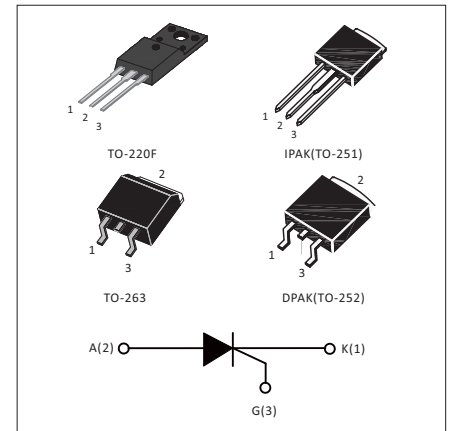


## FEATURES

The 12A Series SCR, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc.

## MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{RRM}/V_{DRM}$	600/800	V
$V_{TM}$	$\leq 1.8$	V



## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$V_{DRM}$	Repetitive peak off-state voltage		$T_J=25^\circ\text{C}$ 600/800	V
$V_{RRM}$	Repetitive peak reverse voltage		$T_J=25^\circ\text{C}$ 600/800	V
$I_{T(RMS)}$	RMS on-state current(360°conduction angle)	TO-220F $T_c=85^\circ\text{C}$	12	A
		DPAK/IPAK $T_c=105^\circ\text{C}$		
		TO-263 $T_c=78^\circ\text{C}$		
$I_{TSM}$	Non repetitive surge peak on-state current		$T_P=10\text{ms}$ 120	A
$I^2t$	$I^2t$ value for fusing		$T_P=10\text{ms}$ 72	$\text{A}^2\text{s}$
$di_t/dt$	Repetitive rate of rise of on-state current		$I_G=2I_{GT}$ 50	A/us
$I_{GM}$	Peak gate current		$T_J=25^\circ\text{C}$ 2	A
$P_{GM}$	Peak gate power		$T_J=25^\circ\text{C}$ 5	W
$P_{G(AV)}$	Average gate power dissipation		$T_J=25^\circ\text{C}$ 0.5	W
$T_{stg}$	Storage temperature range		-40~+150	$^\circ\text{C}$
$T_J$	Operating junction temperature range		-40~+125	$^\circ\text{C}$

## ELECTRICAL CHARACTERISTICS( $T_J=25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	-	-	15	mA
$V_{GT}$	$V_D=12\text{V } R_L=33\Omega$	-	-	1.5	V
$V_{GD}$	$V_D=V_{DRM} R_L=33\text{K}\Omega T_J=125^\circ\text{C}$	0.2	-	-	V
$I_H$	$I_T=500\text{mA}$	-	-	50	mA
$I_L$	$I_G=1.2I_{GT}$	-	-	60	mA
dv/dt	$V_D=2/3V_{DRM}$ Gate Open $T_J=125^\circ\text{C}$	200	-	-	V/us



## STATIC CHARACTERISTICS

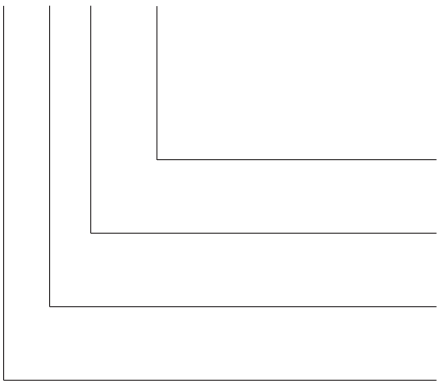
Symbol	Parameter	Value	Unit
$V_{TM}$	$I_{TM}=23A$ $t_p=380\mu s$	$T_j=25^\circ C$	$\leq 1.7$ V
$I_{DRM}$	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	$\leq 10$ uA
$I_{RRM}$	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=125^\circ C$	$\leq 1.0$ mA

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220F	2.5
		DPAK/IPAK	1.8
		TO-263	2.8

## PRODUCT IDENTIFICATION

**SC D 12C 60**



$V_{DRM}/V_{RRM}$   
60: 600V 80:800V

$I_{T(RMS)}$   
12C: 12A

**Package**  
D: DPAK H:IPAK F:TO-220F E:TO-263

**Product Line**  
SC: Semiware SCRs



PACKAGE MECHANICAL DATA

Ref.	Dimensions					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	4.50		4.90	0.177		0.193
B	0.74		0.83	0.029		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		0.409
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	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.021		0.026
B2	5.20		5.40	0.204		0.212
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.251		0.259
G	4.40		4.60	0.173		0.181
H	9.35		10.10	0.368		0.397
L1		0.80			0.031	
L2	1.37		1.50	0.054		0.059
V1		4°C			4°C	
V2	0°C		8°C	0°C		8°C



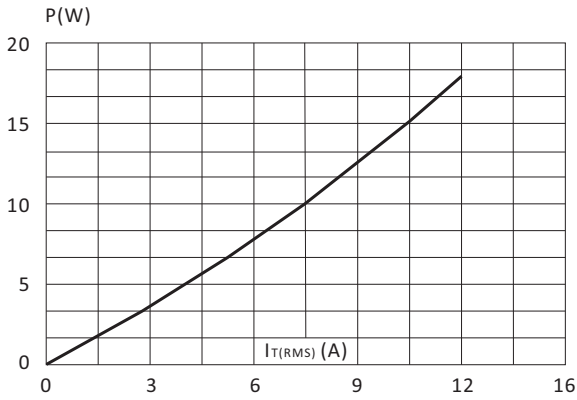
PACKAGE MECHANICAL DATA

Ref.	Dimensions					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	2.20		2.40	0.086		0.095
A2	0.90		1.10	0.035		0.043
B	0.55		0.65	0.021		0.026
B2	5.20		5.40	0.204		0.212
B3	0.76		0.85	0.030		0.033
B4		0.32			0.013	
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.251		0.259
G	4.40		4.60	0.173		0.181
H	15.90		16.30	0.626		0.641
L	9.00		9.40	0.354		0.370
L1	1.80		1.90	0.071		0.075
L2	1.37		1.50	0.054		0.059
V1		4°			4°	

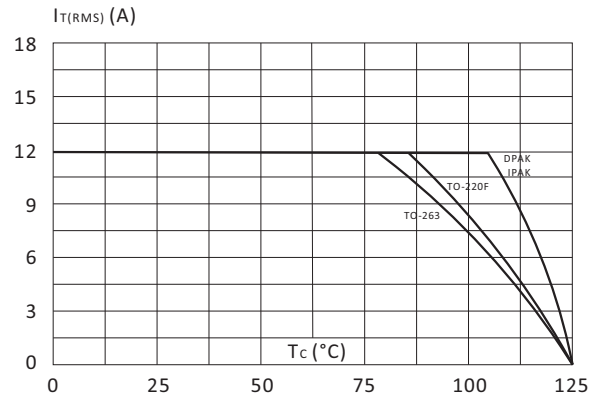
Ref.	Dimensions					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.40		9.60	0.370		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0		0.25	0		0.010
M	1.25		1.35	0.049		0.053



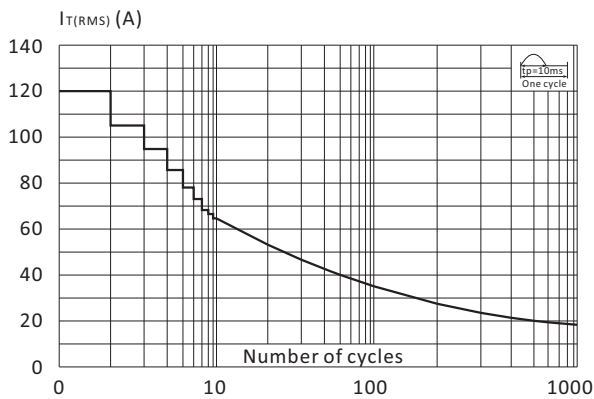
**FIG.1** Maximum power dissipation versus RMS on-state current



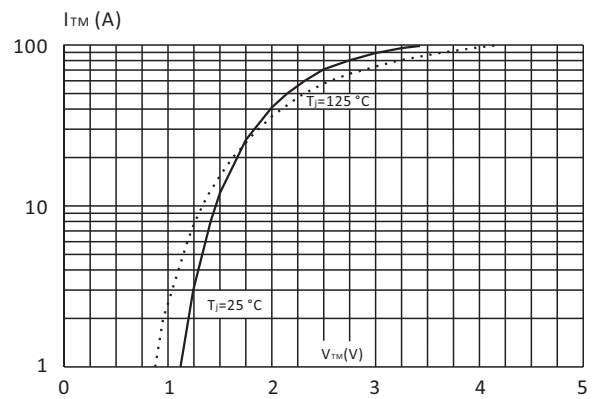
**FIG.2** RMS On-state Current Versus Case Temperature



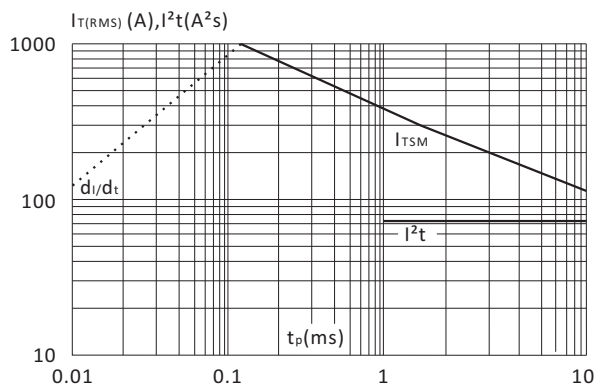
**FIG.3** Surge Peak On-state Current Versus Number Of Cycles



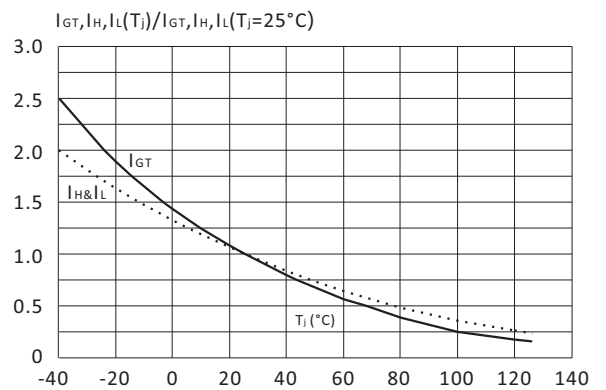
**FIG.4** On-state Characteristics (Maximum Values)



**FIG.5** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$



**FIG.6** Relative variations of gate trigger current, holding current and latching current versus junction temperature



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