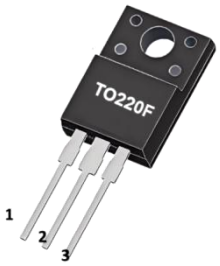
BT139

TRIAC

■ 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.



Pin1: T1
Pin2: T2
Pin3: G

■ MARKING

: HY LOGO
BT139=Device Code
800E:V_{DRM}/V_{RRM}=800V
XXXX=Date Code
Solid Dot=Green molding compound

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

SYMBOL	PARAMETER		TEST CONDITION	RATINGS	UNIT
V_{DRM}/V_{RRM}	Repetitive Peak Off State/reverse Voltage	BT139-600	Tj=25℃	600	V
		BT139-800		800	
$I_{T(RMS)}$	RMS On-State Current		Tc=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^2t	I^2t for fusing		t=10ms	120	A^2S
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
Tstg	Storage Temperature			-40 to +150	℃
Tj	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.

BT139

TRIAC

■ THERMAL RESISTANCES

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220F	RθJA	62.5	℃/W
Junction to Case		RθJC	3.31	℃/W

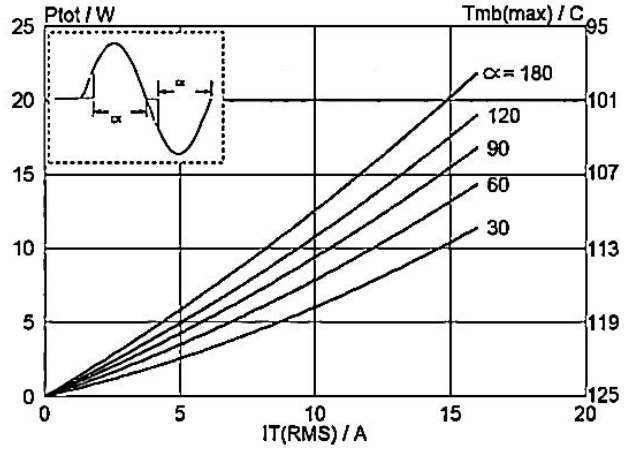
■ ELECTRICAL CHARACTERISTICS (TJ=25°C, unless otherwise specified)

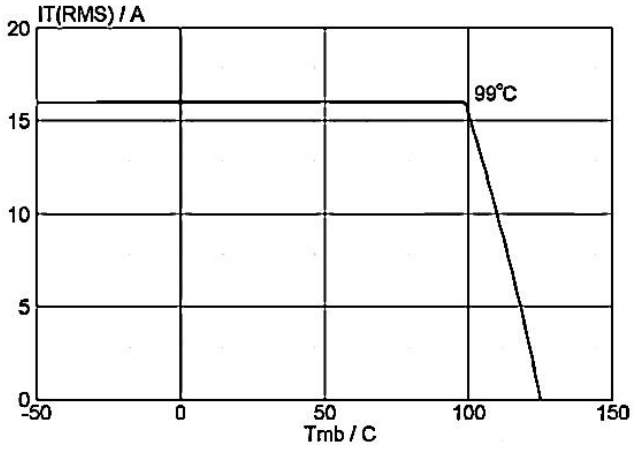
PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS							
Rated repetitive peak off-state/reverse current	I_{DRM}, I_{RRM}	Tj=25°C				5	uA
		Tj=125°C				1	mA
Gate trigger current	I_{GT}	T2+ G+	V_D=12V, R_L=100Ω		10	20	mA
		T2+ G-			13	20	mA
		T2- G-			13	20	mA
		T2- G+			55	70	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	IL	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	dVD/dt	VDM=67%VDRM(max),Tj=125° Exponential waveform, Gate open circuit			50		V/μs
Critical Rate of Change of commutating Voltage	dVcom/dt	VDM=400V , Tj=95°C, IT(RMS)=8A dIcom/dt =3.6A/ms Gate open circuit			20		V/μs
Gate Controlled Turn-on Time	tgt	ITM=6A,VD=VDRM,IG=0.1A dIG/dt=5A/μs			2		μs

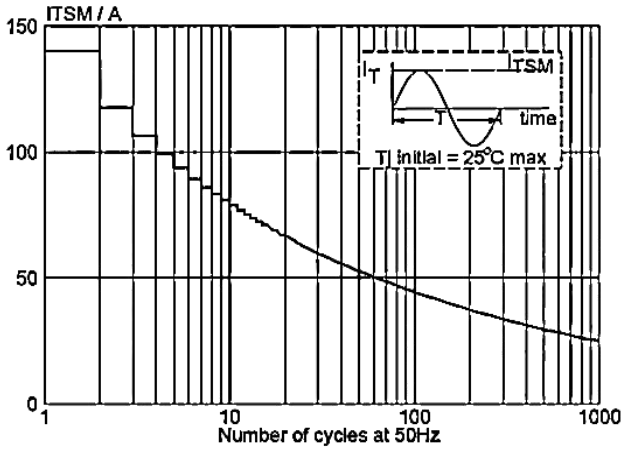
BT139

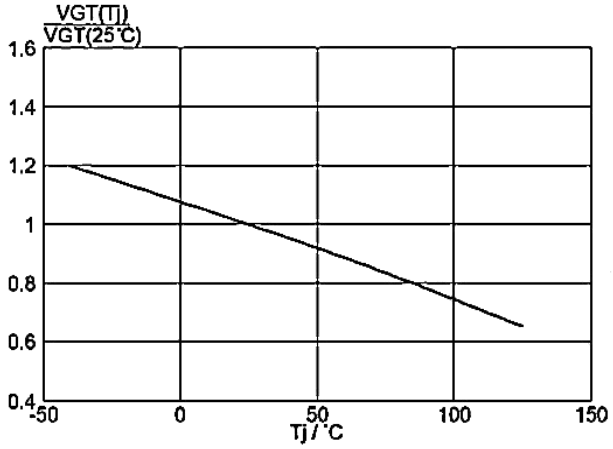
TRIAC

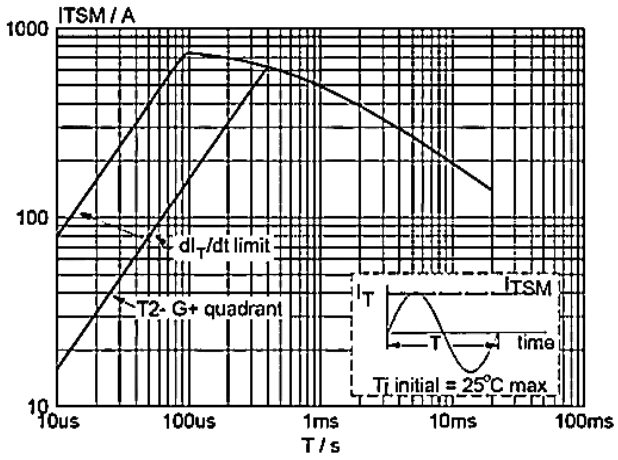
■ TYPICAL CHARACTERISTICS(1)

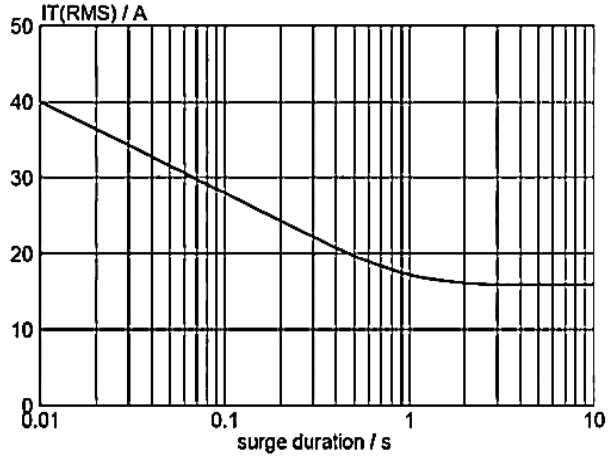




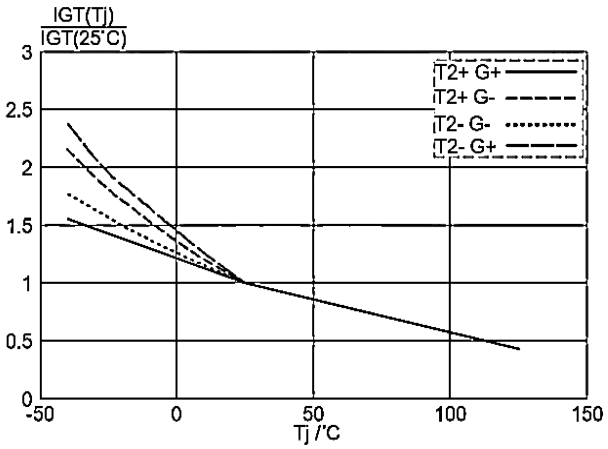


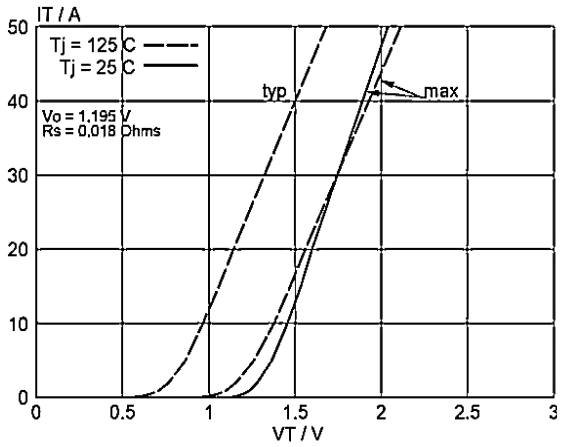


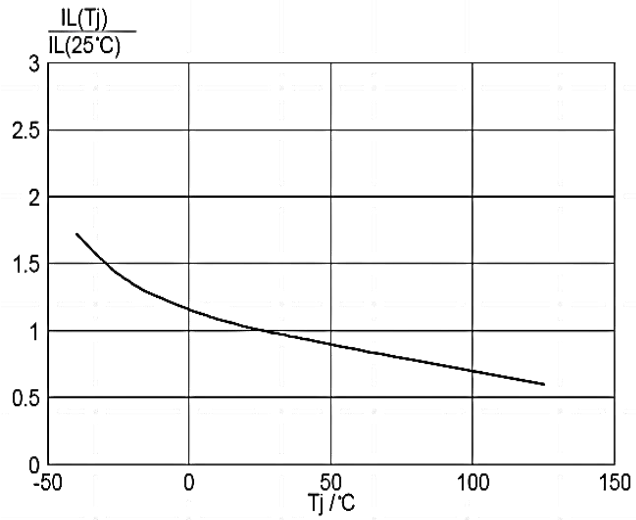


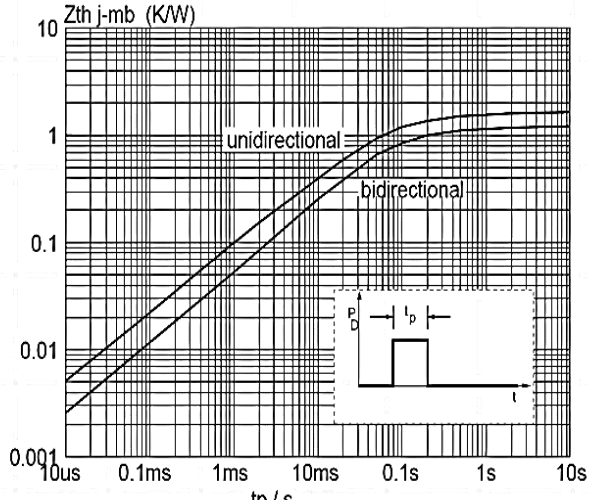


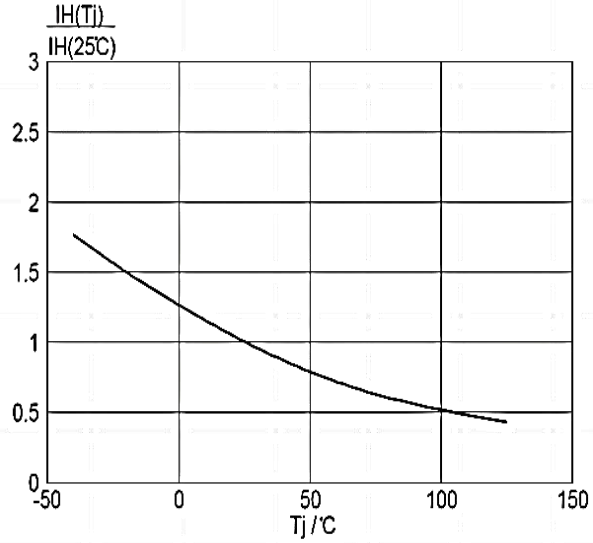
■ TYPICAL CHARACTERISTICS(2)

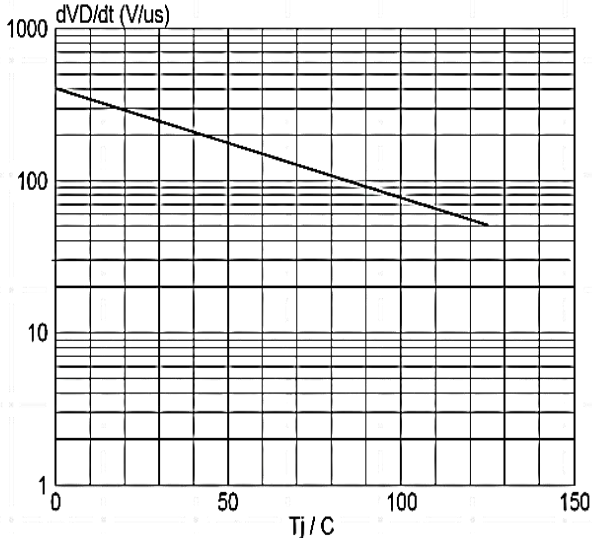








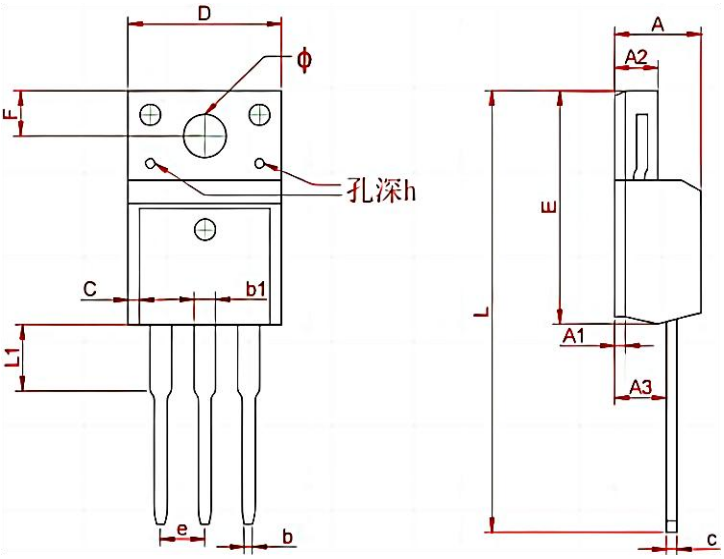




BT139

TRIAC

■ TO - 220F Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max	Min	M ax.
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

50PCS

20 Tube

5 Inner Box

Outer box

Inner box

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