

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

## **BT136-600x-MS(220)**

**Product specification**

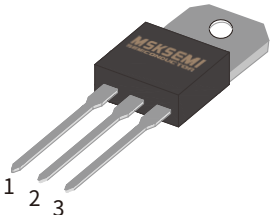
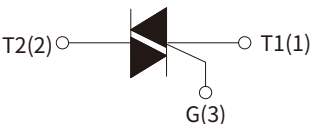

## FEATURES

- Direct interfacing to logic level ICs
- Direct interfacing to low power gate drive circuits
- High blocking voltage capability
- Planar passivated for voltage ruggedness and reliability
- Triggering in all four quadrant

## APPLICATIONS

- General purpose motor control circuits
- Phase control operations in light dimmers and motor speed controllers
- Home appliances

## Reference News

TO-220	Schematic Symbol	MARKING
		

## 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	V
RMS on-state current ( $T_c=85^{\circ}\text{C}$ )		$I_{\text{T(RMS)}}$	4	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$ )		$I_{\text{TSM}}$	65	
$I_{\text{t}}$ value for fusing ( $t_p=10\text{ms}$ )		$I_{\text{t}}$	21	$\text{A}^2\text{S}$
Critical rate of rise of on-state current ( $I_G=2 \times I_{\text{GT}}$ )	I - II-III	$di/dt$	50	$\text{A}/\mu\text{s}$
	IV		10	
Peak gate current		$I_{\text{GM}}$	2	A
Average gate power dissipation		$P_{\text{G(AV)}}$	0.5	W
Peak gate power		$P_{\text{GM}}$	5	W
Operating junction temperature range		$T_j$	$-40 \sim +125$	$^{\circ}\text{C}$
Storage junction temperature range		$T_{\text{STG}}$	$-40 \sim +150$	

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

Symbol	Test Condition	Quadrant	Value				Unit
			D	E	F	G	
$I_{GT}$	$V_D=12\text{V}$	I - II-III	$\leq 5$	$\leq 10$	$\leq 25$	$\leq 50$	mA
		IV	$\leq 10$	$\leq 25$	$\leq 70$	$\leq 100$	
$V_{GT}$		ALL	$\leq 1.3$				V
$V_{GD}$	$V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=125^{\circ}\text{C}$		$\geq 0.2$				V
$I_H$	$I_T=100\text{mA}$		$\leq 10$	$\leq 15$	$\leq 40$	$\leq 60$	mA
$I_L$	$I_G=1.2I_{GT}$	I - III	$\leq 10$	$\leq 20$	$\leq 50$	$\leq 70$	
		II-IV	$\leq 20$	$\leq 30$	$\leq 70$	$\leq 100$	
$dV_D/dt$	$V_D=67\%V_{DRM}, T_j=125^{\circ}\text{C}$		$\geq 20$	$\geq 50$	$\geq 50$	$\geq 200$	V/ $\mu\text{s}$
$V_{TM}$	$I_{TM}=10\text{A}, t_p=380\mu\text{s}$		$\leq 1.6$				V
$I_{DRM}$	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	$\leq 5$				$\mu\text{A}$
$I_{RRM}$		$T_j=125^{\circ}\text{C}$	$\leq 1$				mA

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case(AC)	2.9	$^{\circ}\text{C}/\text{W}$

## PARAMETER CHARACTERISTIC CURVE

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

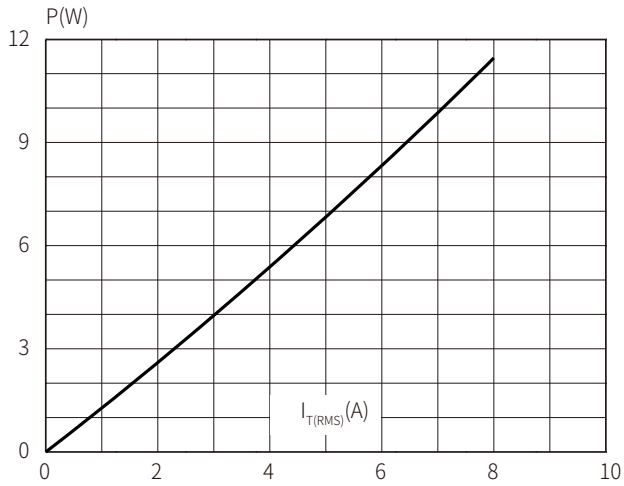


FIG.2: RMS on-state current versus case temperature

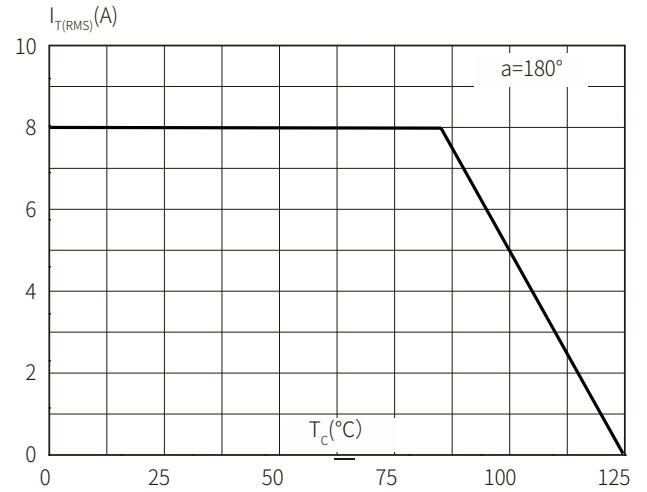


FIG.3: Surge peak on-state current versus number of cycles

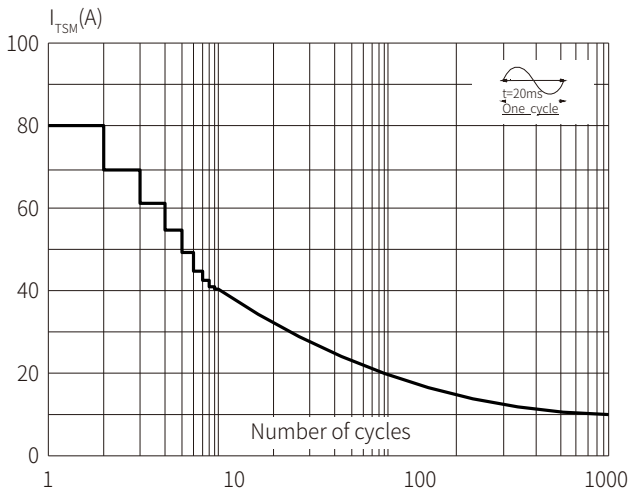
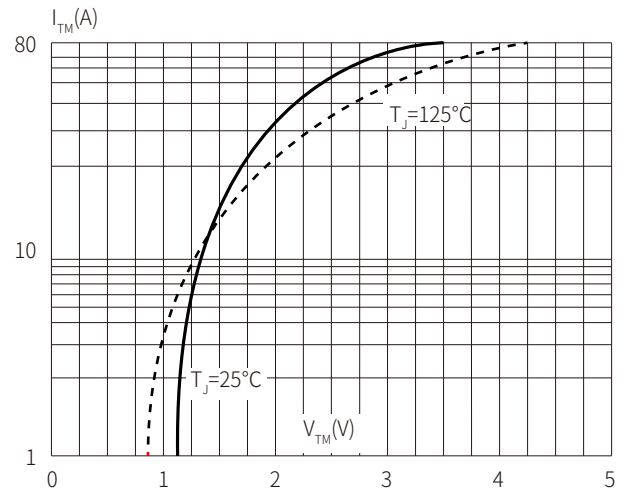
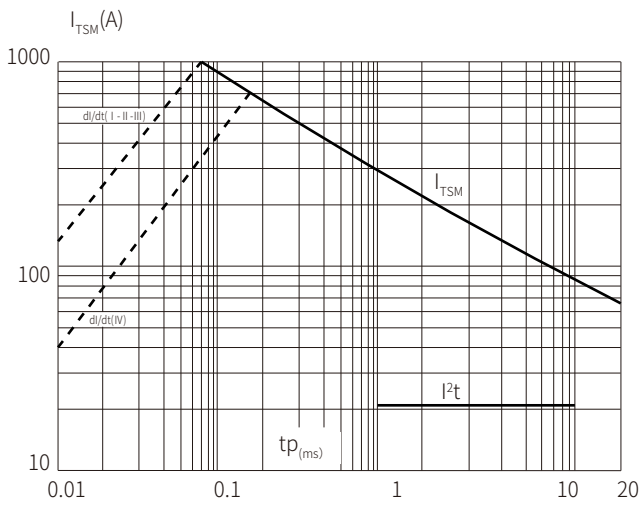


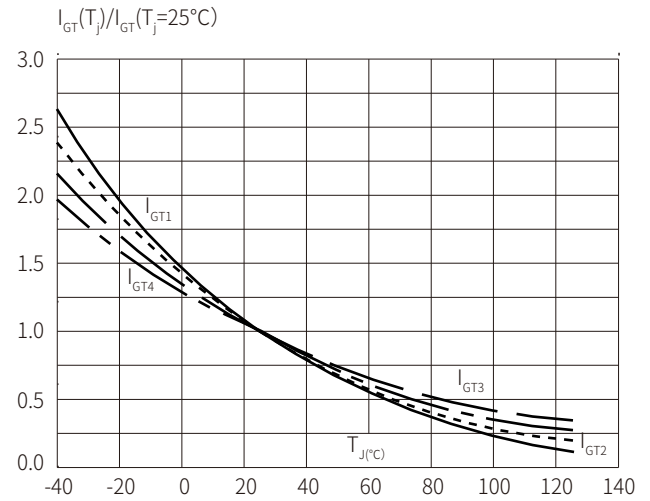
FIG.4 On-state characteristics (maximum values)



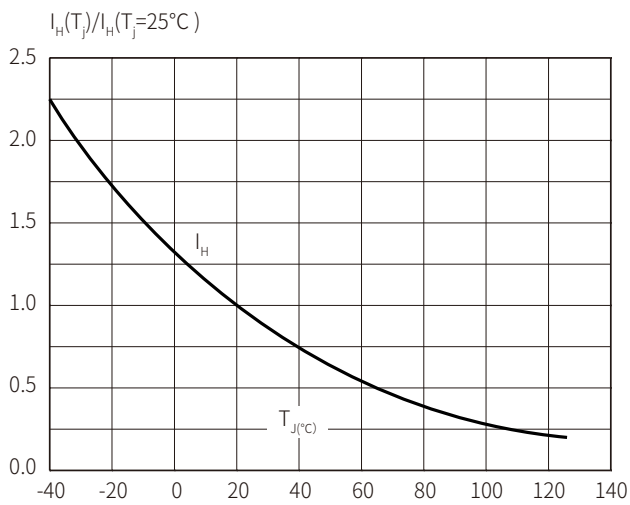
**FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$  and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )**



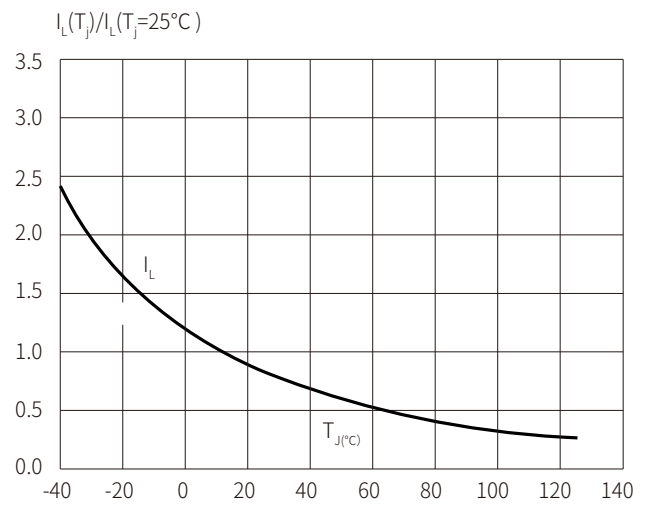
**FIG.6 Relative variations of gate trigger current versus junction temperature**

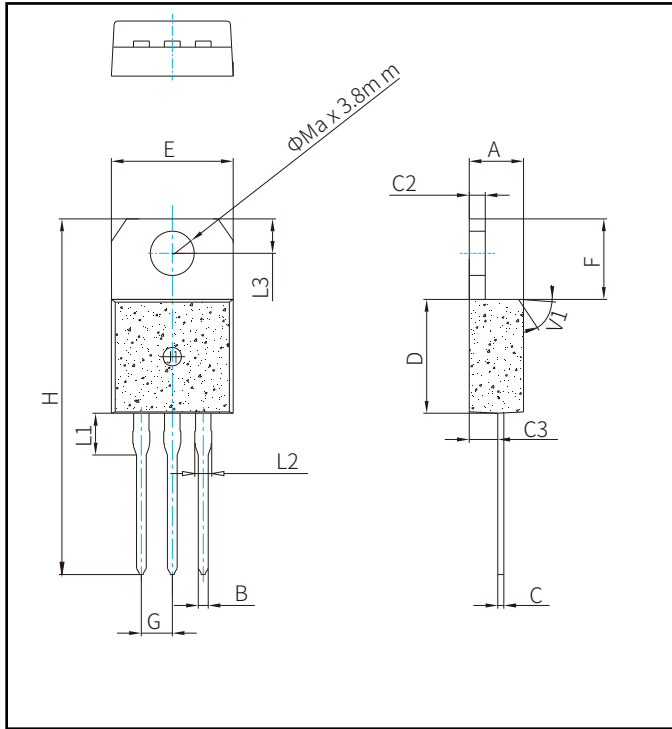


**FIG.7 Relative variations of holding current versus junction temperature**



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



**TO-220 PACKAGE MECHANICAL DATA**


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.70	0.169		0.185
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.222		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

**Order information**

P/N	PKG	QTY
BT136-600D-MS(220)	TO-220	1000PCS
BT136-600E-MS(220)	TO-220	1000PCS
BT136-600F-MS(220)	TO-220	1000PCS
BT136-600G-MS(220)	TO-220	1000PCS

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