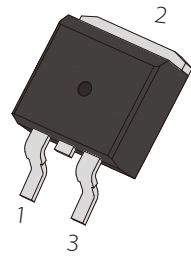


FEATURES

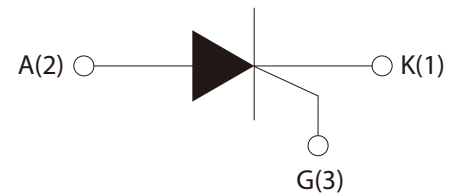
- | Glass-passivated mesa chip for reliability and uniform
- | High current output up to 20A
- | RoHS (2002/95/EC) compliant packages



TO-263

APPLICATIONS

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



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	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_{DRM}	800	V
Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$)	V_{RRM}	800	
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_{TSM}	250	
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	312.5	A^2S
Critical rate of rise of on-state current ($I_G=2*I_{GT}$)	d/d_t	50	$\text{A}/\mu\text{s}$
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{\text{G(AV)}}$	1	W
Storage junction temperature range	T_{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}	$V_D=12\text{V}, R_L=33\Omega$	≤ 25	mA
V_{GT}		≤ 1.3	V
V_{GD}	$V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=150^{\circ}\text{C}$	≥ 0.2	
I_H	$I_T=500\text{mA}$	≤ 60	mA
I_L	$I_G=1.2I_{GT}$	≤ 70	
dV_D/dt	$V_D=2/3V_{DRM}$ Gate Open, $T_j=150^{\circ}\text{C}$	≥ 200	V/ μs

STATIC CHARACTERISTICS

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

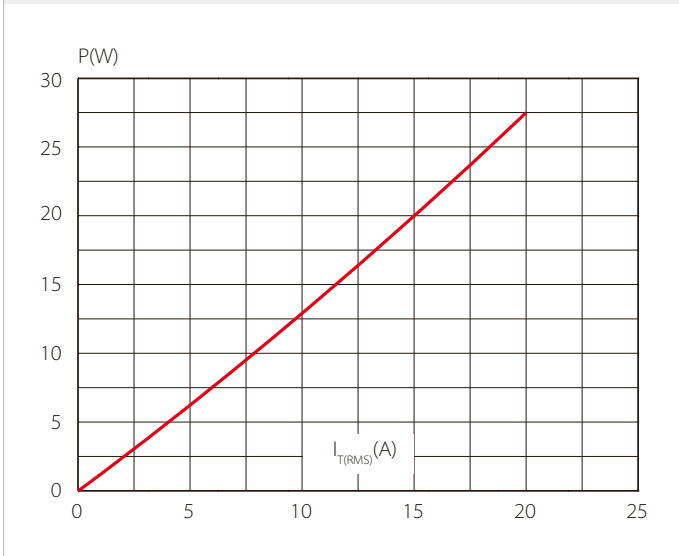


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4,copper thickness:35μm)(full cycle)

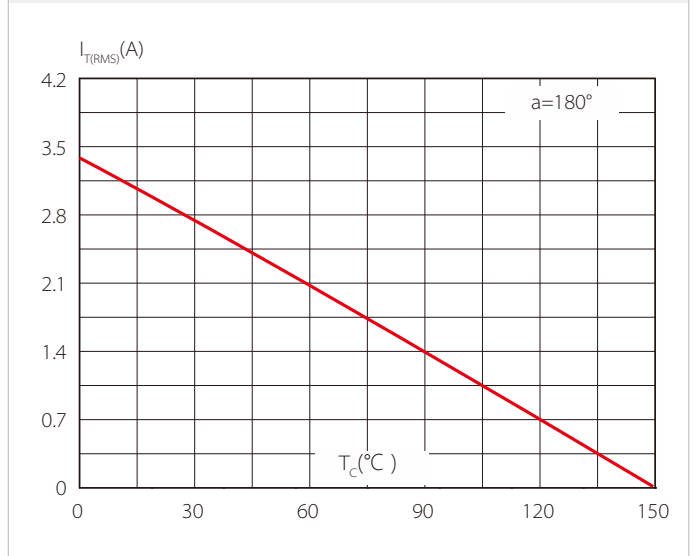


FIG.3: Surge peak on-state current versus number of cycles

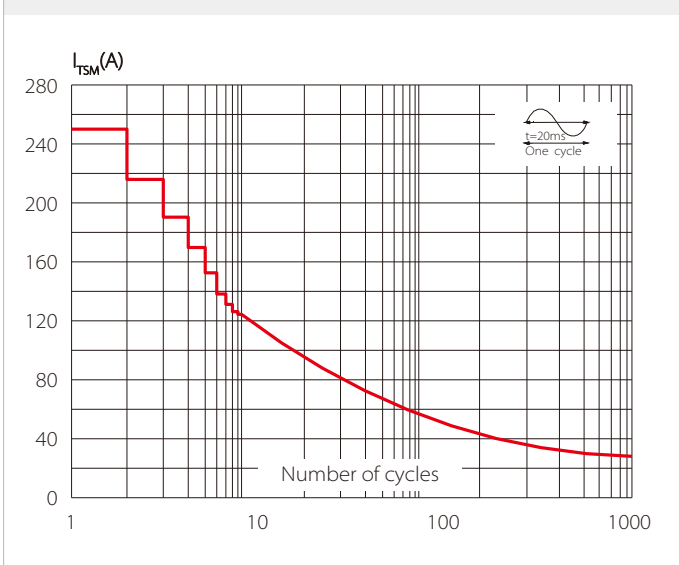


FIG.4 On-state characteristics (maximum values)

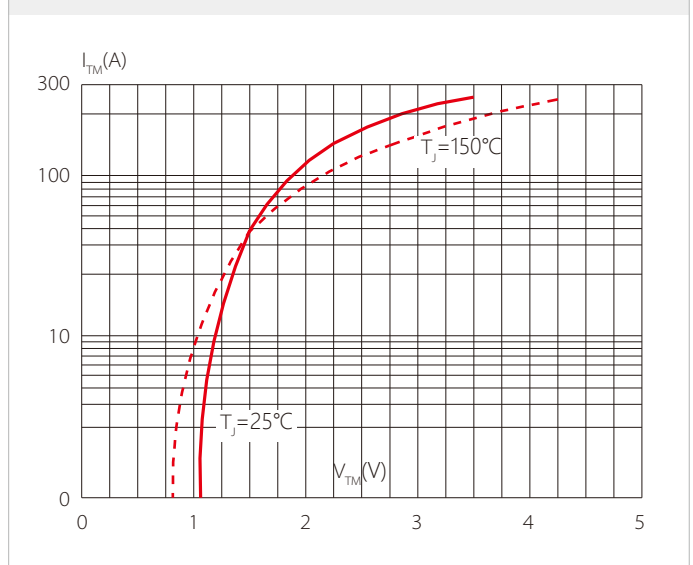


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$ and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

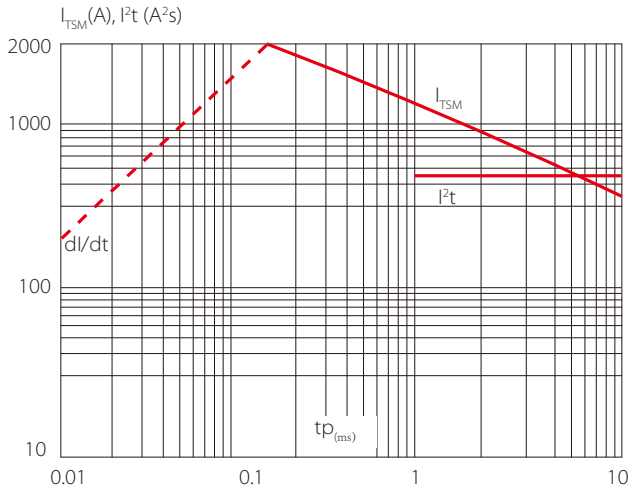


FIG.6 Relative variations of gate trigger current, holding current and latching current versus junction temperature

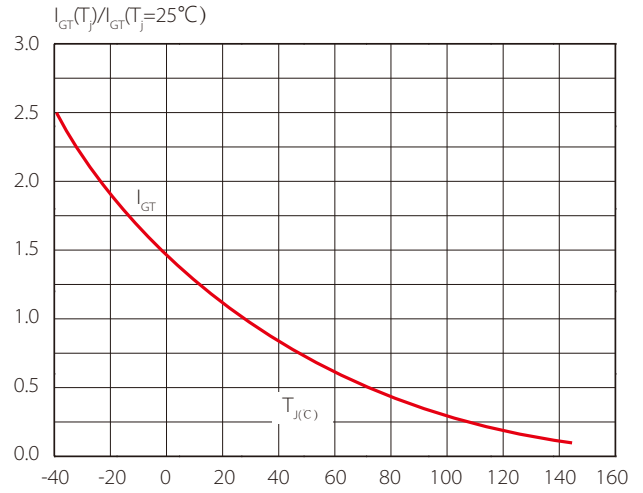


FIG.7 Relative variations of holding current versus junction temperature

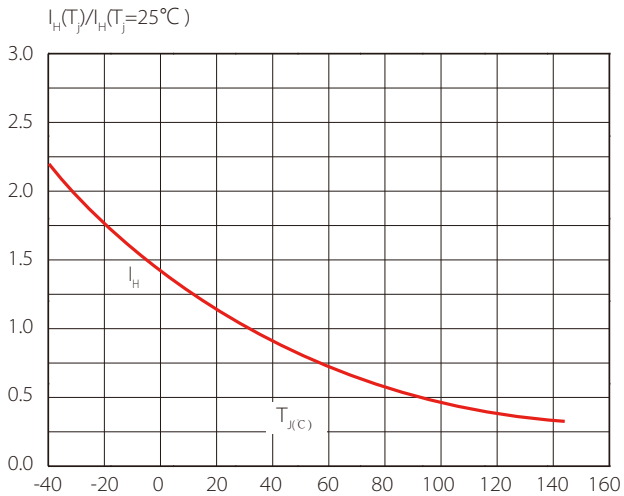
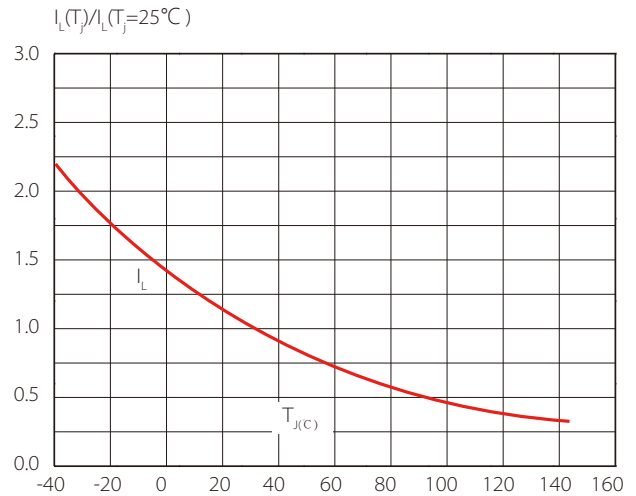
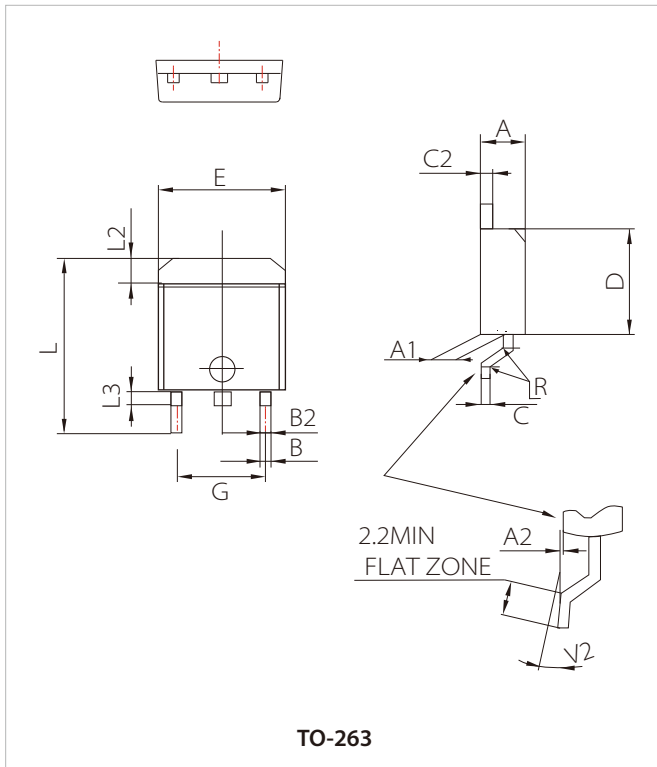


FIG.8 Relative variations of latching current versus junction temperature



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
SCE20C80	TO-263	800CS	13"

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