

## FEATURES

- | Glass-passivated mesa chip for reliability and uniform
- | High current output up to 12A
- | RoHS (2002/95/EC) compliant packages

## APPLICATIONS

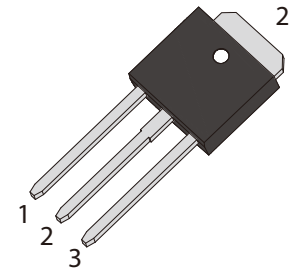
- | Motor cycle
- | Power charger
- | T-tools etc

## APPROVALS

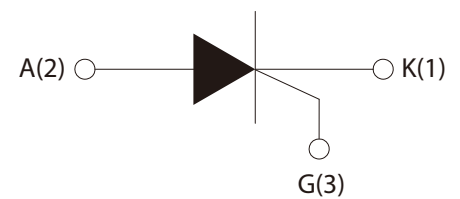
<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## 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 ( $T_c=105^\circ\text{C}$ )	$I_{\text{T(RMS)}}$	12	A
Non repetitive surge peak on-state current ( $t_p=10\text{ms}$ )	$I_{\text{TSM}}$	140	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )	$I^2t$	98	$\text{A}^2\text{S}$
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	$I_{\text{GM}}$	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	



TO-251



Schematic Symbol

## ELECTRICAL CHARACTERISTICS (T<sub>j</sub>=25°C unless otherwise specified)

Symbol	Test Condition	Value	Unit
I <sub>GT</sub>	V <sub>D</sub> =12V, R <sub>L</sub> =33Ω	≤15	mA
V <sub>GT</sub>		≤1.5	V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> , R <sub>L</sub> =3.3KΩ, T <sub>j</sub> =150°C	≥0.2	
I <sub>H</sub>	I <sub>T</sub> =500mA	≤50	mA
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	≤60	
dV <sub>D</sub> /dt	V <sub>D</sub> =2/3V <sub>DRM</sub> , Gate Open, T <sub>j</sub> =150°C	≥200	V/μs

## STATIC CHARACTERISTICS

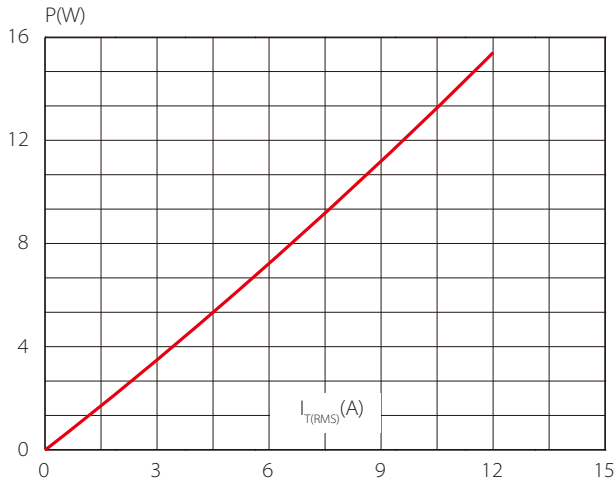
Symbol	Parameter	Value	Unit
V <sub>TM</sub>	I <sub>TM</sub> =24A, tp=380μs	≤1.55	V
I <sub>DRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> , V <sub>R</sub> =V <sub>RRM</sub>		
I <sub>RRM</sub>			≤2

## THERMAL RESISTANCES

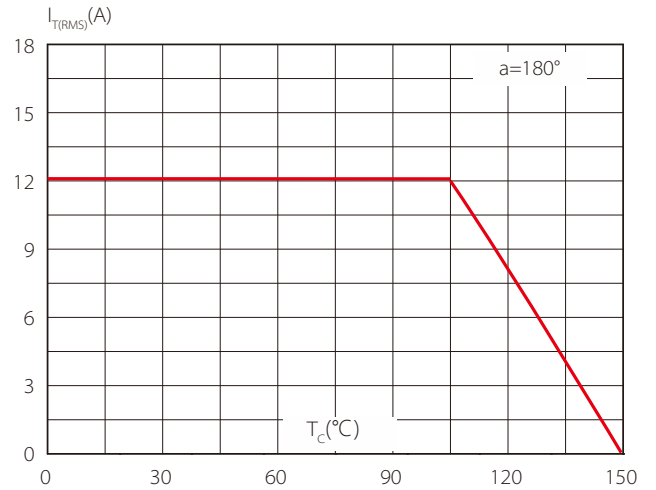
Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Junction to case(AC)	1.8	°C/W

# PARAMETER CHARACTERISTIC CURVE

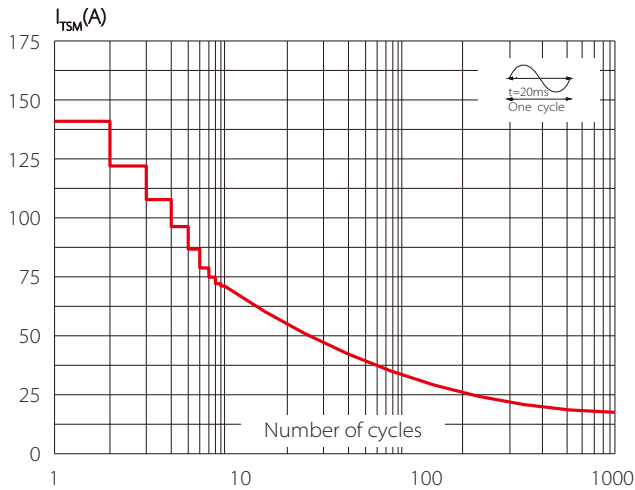
**FIG.1 Maximum power dissipation versus RMS on-state current**



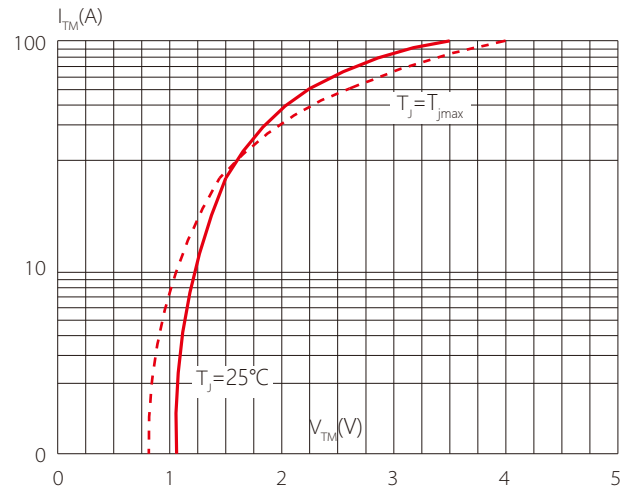
**FIG.2: RMS on-state current versus case temperature**



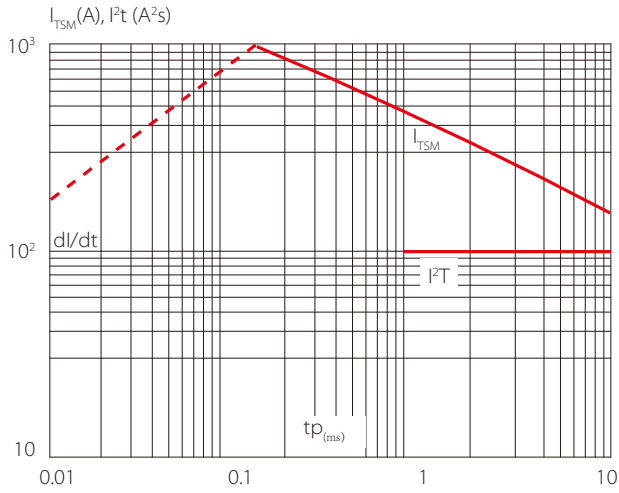
**FIG.3: Surge peak on-state current versus number of cycles**



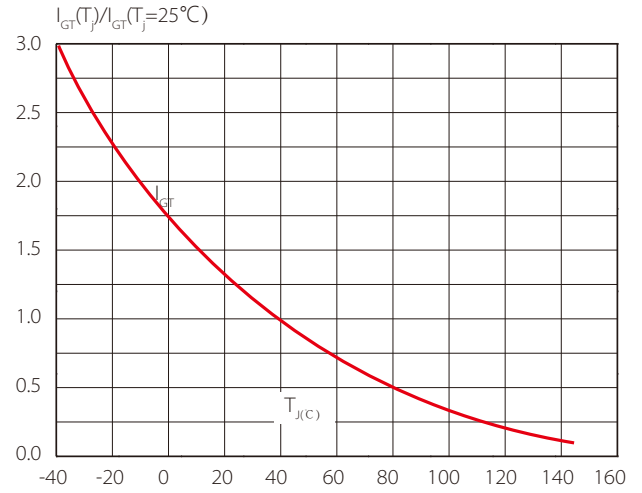
**FIG.4 On-state characteristics (maximum values)**



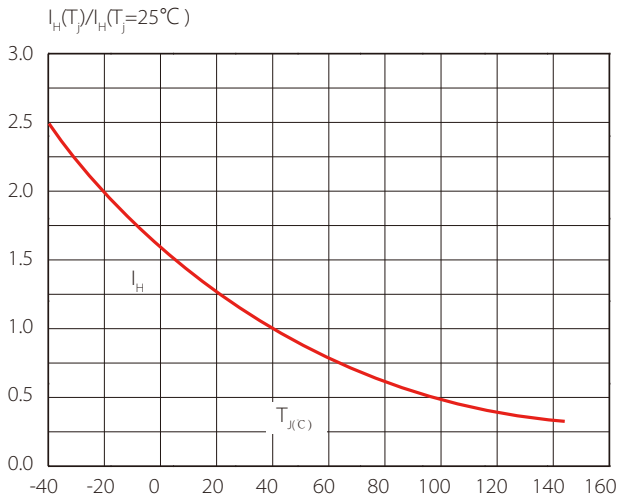
**FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$  and corresponding value of  $I^2t$  ( $dI/dt < 50\text{A}/\mu\text{s}$ )**



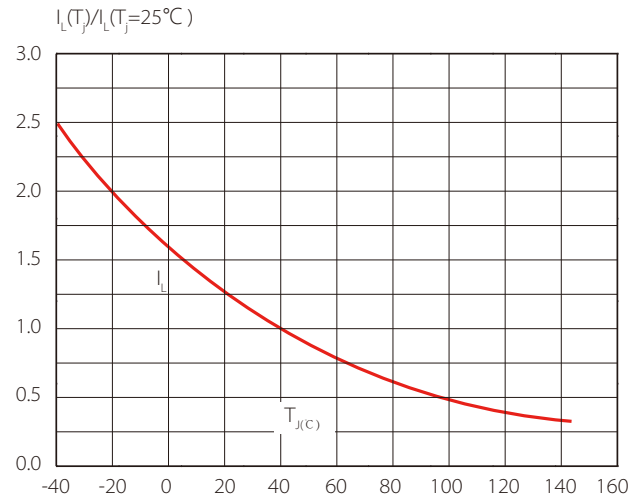
**FIG.6 Relative variations of gate trigger current, holding current and latching current versus junction temperature**



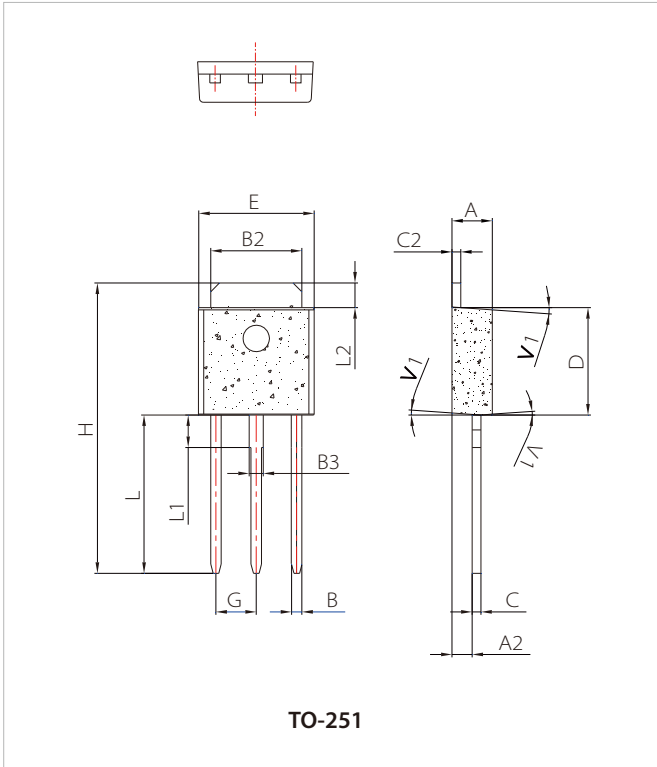
**FIG.7 Relative variations of holding current versus junction temperature**



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



## PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.90		1.20	0.035		0.047
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30			0.091	
H	16.0		17.0	0.630		0.669
L	8.90		9.40	0.350		0.370
L1	1.80		1.90	0.071		0.075
L2	1.37		1.50	0.054		0.059
V1		4°			4°	

## ORDERING INFORMATION

Part Number	Package	Qty/pcs		
		Tube	Inner Box	Carton
SCH12C60	TO-251	80	4000	32000

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