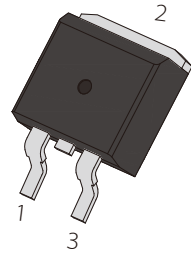


## FEATURES

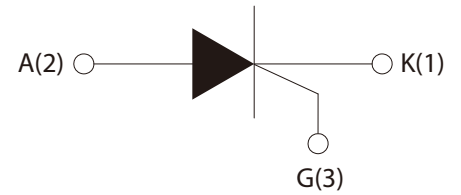
- | Glass-passivated mesa chip for reliability and uniform
- | High current output up to 20A
- | RoHS (2002/95/EC) compliant packages



TO-263

## APPLICATIONS

- | Motor cycle
- | Power charger
- | T-tools etc



Schematic Symbol

## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )	$V_{\text{DRM}}$	600	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{\text{RRM}}$	600	
RMS on-state current ( $T_c=80^\circ\text{C}$ )	$I_{\text{T(RMS)}}$	20	A
Non repetitive surge peak on-state current ( $t_p=10\text{ms}$ )	$I_{\text{TSM}}$	250	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )	$I^2t$	312.5	$\text{A}^2\text{S}$
Critical rate of rise of on-state current ( $I_G=2*I_{\text{GT}}$ )	$d/d_t$	50	$\text{A}/\mu\text{s}$
Peak gate current	$I_{\text{GM}}$	4	A
Average gate power dissipation	$P_{\text{G(AV)}}$	1	W
Storage junction temperature range	$T_{\text{STG}}$	-40~+150	$^\circ\text{C}$
Operating junction temperature range	$T_j$	-40~+125	

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

Symbol	Test Condition	Value	Unit
$I_{GT}$	$V_D=12\text{V}, R_L=33\Omega$	$\leq 25$	mA
$V_{GT}$		$\leq 1.3$	V
$V_{GD}$	$V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=150^{\circ}\text{C}$	$\geq 0.2$	
$I_H$	$I_T=500\text{mA}$	$\leq 60$	mA
$I_L$	$I_G=1.2I_{GT}$	$\leq 70$	
$dV_D/dt$	$V_D=2/3V_{DRM}$ Gate Open, $T_j=150^{\circ}\text{C}$	$\geq 200$	V/ $\mu\text{s}$

## STATIC CHARACTERISTICS

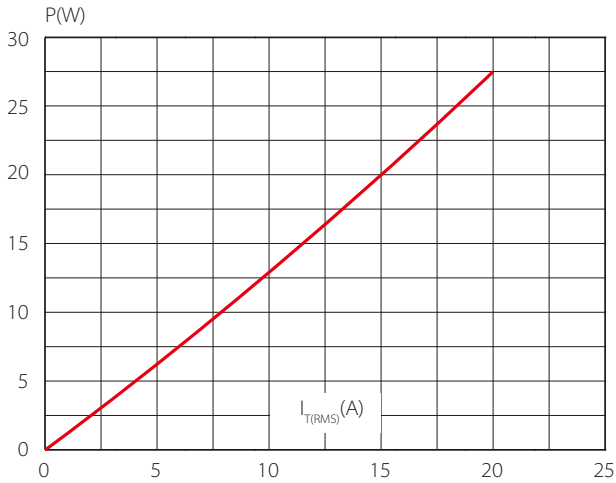
Symbol	Parameter	Value	Unit	
$V_{TM}$	$I_{TM}=40\text{A}, t_p=380\mu\text{s}$	$\leq 1.55$	V	
$I_{DRM}$	$V_D=V_{DRM}, V_R=V_{RRM}$			$T_j=25^{\circ}\text{C}$
$I_{RRM}$		$T_j=150^{\circ}\text{C}$	$\leq 4$	mA

## THERMAL RESISTANCES

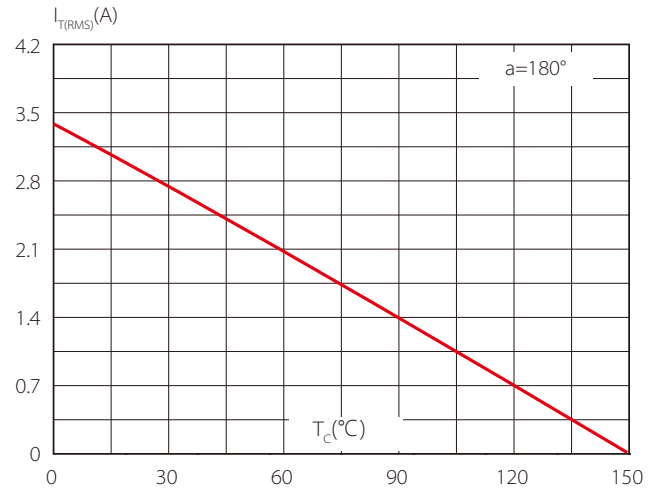
Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case(AC)	2.5	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient	45	$^{\circ}\text{C}/\text{W}$

## PARAMETER CHARACTERISTIC CURVE

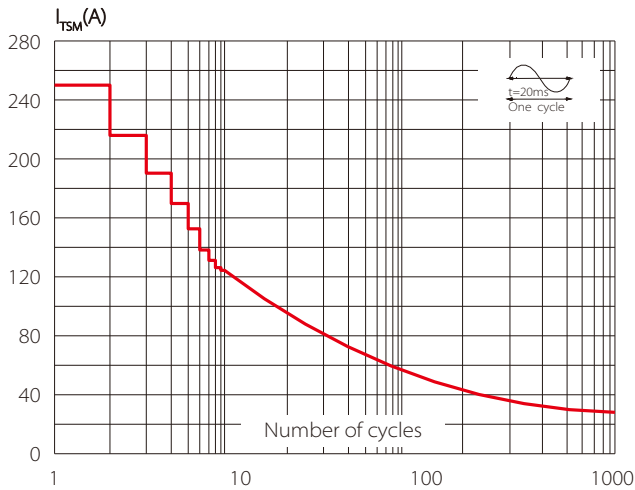
**FIG.1 Maximum power dissipation versus RMS on-state current**



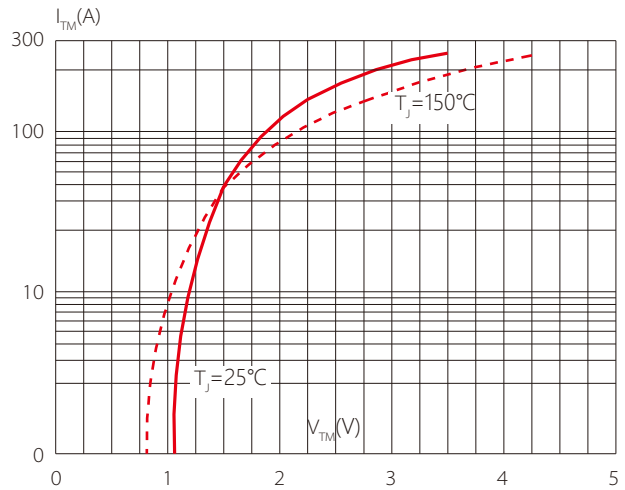
**FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4,copper thickness:35μm)(full cycle)**



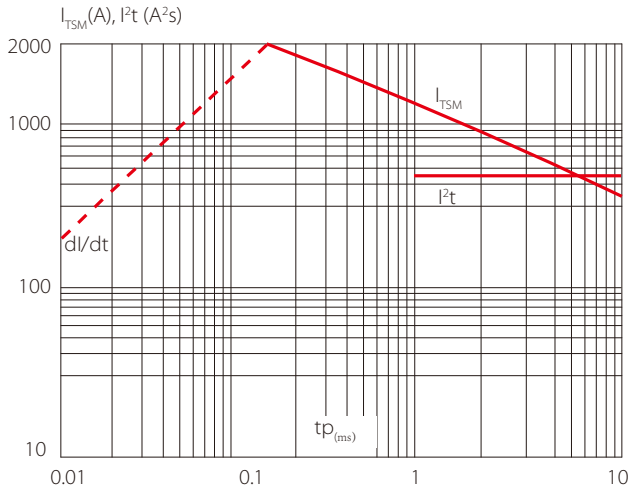
**FIG.3: Surge peak on-state current versus number of cycles**



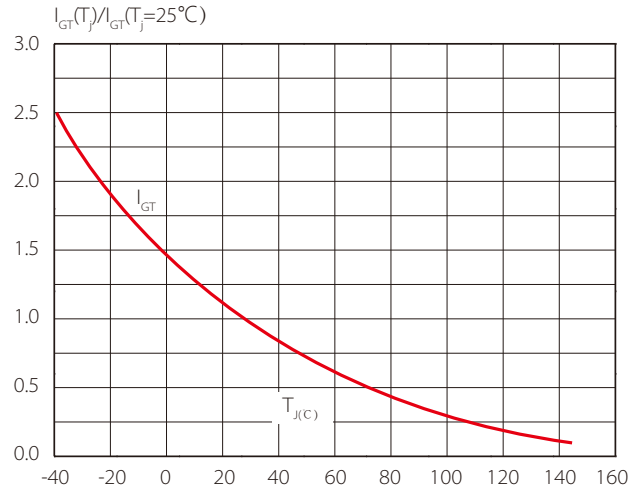
**FIG.4 On-state characteristics (maximum values)**



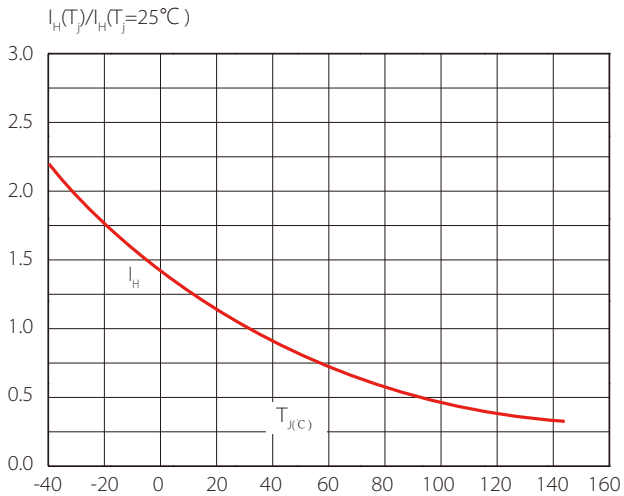
**FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$  and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )**



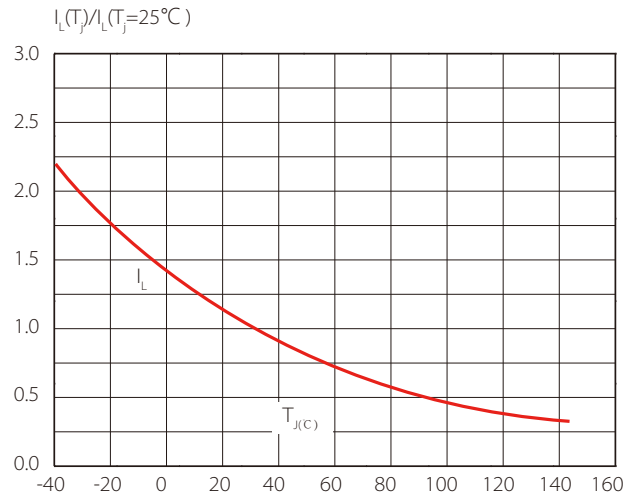
**FIG.6 Relative variations of gate trigger current, holding current and latching current versus junction temperature**



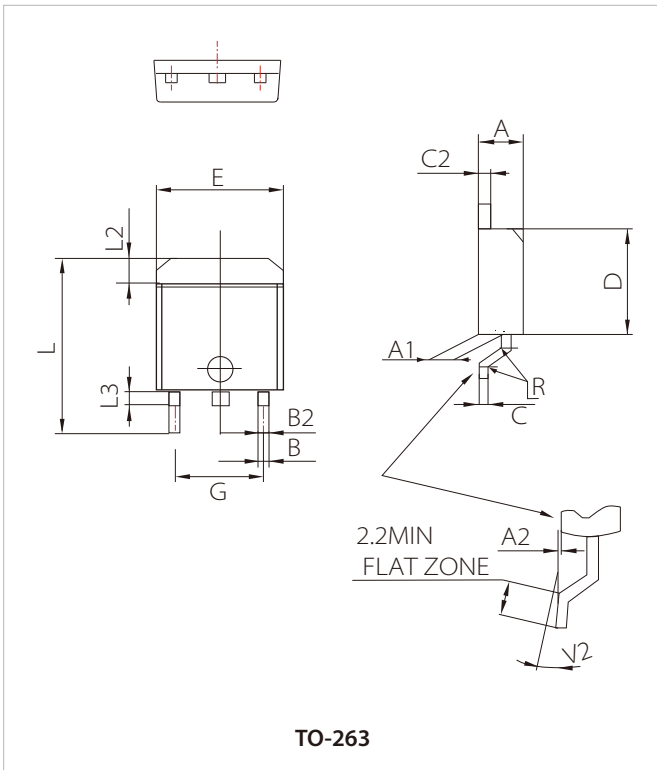
**FIG.7 Relative variations of holding current versus junction temperature**



**FIG.8 Relative variations of latching current versus junction temperature**



## PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.60	0.169		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.70		0.93	0.027		0.037
B2	1.25	1.40		0.048	0.055	
C	0.45		0.60	0.017		0.024
C2	1.21		1.36	0.047		0.054
D	8.95		9.35	0.352		0.368
E	10.00		10.28	0.392		0.405
G	4.88		5.28	0.192		0.208
L	15.00		15.85	0.590		0.624
L2	1.27		1.40	0.050		0.055
L3	1.40		1.75	0.055		0.069
R		0.40			0.016	
V2	0°		8°	0°		8°

## ORDERING INFORMATION

Part Number	Package	QTY/Reel	Reel Size
SCE20C60	TO-263	800CS	13"

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