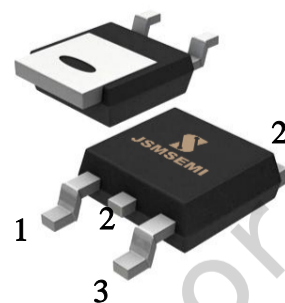


DESCRIPTION:

The BT136S-800 triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. Package TO-252 is RoHS compliant.


MAIN FEATURES

Symbol	800D	800E	Unit
$I_{T(RMS)}$	4		A
V_{DRM}/V_{RRM}	800		V
$I_{GT\ I/II/III/IV}$	5/5/5/10	10/10/10/25	mA

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		T_{stg}	-40-150	$^{\circ}C$
Operating junction temperature range		T_j	-40-125	$^{\circ}C$
Repetitive peak off-state voltage ($T_j=25^{\circ}C$)		V_{DRM}	800	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)		V_{RRM}	800	V
RMS on-state current ($T_c \leq 83^{\circ}C$)		$I_{T(RMS)}$	4	A
Non repetitive surge peak on-state current (full cycle, $t_p=20ms$, $T_j=25^{\circ}C$)		I_{TSM}	35	A
Non repetitive surge peak on-state current (full cycle, $t_p=16.6ms$, $T_j=25^{\circ}C$)			38.5	
I^2t value for fusing ($t_p=10ms$, $T_j=25^{\circ}C$)		I^2t	6.1	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100Hz$, $T_j=125^{\circ}C$)	I - II - III	di/dt	50	A/ μs
	IV		40	
Peak gate current ($t_p=20\mu s$, $T_j=125^{\circ}C$)		I_{GM}	2	A
Average gate power dissipation ($T_j=125^{\circ}C$)		$P_{G(AV)}$	0.5	W
Peak gate power		P_{GM}	5	W
Peak pulse voltage ($T_j=25^{\circ}C$; non-repetitive, off-state; FIG.8)		V_{pp}	3.5	kV

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

Symbol	Test Condition	Quadrant	Value	800D	800E	Unit
I_{GT}	$V_D=12\text{V}$ $R_L=33\Omega$	I - II - III	MAX.	5	10	mA
		IV		10	25	
V_{GT}		ALL	MAX.	1		V
V_{GD}	$V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	ALL	MIN.	0.2		V
I_L	$I_G=1.2I_{GT}$	I - III	MAX.	15	20	mA
		II - IV		25	30	
I_H	$I_T=100\text{mA}$		MAX.	15	25	mA
dV/dt	$V_D=540\text{V}$ Gate Open $T_j=110^{\circ}\text{C}$		MIN.	100	250	$\text{V}/\mu\text{s}$
$(dV/dt)_c$	$(dI/dt)_c=1.8\text{A}/\text{ms}$, $T_j=110^{\circ}\text{C}$		MIN.	2.5	6	$\text{V}/\mu\text{s}$
t_{on}	$I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_j=25^{\circ}\text{C}$		TYP.	1		μs
t_{off}				12		

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=5\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.7	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.94	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	124	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	0.4	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	6.5	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	150	$^{\circ}\text{C}/\text{W}$

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

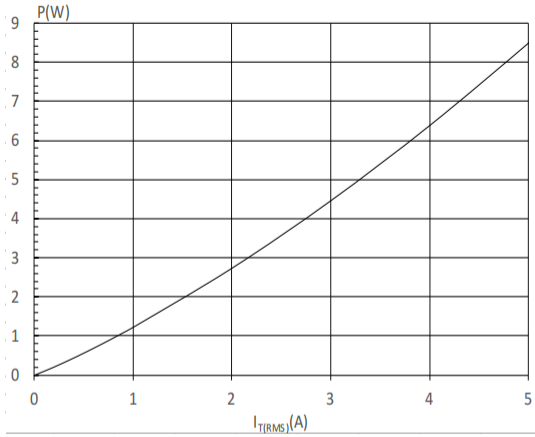


FIG.3: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35 μ m) (full cycle)

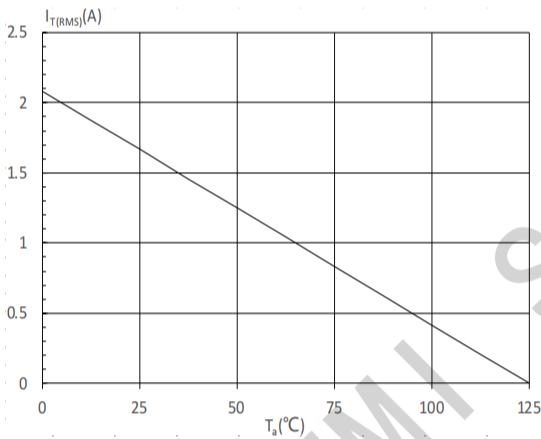


FIG.5: On-state characteristics

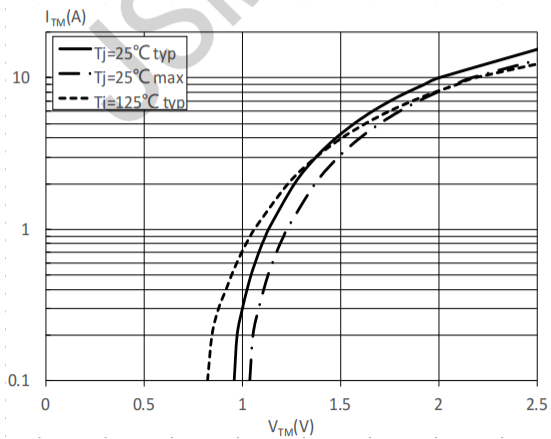


FIG.2: RMS on-state current versus case temperature

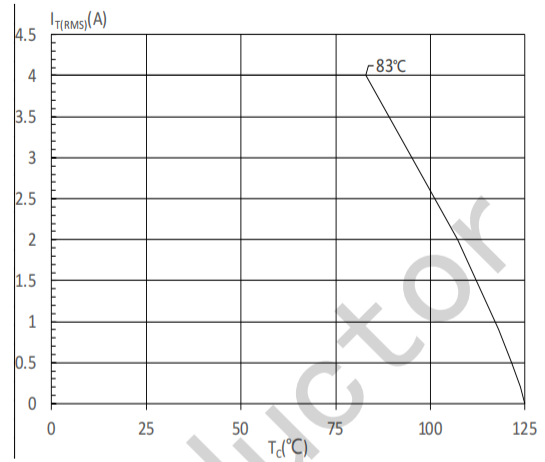


FIG.4: Surge peak on-state current versus number of cycles

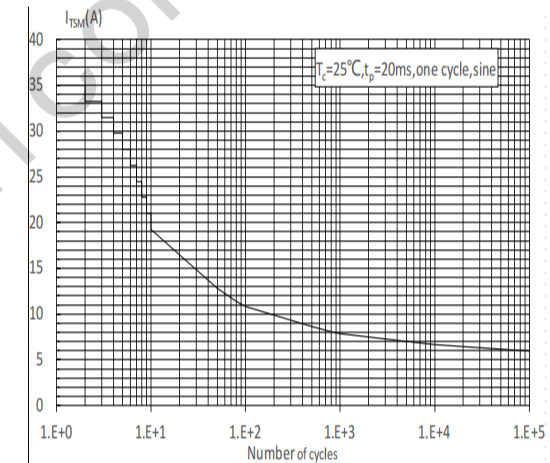


FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20$ ms, and corresponding value of I^2t (I - II - III: $di/dt < 50$ A/ μ s; IV: $di/dt < 40$ A/ μ s)

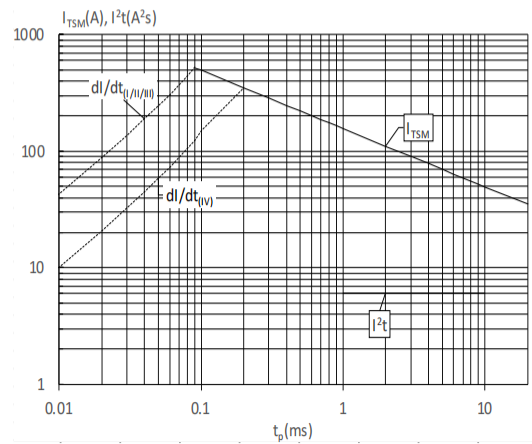


FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature

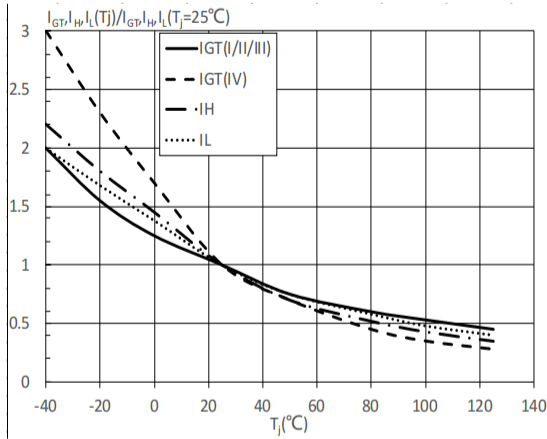
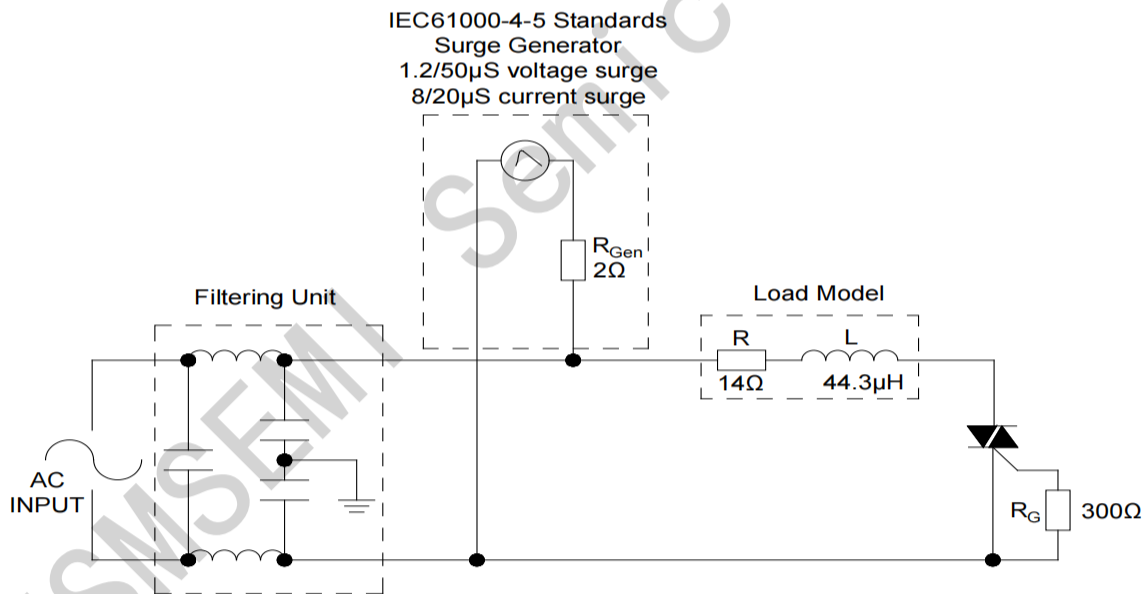


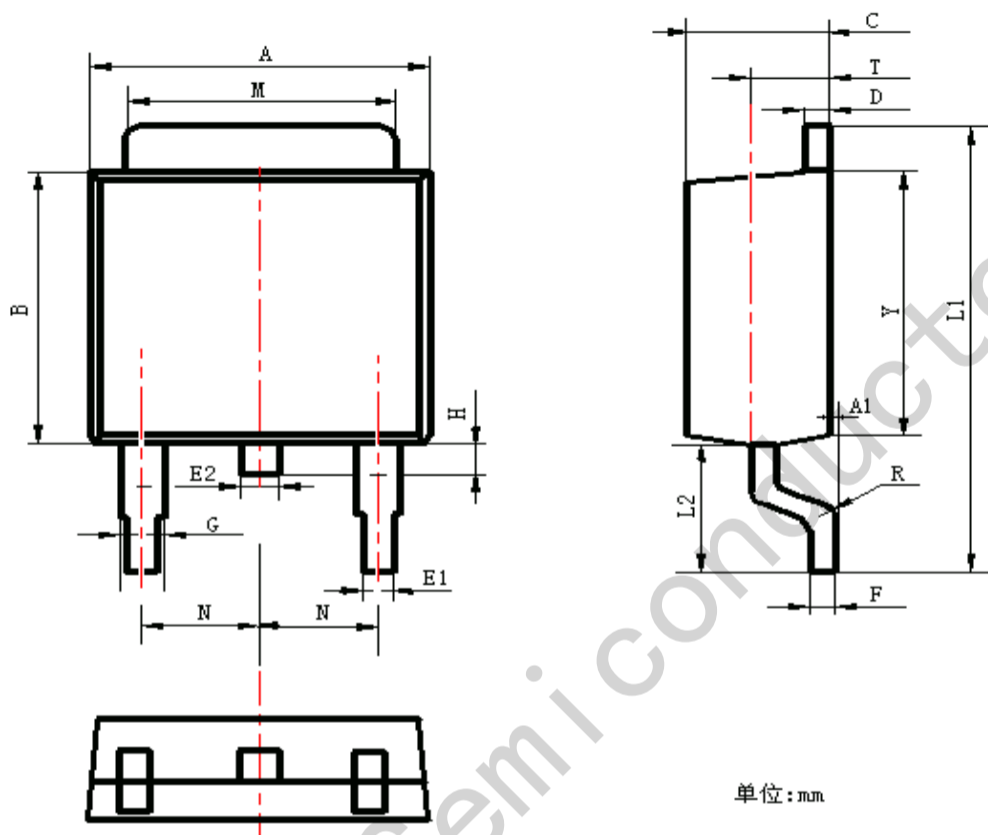
FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		I - II - III	IV			
BT136S-800D	800	5	10	TO-252	2,500	Tape & Reel
BT137S-800E		10	25			

PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	6.30	6.90	0.248	0.272
A1	0.00	0.16	0.000	0.006
B	5.70	6.30	0.224	0.248
C	2.10	2.50	0.083	0.098
D	0.30	0.70	0.012	0.028
E1	0.60	0.90	0.024	0.035
E2	0.70	1.00	0.028	0.039
F	0.30	0.60	0.012	0.024
G	0.70	1.20	0.028	0.047
L1	9.60	10.50	0.378	0.413
L2	2.70	3.10	0.106	0.122
H	0.40	1.00	0.016	0.039
M	5.10	5.50	0.201	0.217
N	2.09	2.49	0.082	0.098
R	0.30		0.012	
T	1.40	1.60	0.055	0.063
Y	5.10	6.30	0.201	0.248