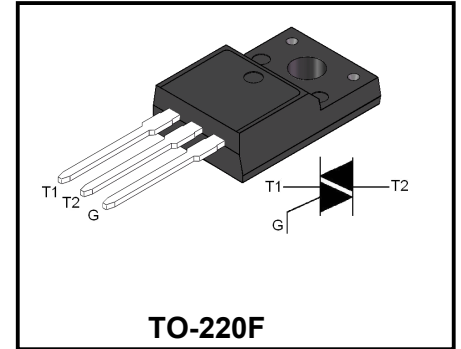


**16A 4Quadrants TRIACs**
**Product Summary**

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
$V_{DRM} V_{RRM}$	600/800	V
$V_{TM}$	1.6	V


**Features**

With high ability to withstand the shock loading of large current, Provide high dv/dt rate with strong resistance to electromagnetic interference.

**Application**

Power charger, T-tools, massager, solid state relay, AC Motor speed regulation and so on.

**Order Information**

Part Number	Package	Marking	packing	Delivery Quantity
BT139F	TO-220F	BT139-600E XXXX	BOX	1000PCS/BOX
BT139F	TO-220F	BT139-800E XXXX	BOX	1000PCS/BOX

**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	$V_{DRM}$	600/800	V
Repetitive peak reverse voltage	$V_{RRM}$	600/800	V
RMS on-state current	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current	$I_{TSM}$	150	A
$I^2t$ value for fusing (tp=10ms)	$I^2t$	98	A <sup>2</sup> s
Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ )	$di/dt$	I - II - III   50	A/ $\mu$ s
Peak gate current	$I_{GM}$	2	A
Average gate power dissipation	$P_G (AV)$	0.5	W
Junction Temperature	$T_J$	-40~+125	°C
Storage Temperature	$T_{STG}$	-40 ~+150	°C

**Electrical characteristics (TA=25°C, unless otherwise noted)**

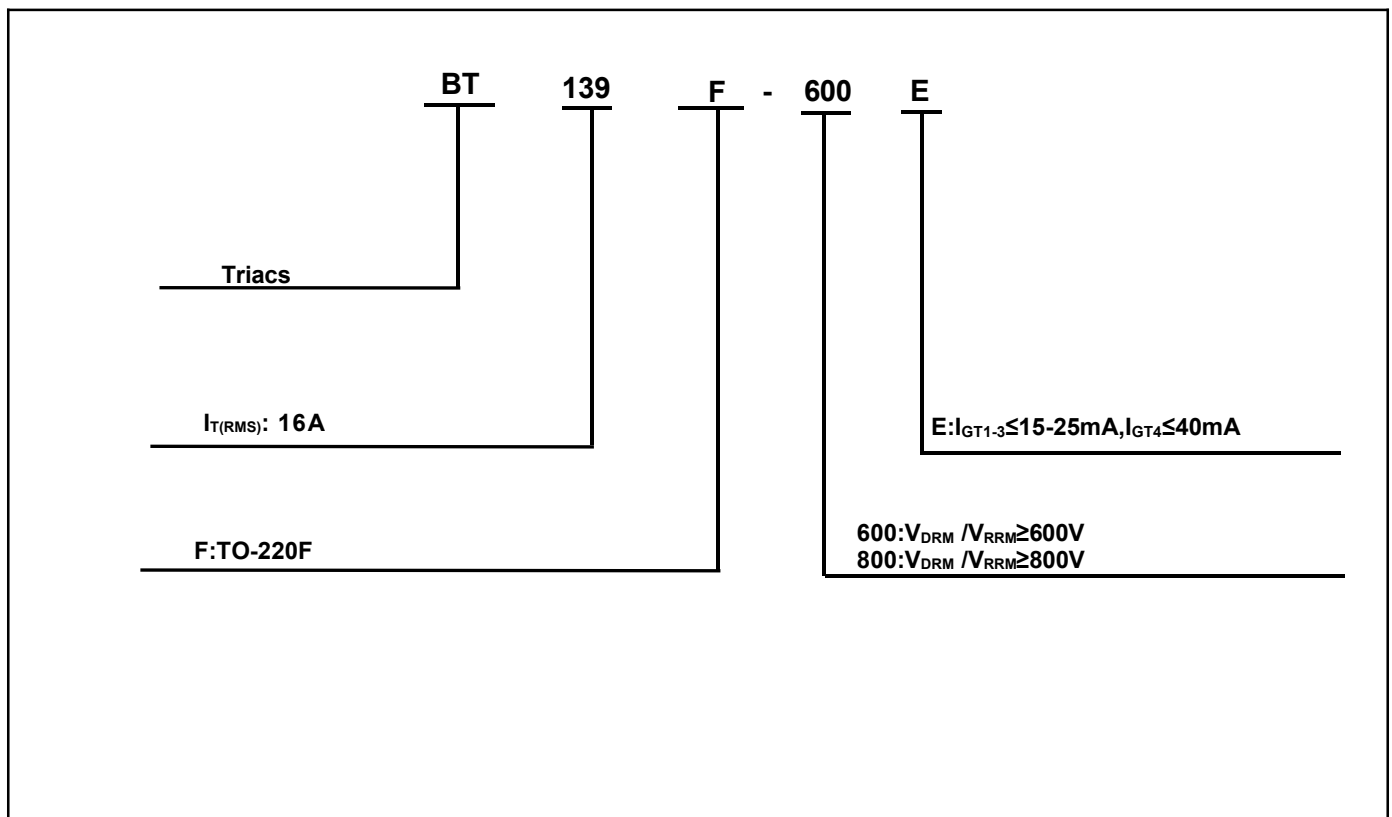
Parameter	Symbol	Test Condition	Value	Unit	
			E		
Gate trigger current	$I_{GT}$	$V_D = 12\text{ V}, I_T = 0.1\text{ A}$	I - II - III	$\leq 35$	<b>mA</b>
			IV	$\leq 50$	<b>mA</b>
Gate trigger voltage	$V_{GT}$			$\leq 0.4$	<b>V</b>
Non-triggering gate voltage	$V_{GD}$	$V_D = V_{DRM}, T_j = 125^\circ\text{C}$		$\geq 1.5$	<b>V</b>
Holding current	$I_H$	$V_D = 12\text{ V}, I_{GT} = 0.1\text{ A}$		$\leq 50$	<b>mA</b>
Latching current	$I_L$	$V_D = 12\text{ V}; I_T = 0.1\text{ A}$	I - III	$\leq 50$	<b>mA</b>
			II	$\leq 60$	
Critical-rate of rise of commutation voltage	$dv/dt$	$V_D = 2/3 V_{DRM}, T_j = 125^\circ\text{C}$		$\geq 50$	<b>V/<math>\mu\text{s}</math></b>

**STATIC CHARACTERISTICS**

On-state Voltage	$V_{TM}$	$I_T = 20\text{ A}$ ,		$\leq 1.6$	<b>V</b>
Repetitive Peak Off-State Current	$I_{DRM}$	$V_D = V_{DRM} = V_{RRM}$	$T_j = 25^\circ\text{C}$	$\leq 5$	<b><math>\mu\text{A}</math></b>
Repetitive Peak Reverse Current	$I_{RRM}$		$T_j = 125^\circ\text{C}$	$\leq 0.5$	<b>mA</b>

**THERMAL RESISTANCES**

Thermal resistance	$R_{th(j-c)}$	Junction to case	TYP.	1.7	<b><math>^\circ\text{C/W}</math></b>
	$R_{th(j-a)}$	Junction to ambient	TYP.	60	<b><math>^\circ\text{C/W}</math></b>

**Ordering Information**


**Typical Characteristics**

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

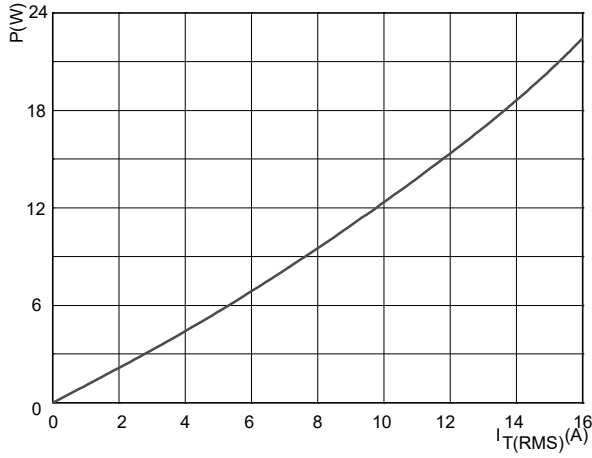


FIG.2: RMS on-state current versus case temperature (full cycle)

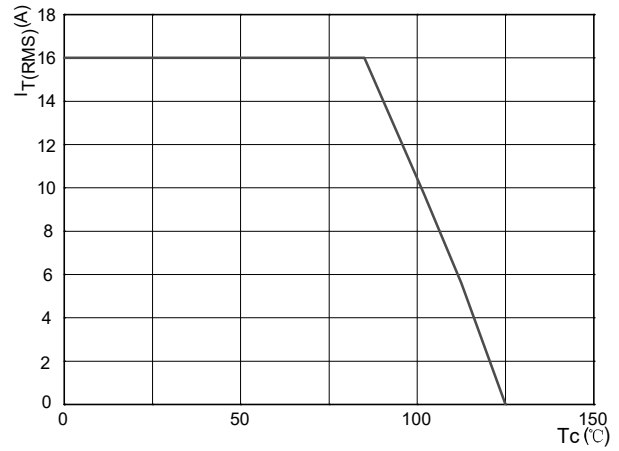


FIG.3: Surge peak on-state current versus number of cycles

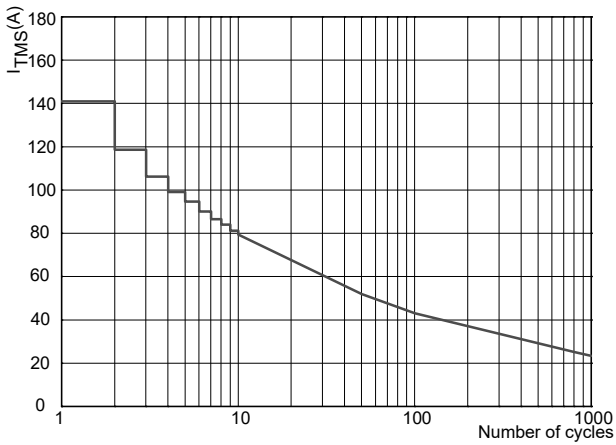
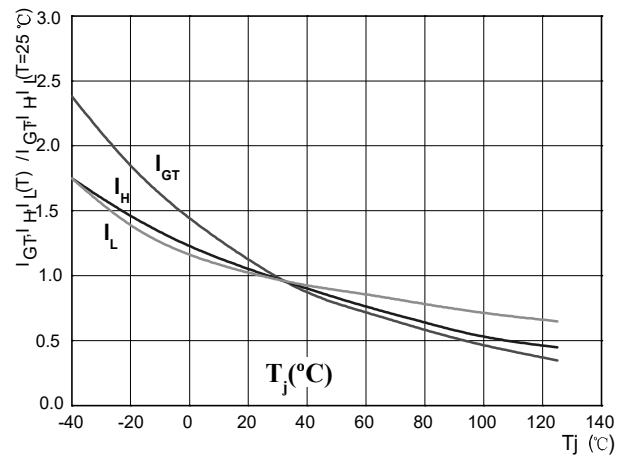
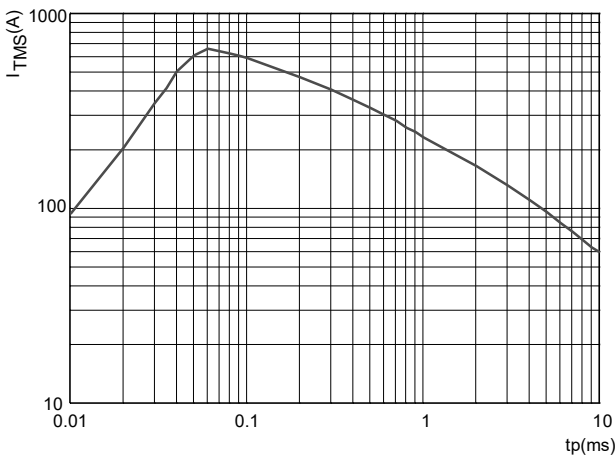
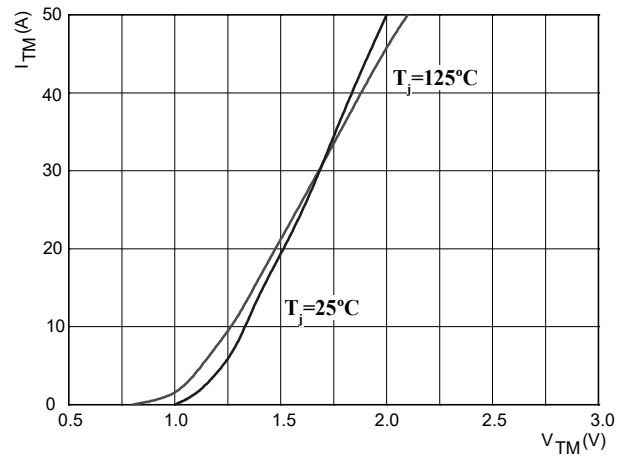


FIG.4: On-state characteristics (maximum values)



Package Dimensions

TO-220F

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.66	2.86	0.105	0.113
b	0.75	0.85	0.030	0.033
b1	1.24	1.44	0.049	0.057
c	0.40	0.60	0.016	0.024
D	10.00	10.32	0.394	0.406
E	15.75	16.05	0.620	0.632
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	3.10	3.5	0.122	0.138
L	12.90	13.50	0.531	0.547
L1	2.90	3.30	0.114	0.130
Φ	3.10	3.30	0.122	0.130

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