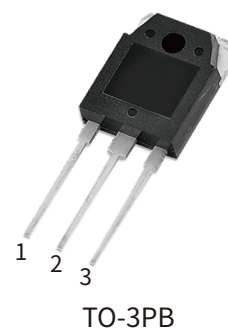


FEATURES

- | Glass-passivated mesa chip for reliability and uniform
- | High current output up to 60A

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}	1600	V
Repetitive peak reverse voltage ($T_j=25^{\circ}\text{C}$)	V_{RRM}	1600	
Average on-state current ($T_c \leq 92^{\circ}\text{C}$)	$I_{\text{T(RMS)}}$	60	A
Non repetitive surge peak on-state current ($t_p=20\text{ms}, T_j=25^{\circ}\text{C}$)	I_{TSM}	600	
I^2t value for fusing ($t_p=10\text{ms}, T_j=25^{\circ}\text{C}$)	I^2t	1800	A^2S
Critical rate of rise of on-state current ($I_G=2 \times I_{\text{GT}}, f=100\text{Hz}, T_j=125^{\circ}\text{C}$)	di/dt	100	$\text{A}/\mu\text{s}$
Peak gate current ($t_p=20\mu\text{s}, T_j=125^{\circ}\text{C}$)	I_{GM}	8	A
Average gate power dissipation ($T_j=125^{\circ}\text{C}$)	$P_{\text{G(AV)}}$	0.5	W
Peak gate power	P_{GM}	10	W
Storage junction temperature range	T_{STG}	-40~+150	$^{\circ}\text{C}$
Operating junction temperature range	T_j	-40~+150	

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

Symbol	Test Condition	Quadrant	Value		Unit
I_{GT}	$V_D=12\text{V}, R_L=3.3\text{K}\Omega$	I - II - III	MAX.	50	mA
V_{GT}		I - II - III	MAX.	1.3	V
V_{GD}	$V_D=V_{DRM}, T_j=125^{\circ}\text{C}, R_L=3.3\text{K}\Omega$	I - II - III	MIN.	0.2	V
I_H	$I_T=1\text{A}$		MAX.	80	mA
I_L	$I_G=1.2I_{GT}$	I - III	MAX.	120	
		II	MAX.	120	
dV/dt	$V_D=1070\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$		MIN.	1500	V/ μs
(dI/dt) c	(dV/dt)c=20V/ μs $T_j=125^{\circ}\text{C}$		MIN.	28	A/ms
t_{on}	$I_G=80\text{mA}$ $I_A=400\text{mA}$ $I_R=40\text{mA}$ $T_j=25^{\circ}\text{C}$	$T_j=25^{\circ}\text{C}$	TYP.	7	μs
t_{off}		$T_j=125^{\circ}\text{C}$	TYP.	70	μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value	Unit
V_{TM}	$I_{TM}=80A, tp=380\mu s$	$T_j=25^{\circ}C$	≤ 1.7	V
I_{DRM}	$V_D=V_{DRM}, V_R=V_{RRM}$		≤ 15	uA
I_{RRM}		$T_j=125^{\circ}C$	≤ 10	mA
V_{TO}	Threshold voltage	$T_j=125^{\circ}C$	≤ 0.75	V
R_D	Dynamic resistance	$T_j=125^{\circ}C$	≤ 24	mΩ

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case(DC)	0.35	$^{\circ}\text{C/W}$

PARAMETER CHARACTERISTIC CURVE

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

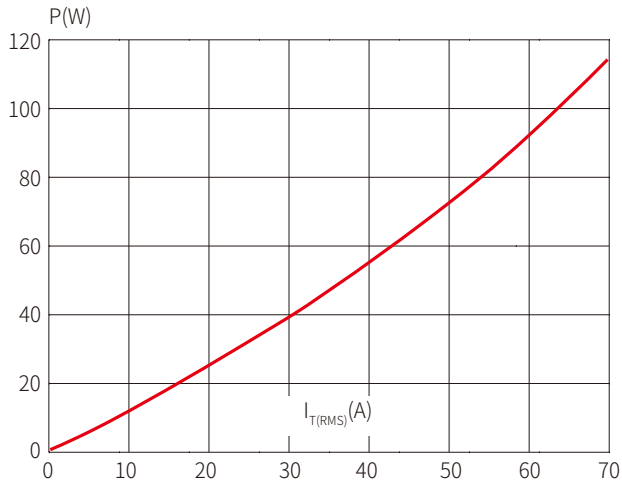


FIG.2: RMS on-state current versus case temperature

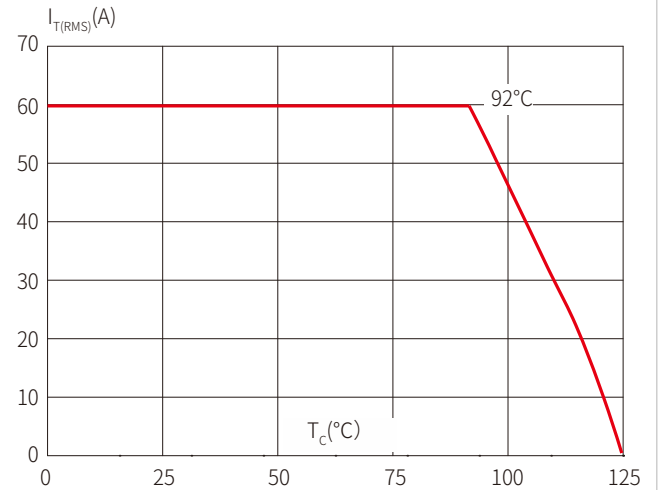


FIG.3: Surge peak on-state current versus number of cycles

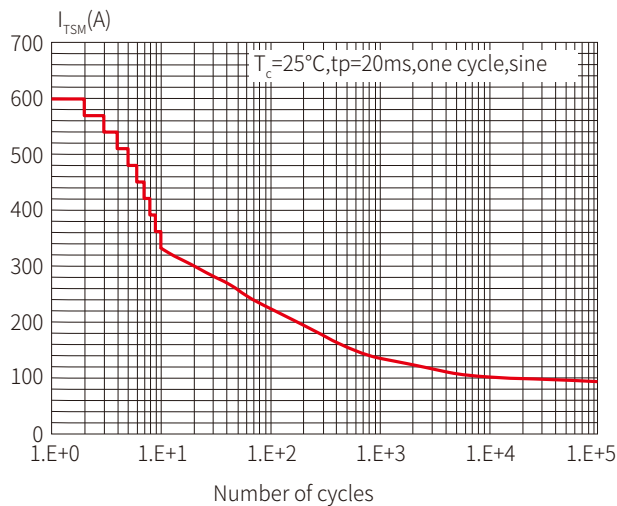


FIG.4 On-state characteristics

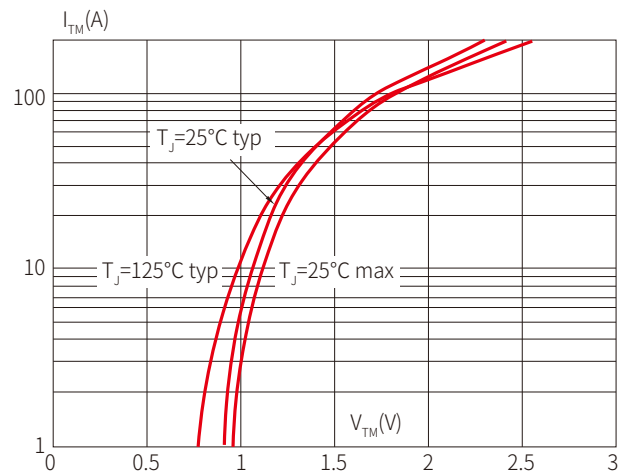


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$ and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

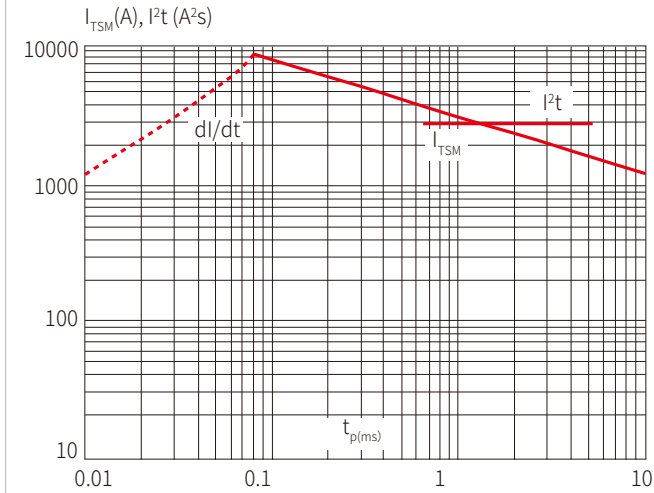
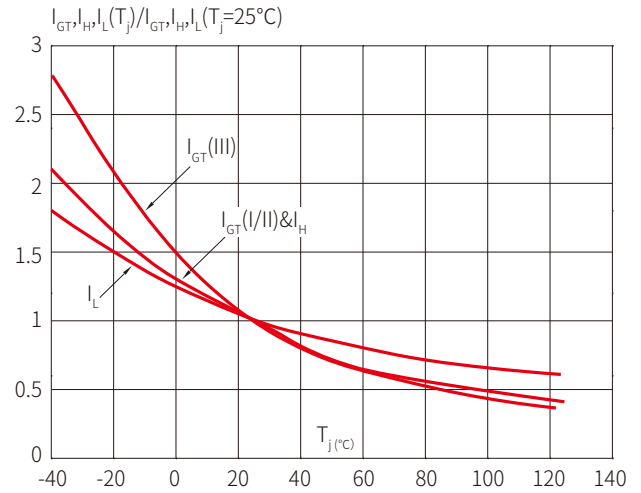
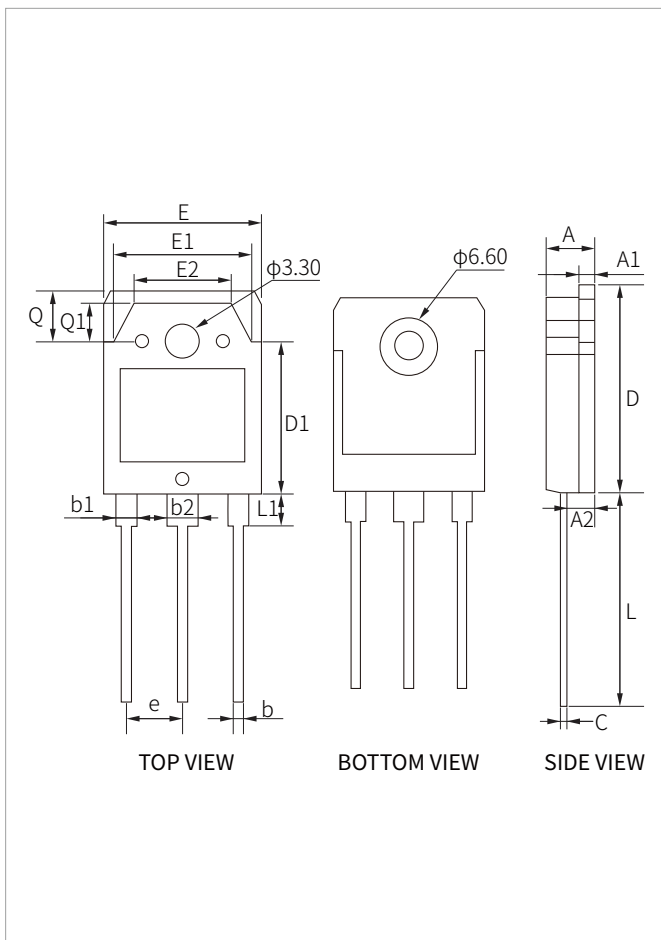


FIG.6 Relative variations of gate trigger current, holding current and latching current versus junction temperature



TO-3PB PACKAGE INFORMATION



Ref.	Millimeters		
	Min.	TYP.	Max.
A	4.60	4.80	5.00
A1	1.45	1.50	1.55
A2	2.60	2.80	3.00
b	0.80	1.00	1.20
b1	1.90	2.10	2.30
b2	2.90	3.10	3.30
C	0.55	0.60	0.75
D	19.90	20.10	20.30
D1	-	14.30	-
E	15.40	15.65	15.80
E1	-	13.60	-
E2	-	9.60	-
e	5.40	5.45	5.50
L	20.00	20.50	21.00
L1	-	3.20	-
Q	-	5.00	-
Q1	-	3.80	-

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Tube	QTY/Box	QTY/Carton
STP60A160BW	TO-3PB	 STP60A160BW XXXX	25PCS	250PCS	1250PCS

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