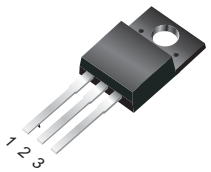
BCR12PM

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
	 TO-220F

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 12 A

SYMBOL	PARAMETER		Value	Unit
V_{DRM}	Repetitive peak off-state voltages	BCR12PM-8 BCR12PM-12	400 600	V
$I_{T(RMS)}$	RMS on-state current （full sine wave）		12	A
I_{TSM}	Non-repetitive peak on-state current (full cycle,Tj initial=25℃)		120	A

SYMBOL	PARAMETER	CONDITIONS	Value	TYP	MAX	UNIT
Rth (j-c)	Junction to case	-	-	-	3.5	℃/W
Rth(j-a)	Junction to ambient	-	-	-	60	℃/W

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

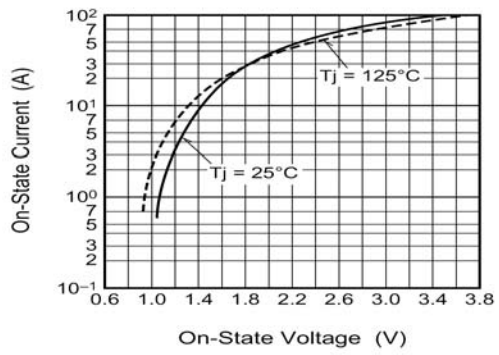
SYMBOL	PARAMETER	CONDITIONS	MIN	Value	UNIT
V_{DRM}	Repetitive peak off-state Voltages	BCR12PM-8 BCR12PM-12	-	400 600	V
$I_{T(RMS)}$	RMS on-state current	sine full wave;T_c=74℃	-	12	A
I_{TSM}	surge on-state current	60Hz sinewave 1 full cycle, peak value,non-repetitive	-	120	A
VGM	Peak gate voltage		-	10	V
I^2t	I^2t Value for fusing	Value corresponding to 1 cycle of half wave 60Hz,surge on-state current	-	60	A^2S
P_{GM}	Peak gate current		-	5	W
I_{GM}	Peak gate current		-	2	A
I_{DRM}	peak off-state,current		-	2.0	mA
Viso	Isolation voltage		-	1500	V
$P_{G(AV)}$	Average gate power		-	0.5	W
T_{stg}	Storage temperature		-40	125	℃
T_j	Junction temperature		-40	125	℃

T_J=25°C unless otherwise stated

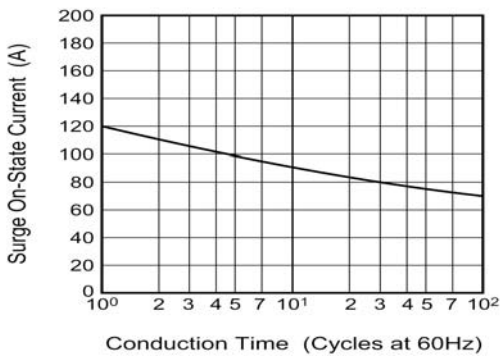
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	Gate trigger current	Tj=25℃,V_D=6V,R_L=6Ω; R_G=330Ω MT2+Gate+ MT2+Gate- MT2-Gate-	 - - -	 - - -	 30 30 30	 mA mA mA
V_{GT}	Gate trigger voltage	Tj=25℃,V_D=6V,R_L=6Ω; R_G=330Ω MT2+Gate+ MT2+Gate- MT2-Gate-	 - - -	 - - -	 1.5 1.5 1.5	 V V V
V_{GD}	Gate non trigger voltage	Tj=125℃,V_D=1/2 V_{DRM}	0.2	-	-	V
VTM	On-state voltage	ITM=20A Tc=25℃	-	-	1.6	V
(Dv/dt)c	Commutating voltage	T_J=125℃	10	-	-	V/us

Description

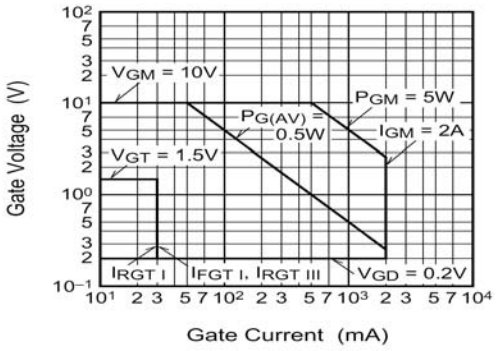
Maximum On-State Characteristics



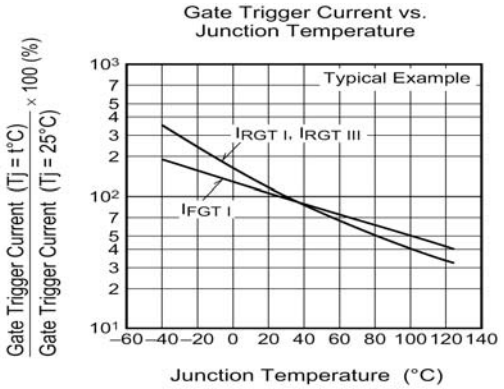
Rated Surge On-State Current



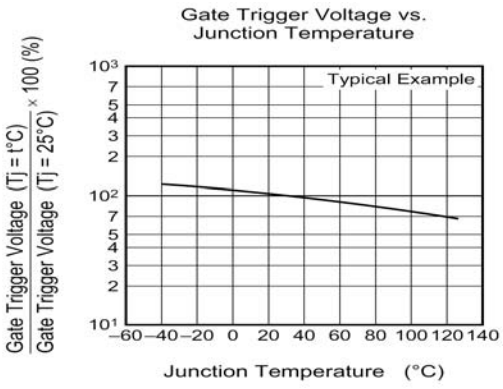
Gate Characteristics (I, II and III)



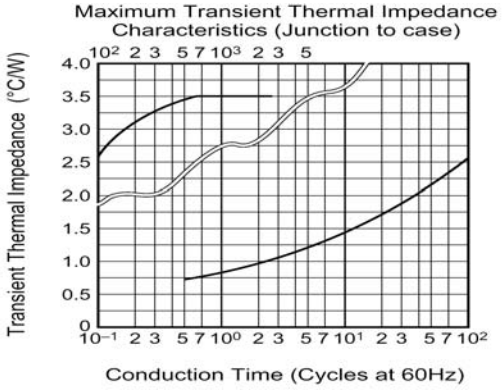
Gate Trigger Current vs. Junction Temperature



Gate Trigger Voltage vs. Junction Temperature

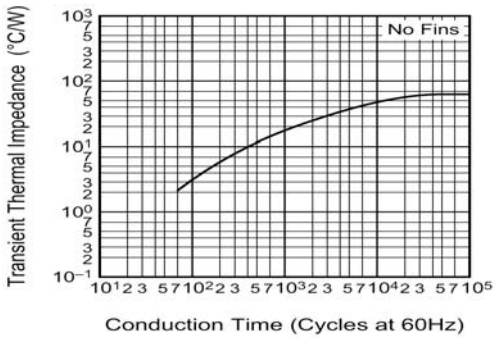


Maximum Transient Thermal Impedance Characteristics (Junction to case)

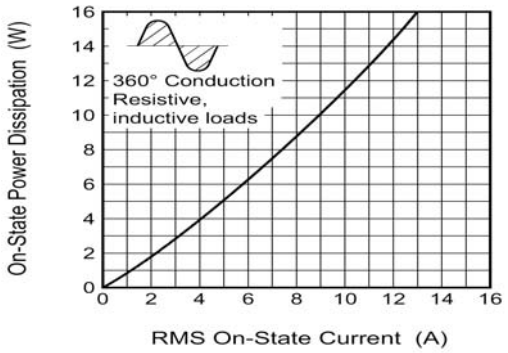


Description

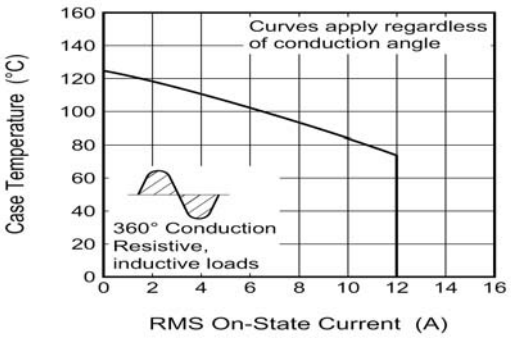
Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



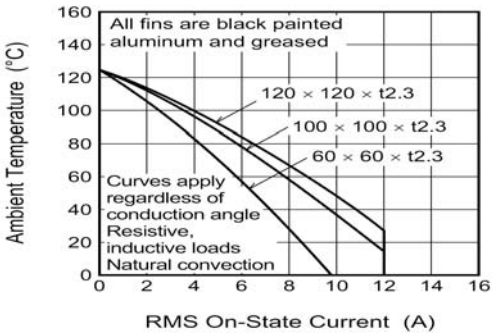
Maximum On-State Power Dissipation



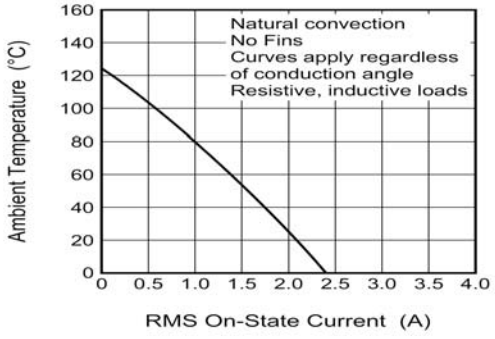
Allowable Case Temperature vs. RMS On-State Current



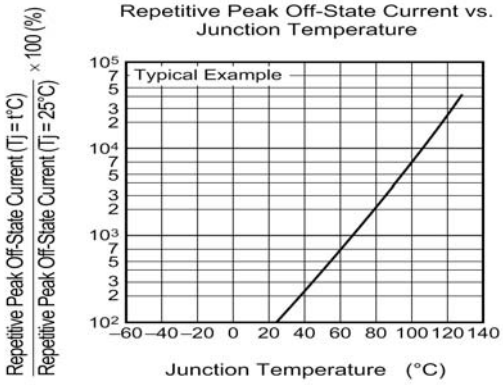
Allowable Ambient Temperature vs. RMS On-State Current



Allowable Ambient Temperature vs. RMS On-State Current

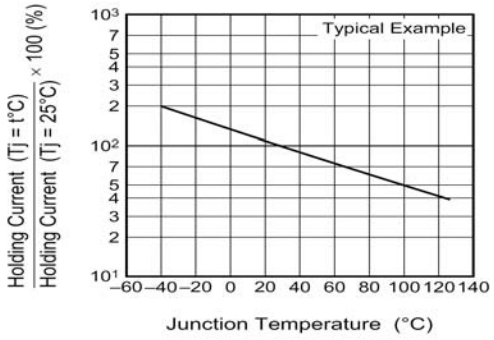


Repetitive Peak Off-State Current vs. Junction Temperature

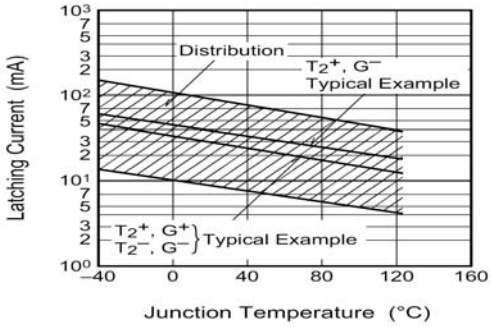


Description

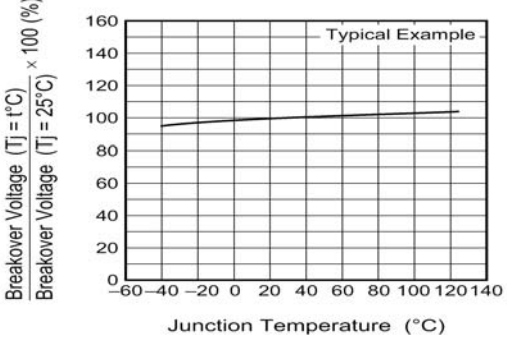
Holding Current vs. Junction Temperature



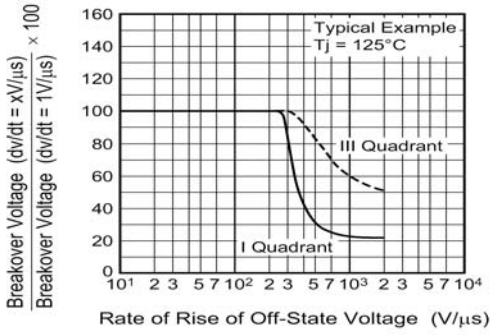
Latching Current vs. Junction Temperature



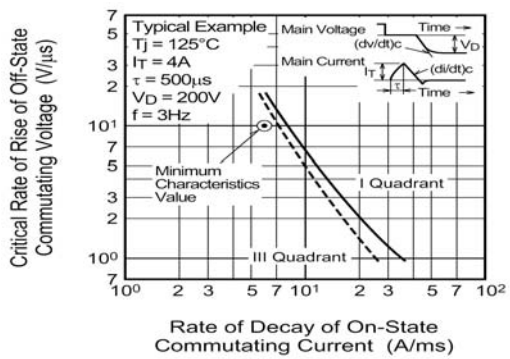
Breakover Voltage vs. Junction Temperature



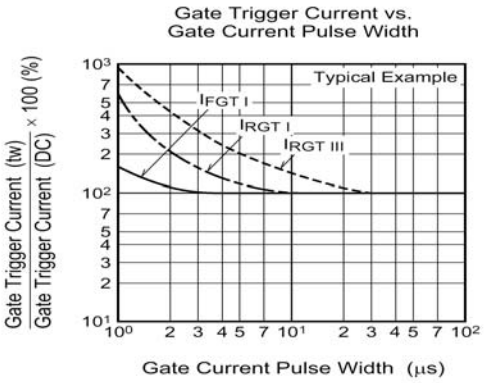
Breakover Voltage vs. Rate of Rise of Off-State Voltage



Commutation Characteristics



Gate Trigger Current vs. Gate Current Pulse Width



MECHANICAL DATA

Dimensions in mm

Net Mass: 2g