

GENERAL DESCRIPTION

Glass passivated triacs in a plastic envelope, intended for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance.

Typical applications include motor control, industrial and domestic lighting , heating and static switching.



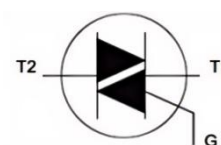
MARKING



WPM : LOGO

BT139=Device Code

800E:VDRM/VRRM=800V



Pin1: T1

Pin2: T2

Pin3: G

ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified)

SYMBOL	PARAMETER		TEST CONDITION	RATINGS	UNIT
V _{DRM} /V _{RRM}	Repetitive Peak Off State/reverse Voltage	BT139-600E	T _j =25℃	600	V
		BT139-800E		800	
I _{T(RMS)}	RMS On-State Current		T _c =25℃	16	A
I _{TSM}	Non Repetitive Peak. On-State Current		t=20ms	155	A
			t=16.7ms	160	
I _{GM}	Peak Gate Current			2	A
I ² t	I ² t for fusing		t=10ms	120	A ² S
di /dt	Repetitive Rate of Rise of On-state Current after Triggering (I _{TM} =12A;I _G =0.2A,dI _G /dt=0.2A/μs)		T2+ G-	50	A/μs
			T2+ G-	50	
			T2- G-	50	
			T2- G+	10	
P _{G(AV)}	Average Gate Power (Over any 20ms period)			0.5	W
P _{GM}	Peak Gate Power			5	W
V _{GM}	Peak Gate Voltage			5	V
T _{stg}	Storage Temperature			-40 to +150	℃
T _i	Operating junction temperature			150	℃

Notes:*Although not recommended, off-state voltages up to 800V may be applied without damage, but the triac may switch to the on-state. The rate of rise of current should not exceed 6A/μs.

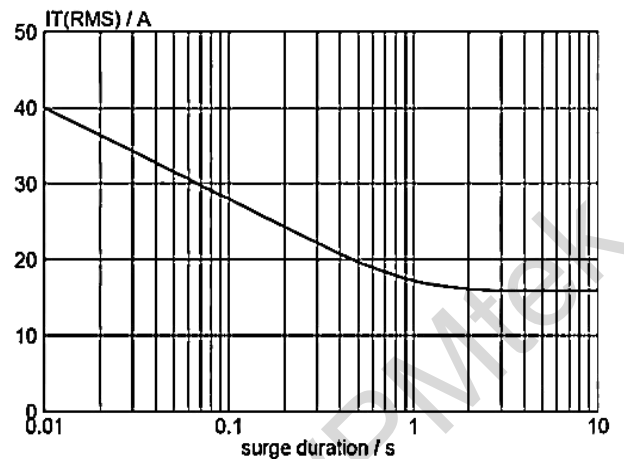
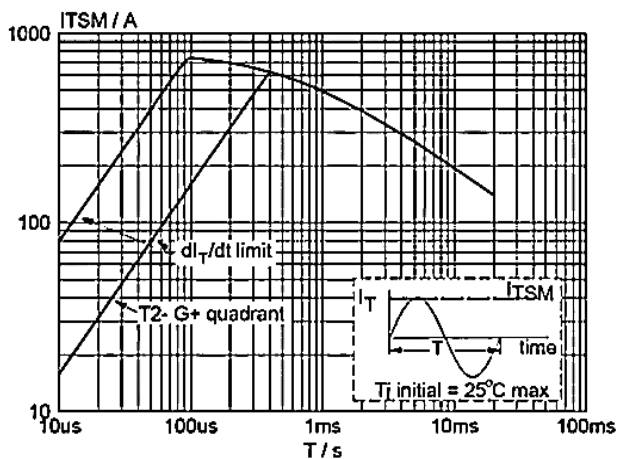
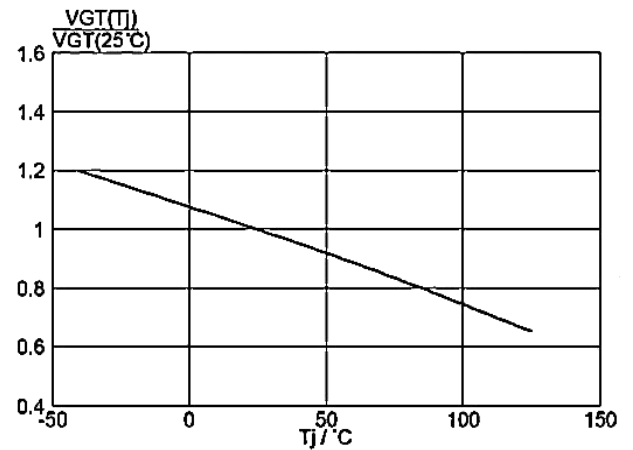
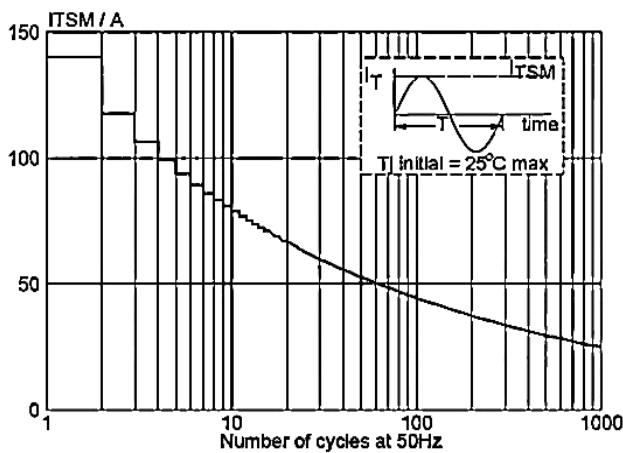
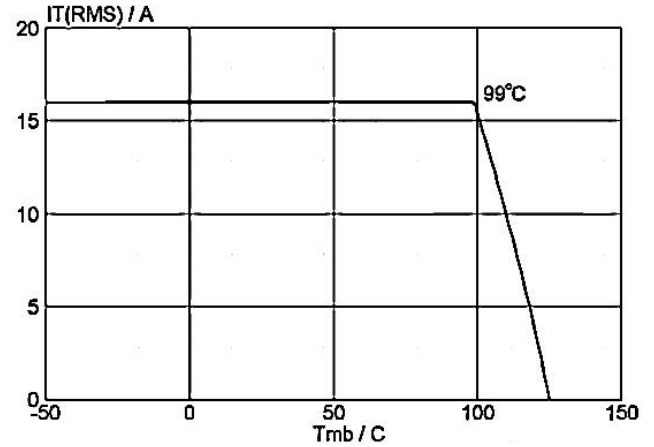
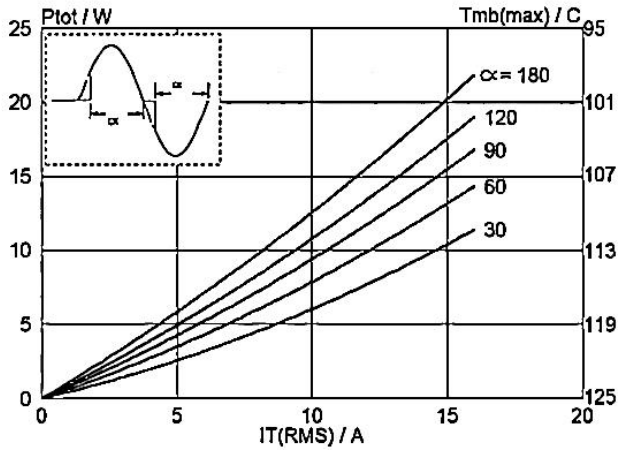
THERMAL RESISTANCES

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220F	R θ JA	62.5	°C/W
Junction to Case		R θ JC	3.31	°C/W

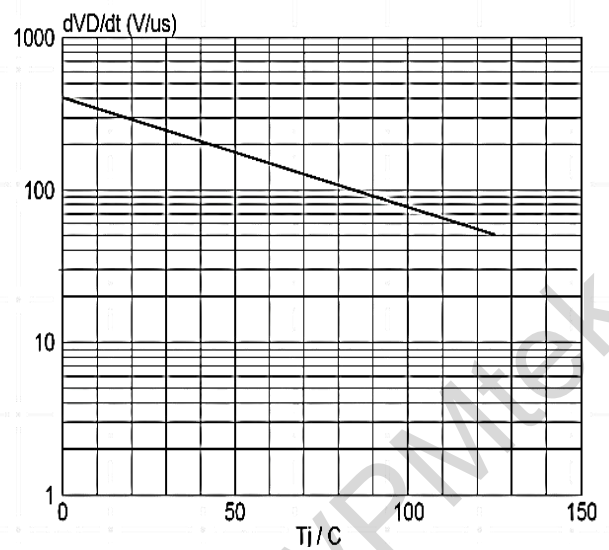
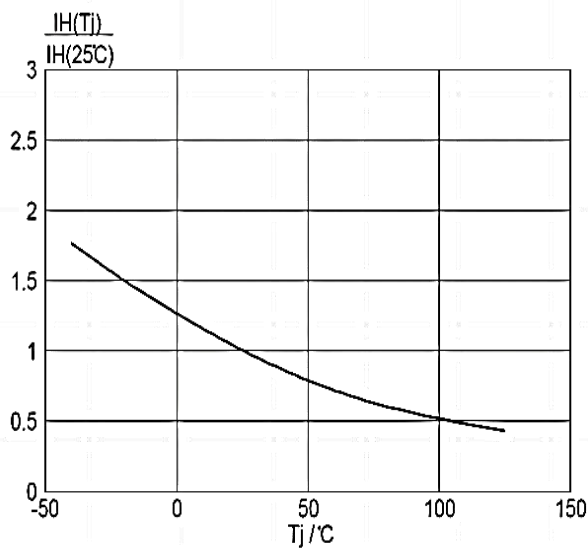
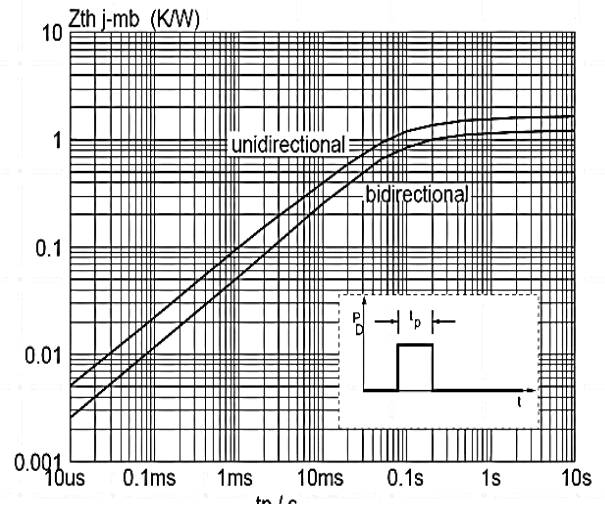
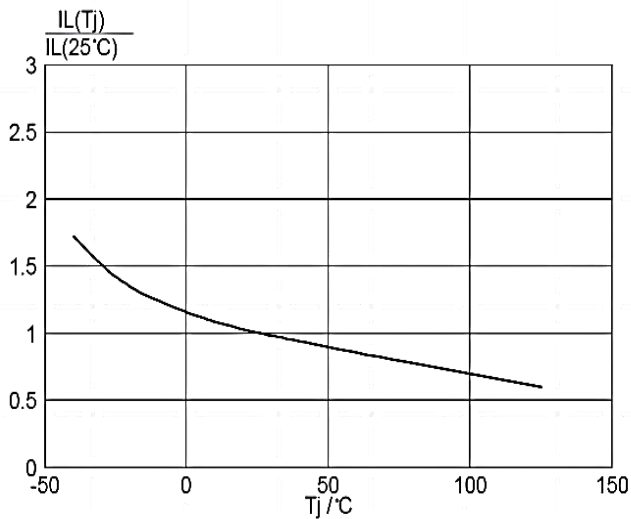
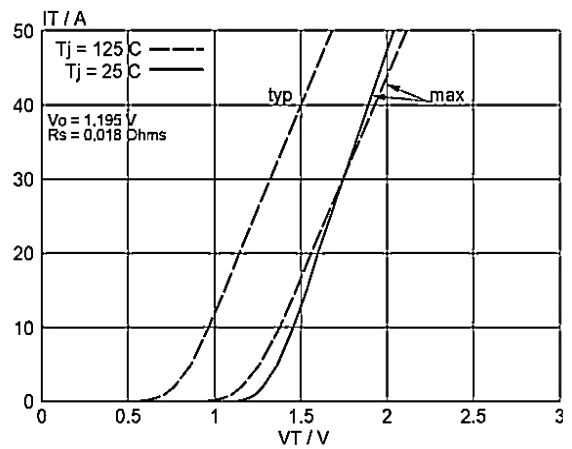
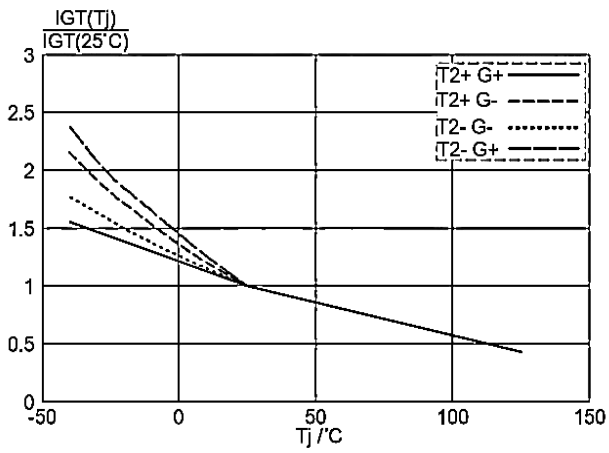
ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS							
Rated repetitive peak off-state/reverse current	I _{DRM} , I _{RRM}	T _j =25°C				5	uA
		T _j =125°C				1	mA
Gate trigger current	I _{GT}	T2+ G+	V _D =12V, R _L =100Ω		10	20	mA
		T2+ G-			13	20	mA
		T2- G-			13	20	mA
		T2- G+			55	70	mA
Latching Voltage	V _{GT}	T2+ G+	V _D =12V, R _L =100Ω			0.9	V
		T2+ G-				0.9	V
		T2- G-				0.9	V
		T2- G+				1.2	V
Latching current	I _L	T2+ G+	V _D =12V, R _L =100Ω		24	40	mA
		T2+ G-			70	80	mA
		T2- G-			22	40	mA
		T2- G+			20	60	mA
On-state voltage	V _{TM}	I _T =32A			1.2	1.5	V
Holding current	I _H	V _D =12V, I _G =0.1A			20	30	mA
Off-state leakage current	I _D	V _D =12V, I _{GT} =0.1A			0.1	40	mA
On-State Voltage	V _T	I _T =20A			1.2	1.6	V
Slope resistance	R _d	T _j =125°				14.6	mΩ
DYNAMIC CHARACTERISTICS							
Critical Rate of Rise of off-state Voltage	dV _D /dt	V _{DM} =67%V _{DRM} (max), T _j =125° Exponential waveform, Gate open circuit			50		V/μs
Critical Rate of Change of commutating Voltage	dV _{com} /dt	V _{DM} =400V , T _j =95°C, I _T (RMS)=8A dI _{com} /dt =3.6A/ms Gate open circuit			20		V/μs
Gate Controlled Turn-on Time	t _{gt}	I _{TM} =6A, V _D =V _{DRM} , I _G =0.1A dI _G /dt=5A/μs			2		μs

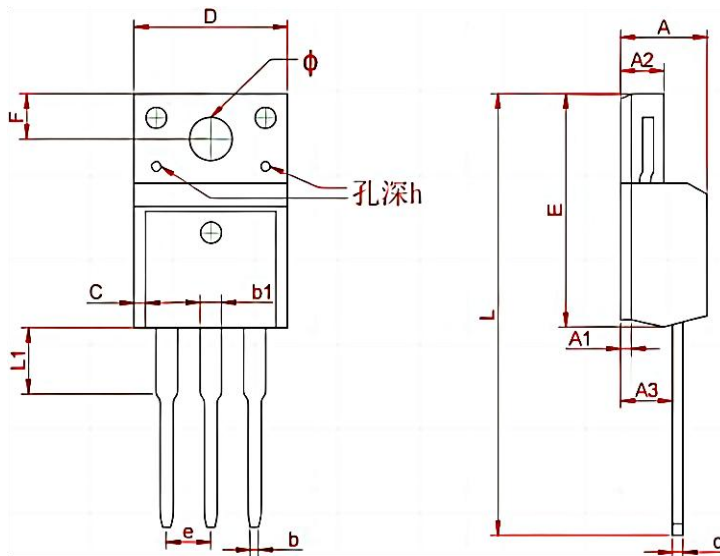
TYPICAL CHARACTERISTICS(1)



TYPICAL CHARACTERISTICS(2)

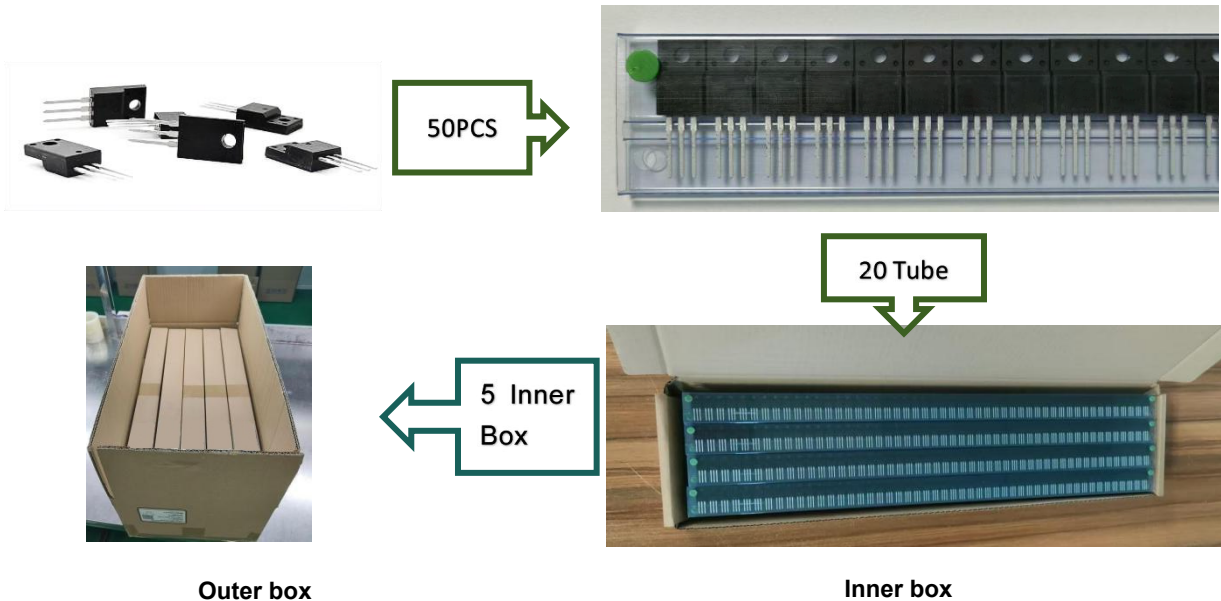


TO - 220F Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max	Min	Max
A	4.300	4.750	0.169	0.185
A1	1.830 REF		0.072 REF	
A2	2.300	2.850	0.090	0.112
A3	2.500	2.900	0.098	0.114
b	0.400	0.420	0.016	0.016
b1	1.220	1.280	0.048	0.050
C	0.690	0.720	0.027	0.028
c	0.490	0.510	0.019	0.020
D	9.960	10.200	0.392	0.400
E	15.000	15.950	0.588	0.625
e	2.574 TYP		0.101TYP	
F	3.470 REF		0.136 REF	
y	3.200 REF		0.125 REF	
h	0.000	0.300	0.000	0.012
L	28.780	28.900	1.128	1.133
L1	2.990	3.100	0.117	0.122

TO - 220F Packing Information



Package version	Tube dimensions LxWxH (mm)	Per Tube (pcs)	Tube per box	Inner box dimensions LxWxH (mm)	PCS/ Inner box	Outer box dimensions LxWxH(mm)	PCS/ Outer box
TO-220F	530*32*7	50	20	580*155*50	1000	602*277*188	5000

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