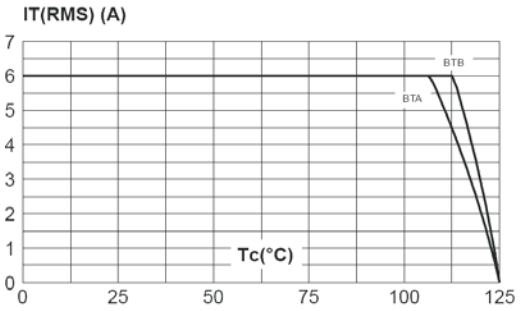


Fig. 3: Relative variation of thermal impedance versus pulse duration.

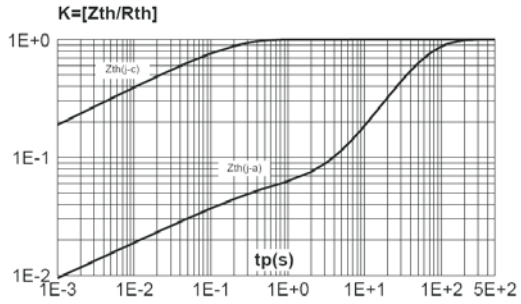


Fig. 4: On-state characteristics (maximum values).

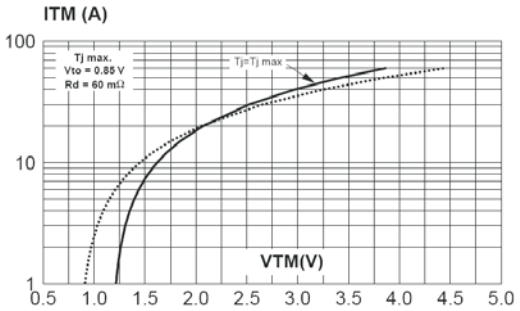


Fig. 5: Surge peak on-state current versus number of cycles.

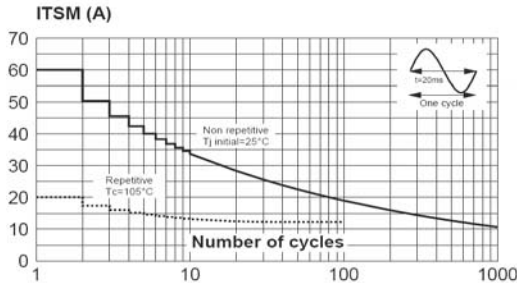
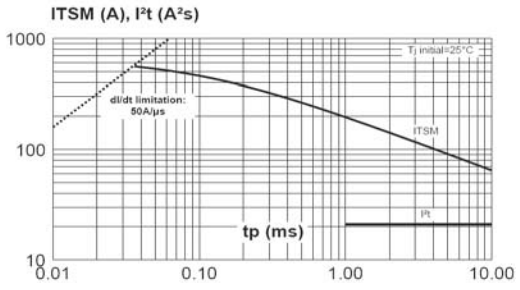


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I^2t.



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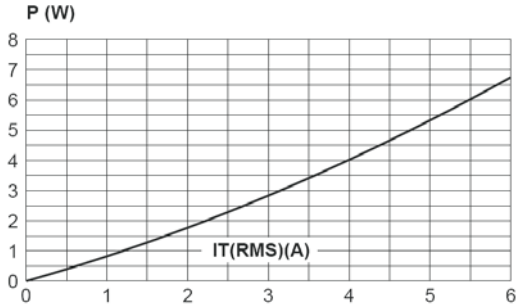
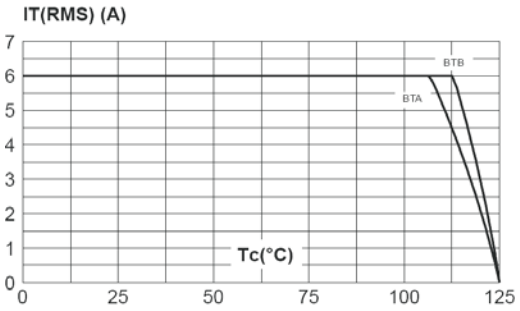


Fig. 2: RMS on-state current versus case temperature (full cycle).



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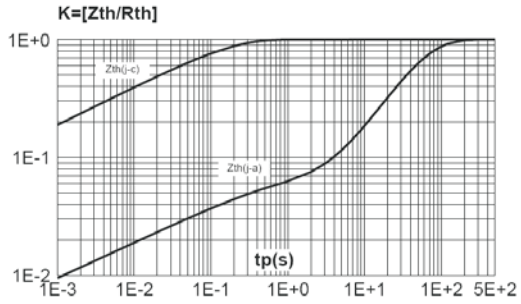

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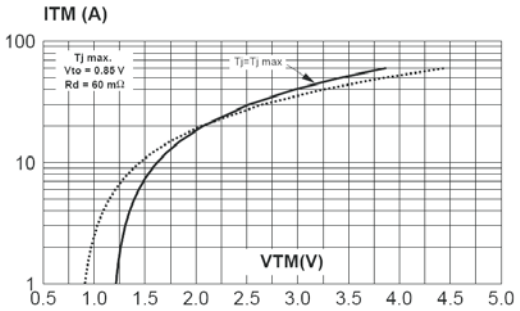

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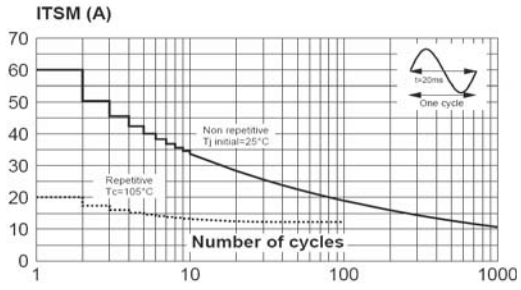
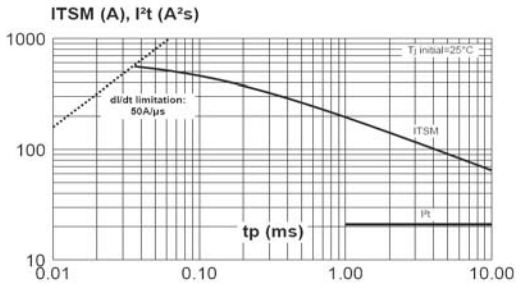
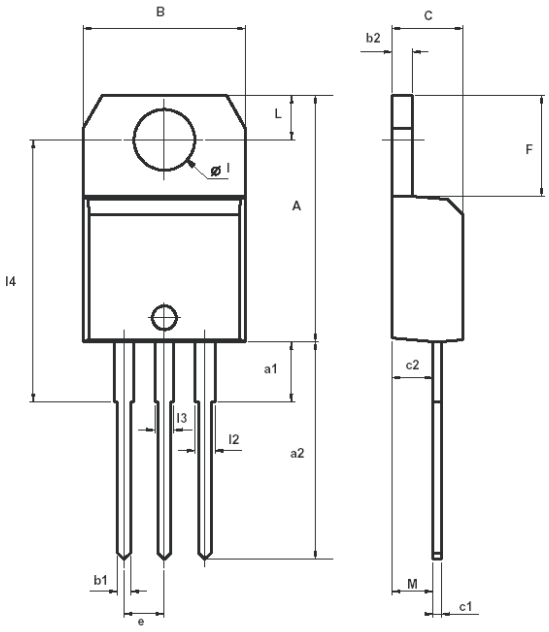


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I^2t.



MECHANICAL DATA

Dimensions in mm
Net Mass: 2 g



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	