

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

BT138-800x-MS(252)

Product specification

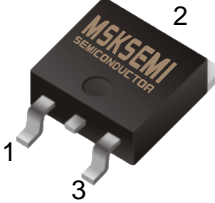
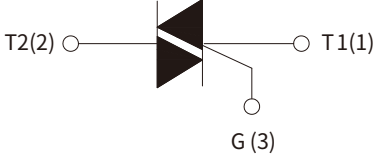

FEATURES

- High current 12 A RMS current Triac
- Low thermal resistance
- High commutation or very high commutation capability

APPLICATIONS

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

Reference News

TO-252	Schematic Symbol	MARKING
		

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	V
RMS on-state current ($T_c=95^{\circ}\text{C}$)		$I_{\text{T(RMS)}}$	12	A
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$)		I_{TSM}	95	
It value for fusing ($t_p=10\text{ms}$)		I_{t}	45	A^2S
Critical rate of rise of on-state current ($I_G=2*I_{\text{GT}}$)	I - II-III	di/dt	50	$\text{A}/\mu\text{s}$
	IV		10	
Peak gate current		I_{GM}	2	A
Average gate power dissipation		$P_{\text{G(AV)}}$	0.5	W
Peak gate power		P_{GM}	5	W
Operating junction temperature range		T_j	$-40\sim+125$	$^{\circ}\text{C}$
Storage junction temperature range		T_{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}	$V_D=12\text{V}, R_L=33\Omega$	I - II-III	≤ 5	≤ 10	≤ 25	≤ 50	mA
		IV	≤ 10	≤ 25	≤ 70	≤ 100	
V_{GT}		ALL	≤ 1.5				V
V_{GD}	$V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=125^{\circ}\text{C}$	ALL	≥ 0.2				V
I_H	$I_T=100\text{mA}$		≤ 10	≤ 25	≤ 30	≤ 60	mA
I_L	$I_G=1.2I_{GT}$	I - III- IV	≤ 15	≤ 30	≤ 40	≤ 60	
		II	≤ 20	≤ 40	≤ 80	≤ 90	
dV_D/dt	$V_D=67\%V_{DRM}, T_j=125^{\circ}\text{C}$		≥ 20	≥ 50	≥ 50	≥ 200	V/ μs
V_{TM}	$I_{TM}=15\text{A}, t_p=380\mu\text{s}$		≤ 1.6				V
I_{DRM}	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	≤ 5				μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	≤ 1				mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case(AC)	1.7	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient	70	$^{\circ}\text{C}/\text{W}$

PARAMETER CHARACTERISTIC CURVE

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

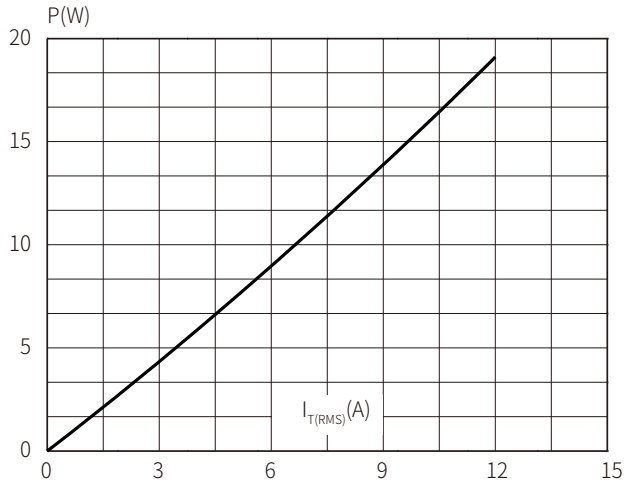


FIG.2: RMS on-state current versus case temperature

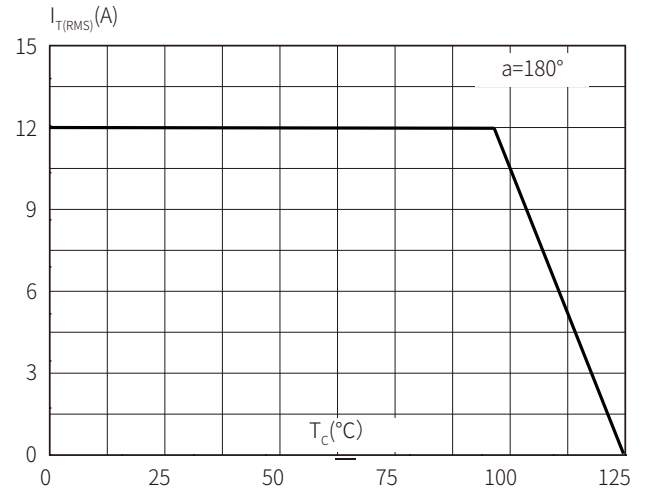


FIG.3: Surge peak on-state current versus number of cycles

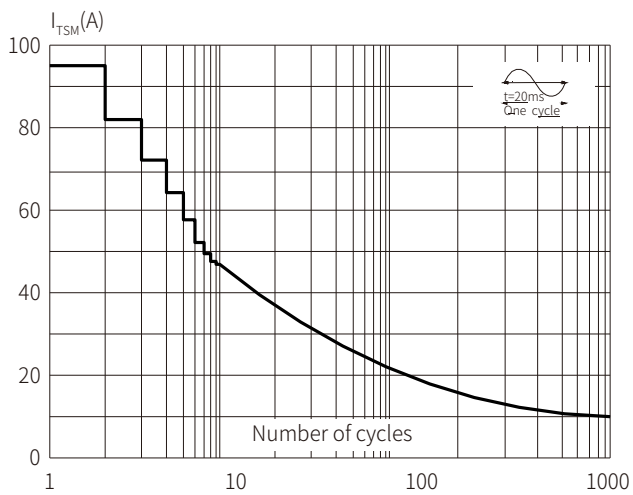


FIG.4 On-state characteristics (maximum values)

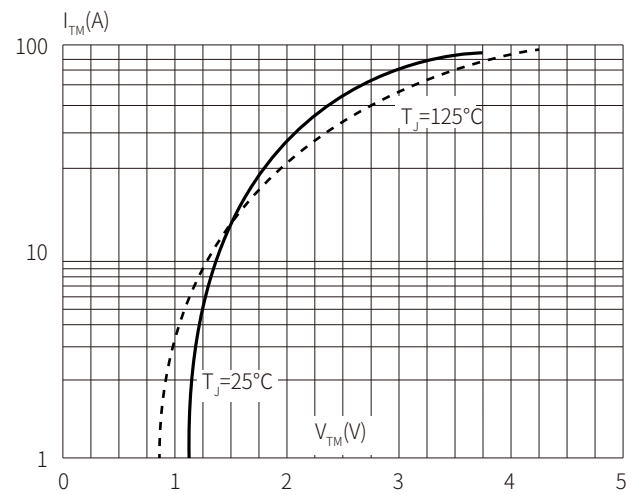


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t (I - II - III: $di/dt < 50\text{A}/\mu\text{s}$; IV: $di/dt < 10\text{A}/\mu\text{s}$)

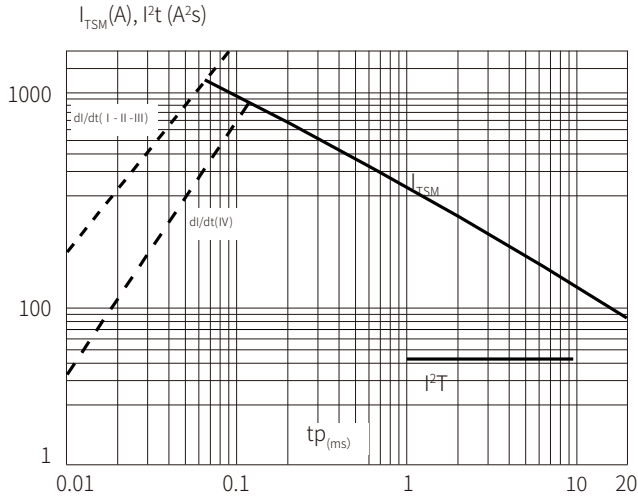


FIG.6 Relative variations of gate trigger current versus junction temperature

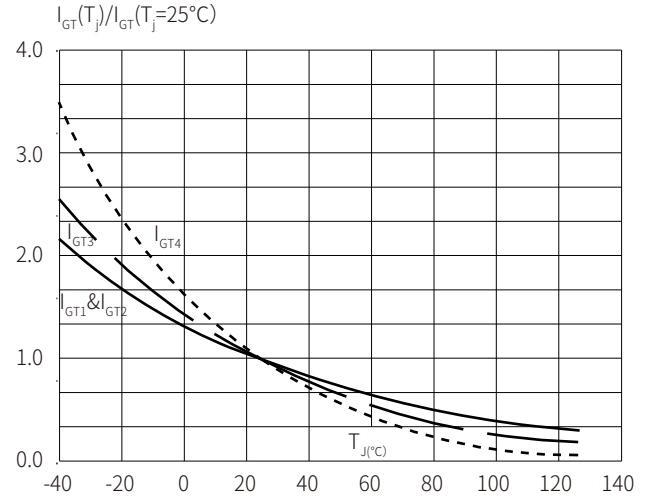


FIG.7 Relative variations of holding current versus junction temperature

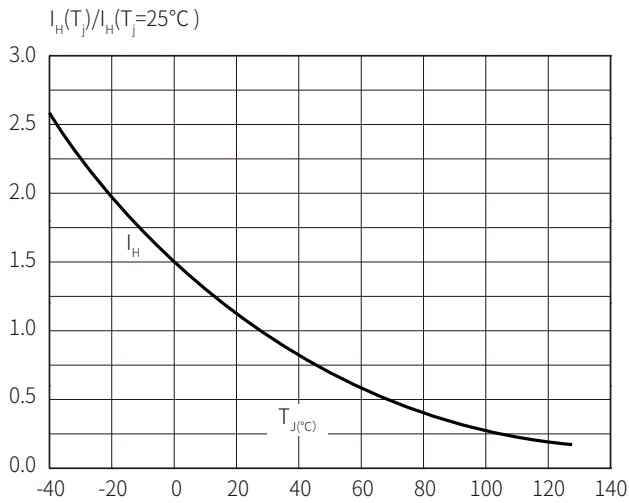
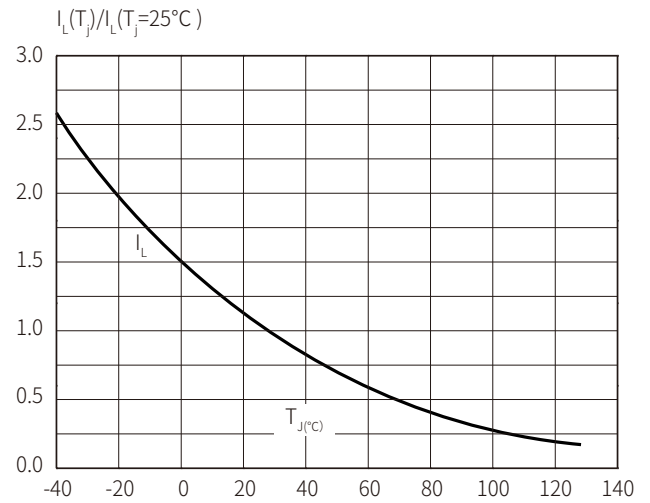
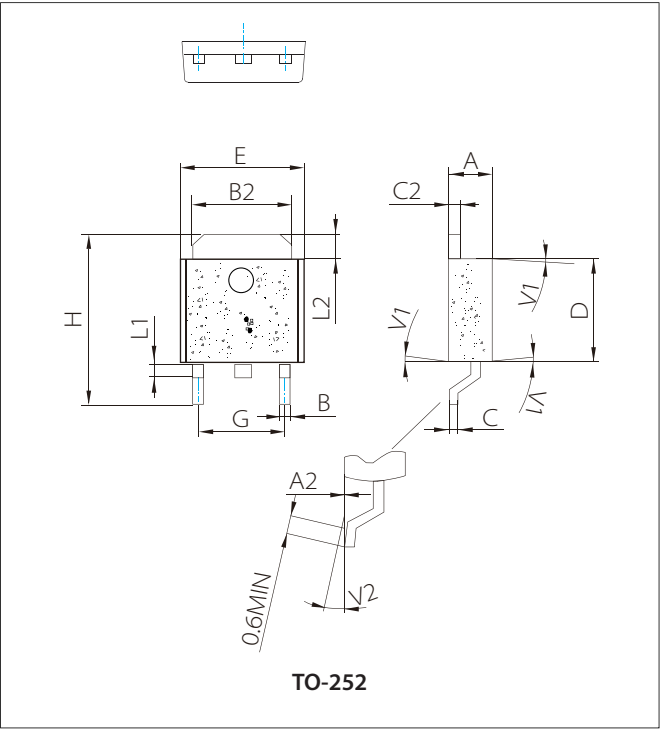


FIG.8 Relative variations of latching current versus junction temperature



PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
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	4.40		4.70	0.173	0.1	0.185
H	9.35		10.6	0.368		0.417
L1	1.30		1.70	0.051	0.143	0.067
L2	1.37		1.50	0.054		0.059
L1		4°			0.130	
V2	0°		8°	0°		8°

Order information

P/N	PKG	QTY
BT138-800D-MS(252)	TO-252	2500PCS
BT138-800E-MS(252)	TO-252	2500PCS
BT138-800F-MS(252)	TO-252	2500PCS
BT138-800G-MS(252)	TO-252	2500PCS

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