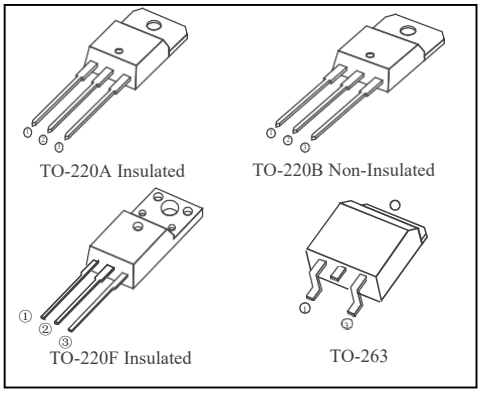
BCR20PM

Silicon Controlled Rectifier

Features

- Sensitive Gate Trigger Current
- Blocking Voltage to 800 V
- Glass Passivated Surface for Reliability and Uniformity
- RoHS Compliant
- High Dv/Dt Rate
- IT(RMS) to 20A Of SCR



Mechanical Characteristics

- TO-220A、TO-220B、TO220F、TO-263 package
- Matte tin lead – free plated
- Marking: Marking Code
- RoHS Compliant

Applications

- Contactless AC switches、 light dimmer
- Electric flasher unit、hair drier
- Control of household equipment

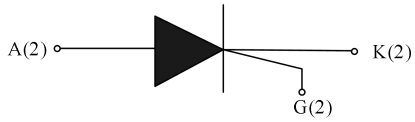
Absolute Maximum Rating（Tc=25℃ Unless otherwise specified）

Parameter	Symbol	Value	Units
Storage junction temperature range	Tstg	-4	℃
Operating junction temperature range	Tj	-40~150	℃
Repetitive peak off-state voltage (Tj=25℃)	VDRM	800	V
Repetitive peak reverse voltage (Tj=25℃)	VRRM	840	V
RMS on-state current (TC=80℃)	IT(RMS)	20	A
Non repetitive surge peak on-state current (full cycle,	ITSM	200	A
I2t value for fusing (tp=10ms)	I2t	167	A2s
Critical rate of rise of on-state current (IG=2×IGT)	dI/dt	100	A/μs
Peak gate current	IGM	4	A
Average gate power dissipation	PG(AV)	0.5	W
Peak gate power	PGM	10	W
Thermal Resistance(between Junction and Case)	Rθ(J-C)	2.4（Typ.）	℃/W

Note1:RMS on-state current ,per Fig2， Fig3.

Note2:IGT Per Fig6.

Pin Configuration



Electrical Characteristics（Tc=25℃ Unless otherwise specified）

Symbol	Test Condition	Quadrant	Value		Unit
IGT	VD =12V RL =33Ω	I-II-III	MAX.	35	mA
VGT		I-II-III	MAX.	1.0	V
VGD	VD =VDRM Tj =150℃ RL =3.3KΩ	I-II-III	MIN.	0.2	V
IL	IG =1.2IGT	I-III	MAX.	60	mA
		II		70	
IH	IT =500mA		MAX.	50	mA
dV/dt	VD=540V Gate Open Tj =150℃		MIN.	1500	V/μs
(dI/dt)c	(dV/dt)c =20V/μs, Tj=150℃		MIN.	10	A/ms
ton	IG=40mA IA=200mA IR=20mA Tj=25℃		TYP.	7	μs

Static Characteristics

Symbol	Parameter		Value(MAX.)	Unit
VTM	ITM =28A tp=380μs	Tj=25℃	1.4	V
VTO	Threshold voltage	Tj=150℃	0.71	V
RD	Dynamic resistance	Tj=150℃	22	mΩ
IDRM	VD =VDRM VR =VRRM	Tj=25℃	5	μA
IRRM		Tj=150℃	2.5	mA

Thermal Resistances

Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case (AC)	2.4	℃/W
Rth(j-a)	Junction to ambient (AC)	60	℃/W

Note: The above typical parameters or typical characteristics are only indicative and do not make specific guarantees. If detailed values are required, additional communication and provision are required.

Typical Characteristics

FIG.1

Maximum power dissipation versus RMS on-state current

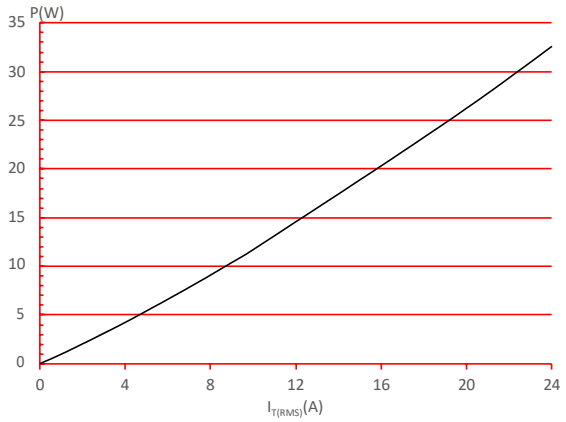


FIG.2

RMS on-state current versus case temperature

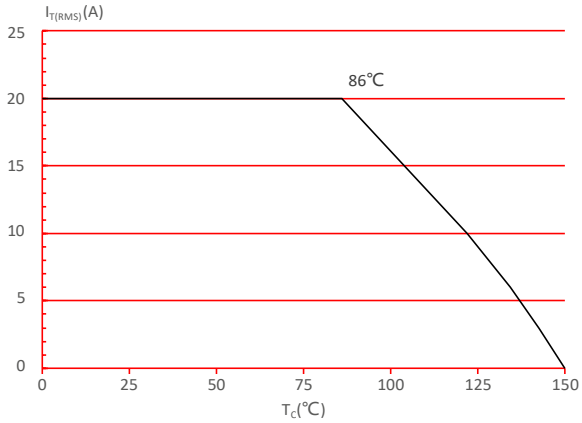


FIG.3

Surge peak on-state current versus number of cycles

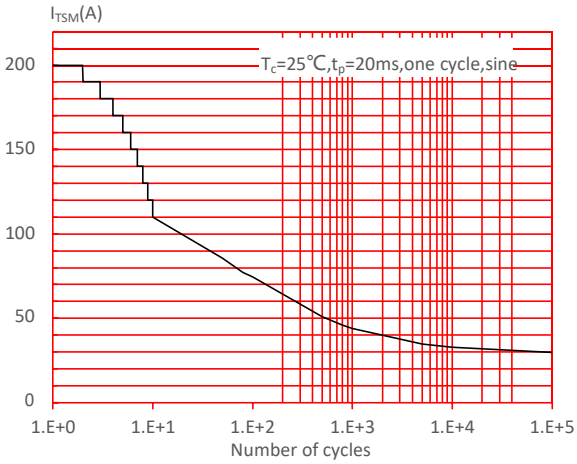


FIG.4

On-state characteristics

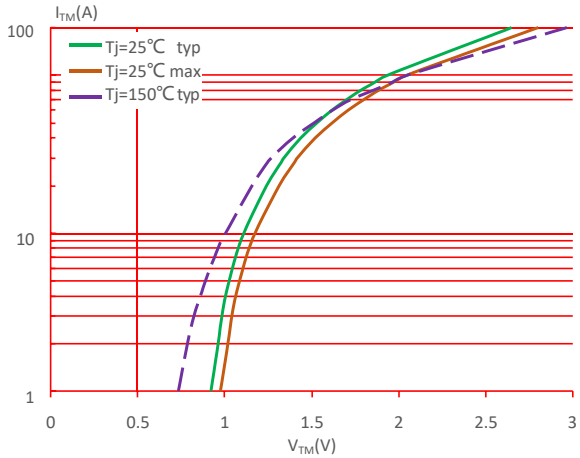


FIG.5

Non-repetitive surge peak on-state current for a sinusoidal pulse with width t_P<20ms, and corresponding value of I^2t (dI/dt<100A/μs)

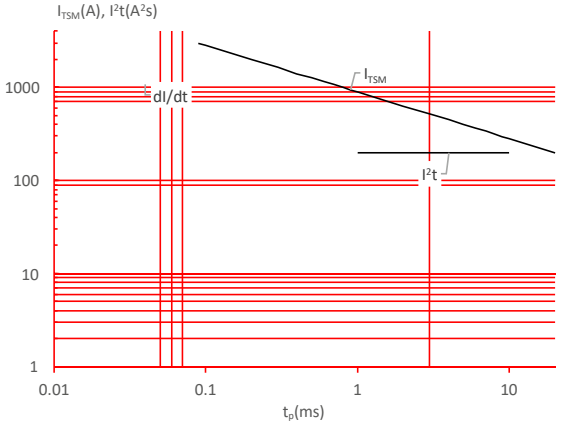
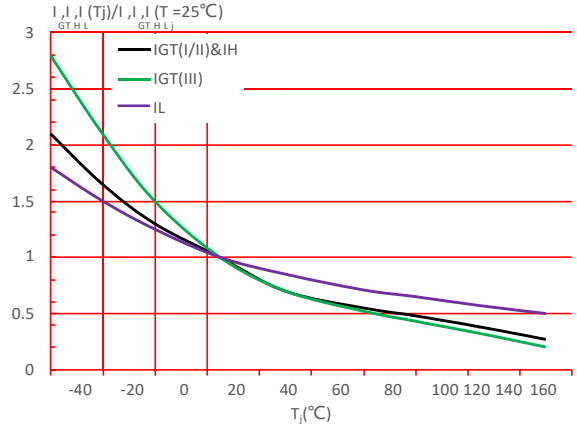
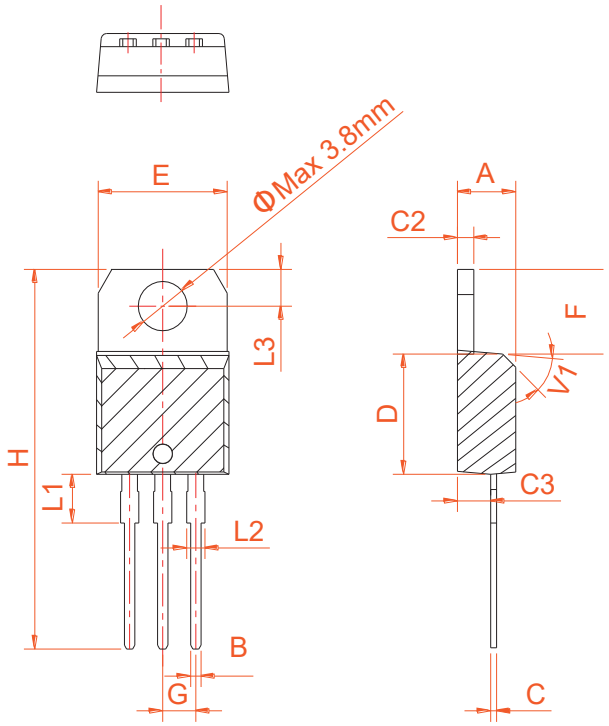


FIG.6:

Relative variations of gate trigger current, holding current and latching current versus junction temperature



Package Mechanical Data



TO-220A Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

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A	4.40		4.60	0.173		0.181
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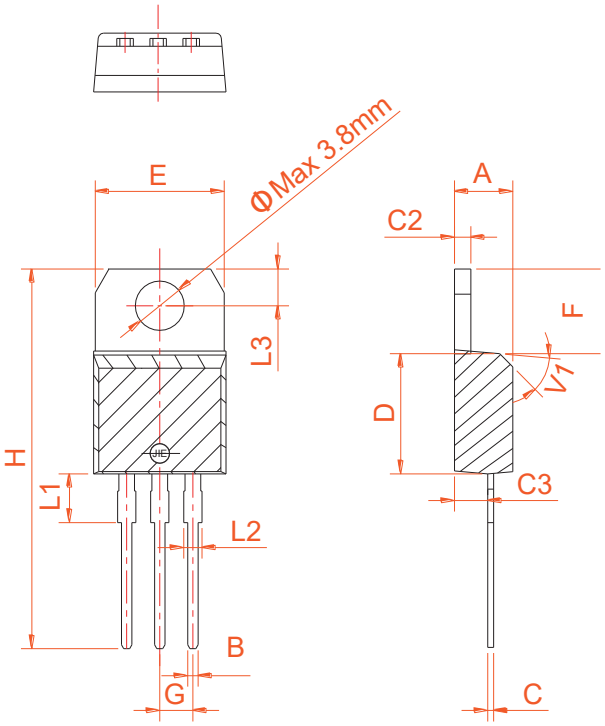
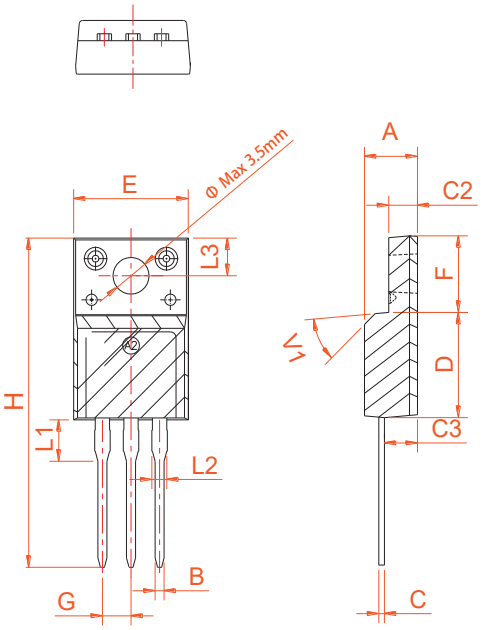
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	



TO-220B Non-Ins

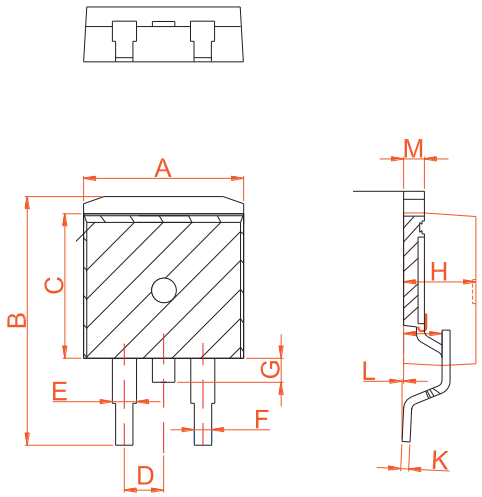
PACKAGE MECHANICAL DATA



TO-220F Ins

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.45		2.75	0.096		0.108
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.40		6.80	0.252		0.268
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.63			0.143	
L2	1.14		1.70	0.045		0.067
L3		3.30			0.130	
V1		45°			45°	

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053



TO-263

Package Information

Package Type	Description	Quantity（pcs）
TO-220A	Tube	50
TO-220B	Tube	50
TO220F	Tube	50
TO-263	Reel	800

Contact Information

TANI website: **http://www.tanisemi.com** Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.

Product Specification Statement

The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. TANI shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and TANI assumes no responsibility for the application of the product. TANI strives to provide accurate and up -to- date information to the best of our ability. However, due to technical, human, or other reasons, TANI cannot guarantee that the information provided in the product specification is entirely accurate and error-free. TANI shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications.

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