

**16A 4Quadrants TRIACs**

**Product Summary**

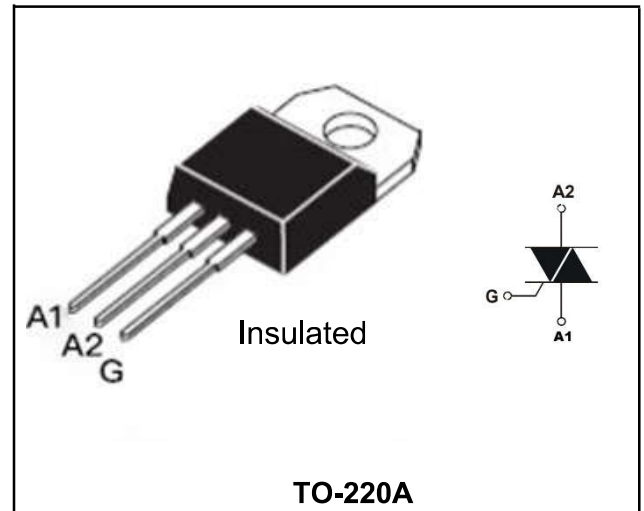
Symbol	Value	Unit
$I_{T(RMS)}$	16	A
$V_{DRM} V_{RRM}$	600/800	V
$V_{TM}$	1.5	V

**Features**

With high ability to withstand the shock loading of large current, With high commutation performances, 4 quadrants products especially recommended for use on inductive load.

**Application**

Washing machine, vacuums, massager, solid state relay, AC Motor speed regulation and so on.



**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	$I_{TSM}$	160	A
$I^2t$ value for fusing (tp=10ms)	$I^2t$	144	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	$I_{GM}$	4	A
Average gate power dissipation	$P_G (AV)$	1	W
Junction Temperature	$T_J$	-40~+125	°C
Storage Temperature	$T_{STG}$	-40 ~+150	°C

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

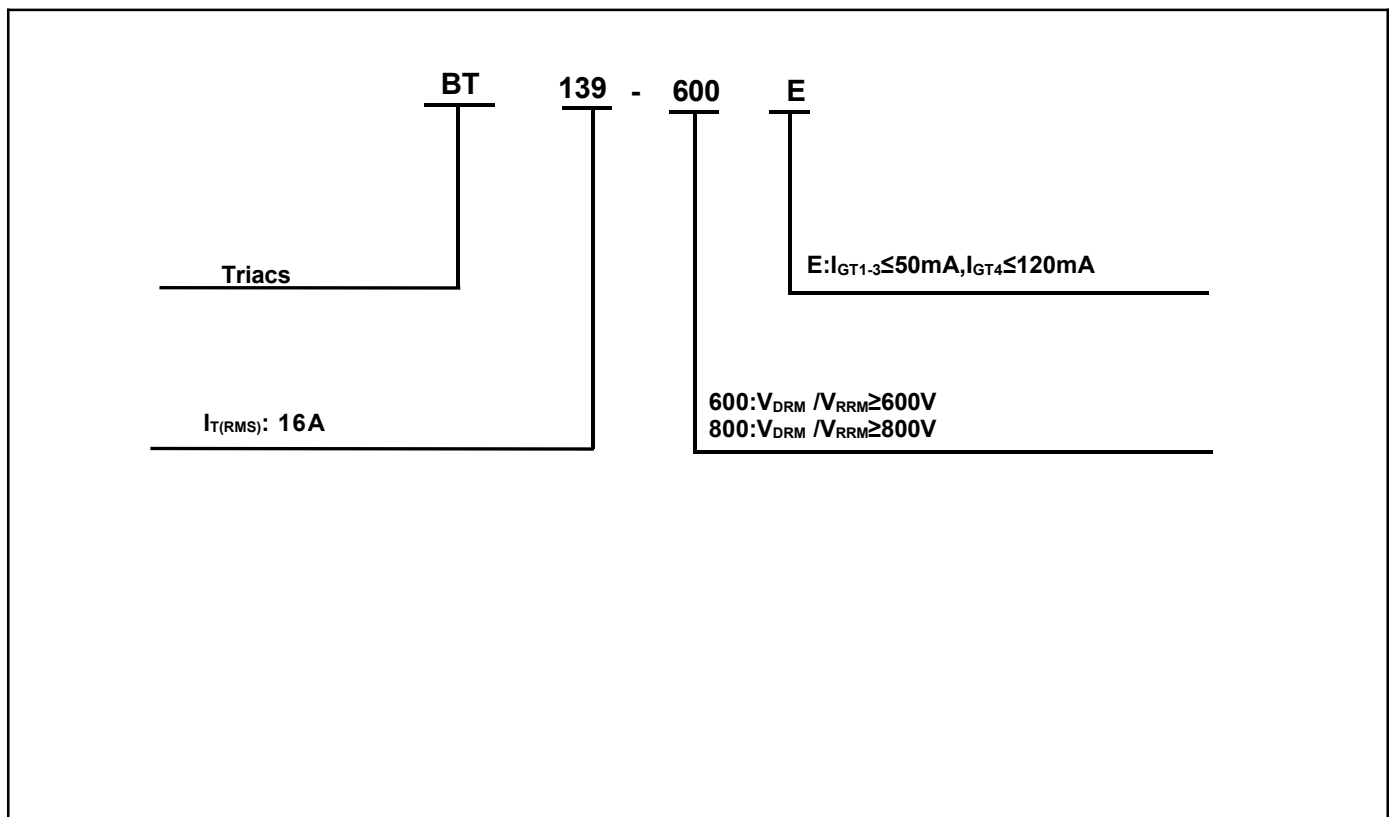
Parameter	Symbol	Test Condition	Value	Unit	
			E		
Gate trigger current	$I_{GT}$	$V_D = 12V, R_L = 100\Omega$	I - II - III	$\leq 50$	<b>mA</b>
			IV	$\leq 120$	<b>mA</b>
Gate trigger voltage	$V_{GT}$		MAX	1.5	<b>V</b>
Non-triggering gate voltage	$V_{GD}$	$V_D = V_{DRM}, T_j = 125^\circ C$	MIN	0.2	<b>V</b>
Holding current	$I_H$	$I_T = 0.5A$	MAX	60	<b>mA</b>
Latching current	$I_L$	$I_G = 1.2I_{GT}$	I - III	60	<b>mA</b>
			II	100	
Critical-rate of rise of commutation voltage	$dV/dt$	$V_D = 2/3 V_{DRM}, T_j = 125^\circ C$		500	<b>V/<math>\mu s</math></b>

**STATIC CHARACTERISTICS**

On-state Voltage	$V_{TM}$	$I_{TM} = 32A,$		1.5	<b>V</b>
Repetitive Peak Off-State Current	$I_{DRM}$	$V_D = V_{DRM} = V_{RRM}$	$T_j = 25^\circ C$	5	<b><math>\mu A</math></b>
Repetitive Peak Reverse Current	$I_{RRM}$		$T_j = 125^\circ C$	1	<b>mA</b>

**THERMAL RESISTANCES**

Thermal resistance	$R_{th(j-c)}$	Junction to case	TYP.	1.3	<b><math>^\circ C/W</math></b>
	$R_{th(j-a)}$	Junction to ambient	TYP.	60	<b><math>^\circ C/W</math></b>

**Ordering Information**


Typical Characteristics

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

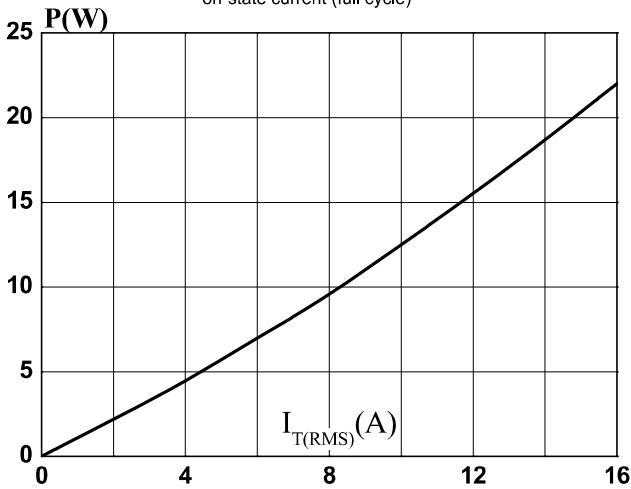


FIG.2: RMS on-state current versus case temperature (full cycle)

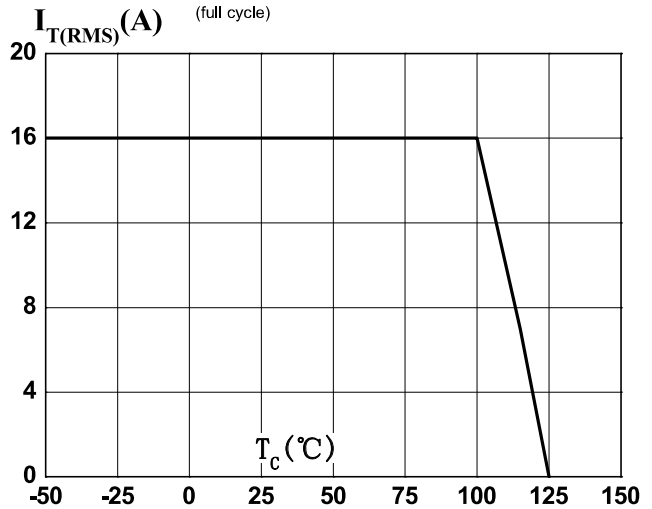


FIG.3: Surge peak on-state current versus number of cycles

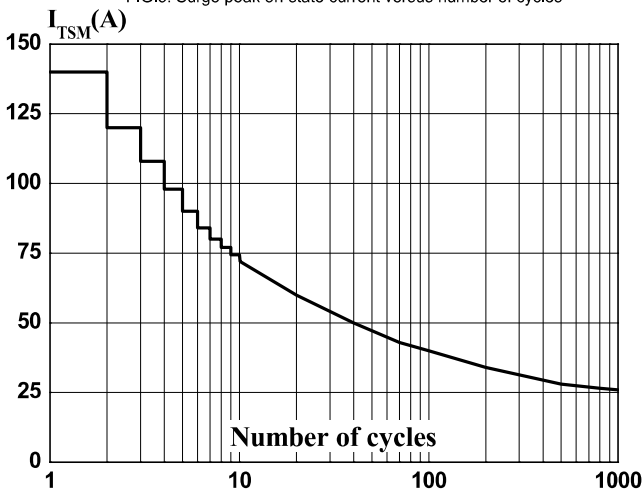


FIG.4: On-state characteristics (maximum values)

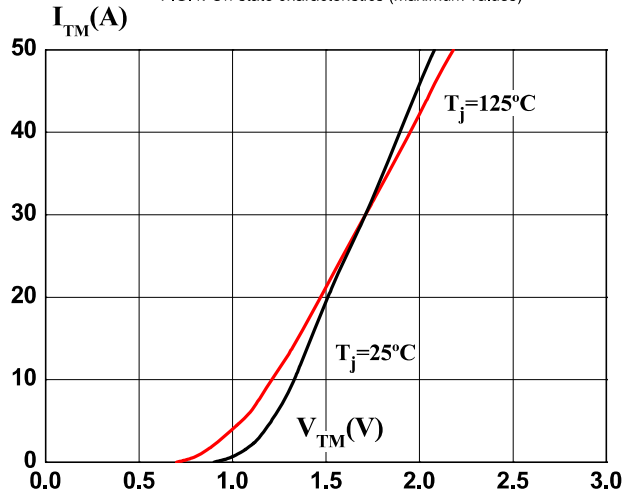


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$

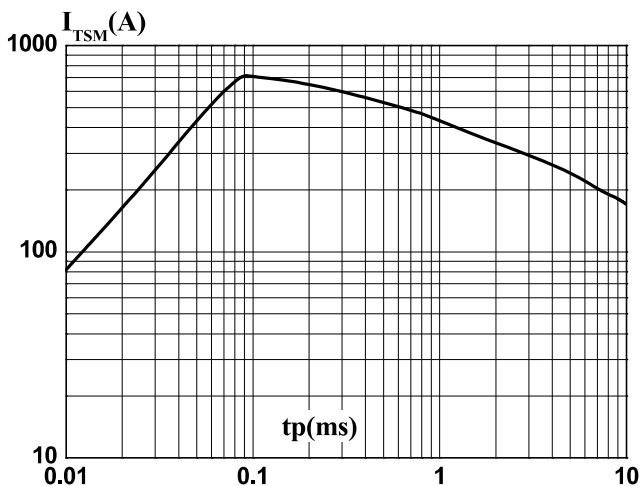
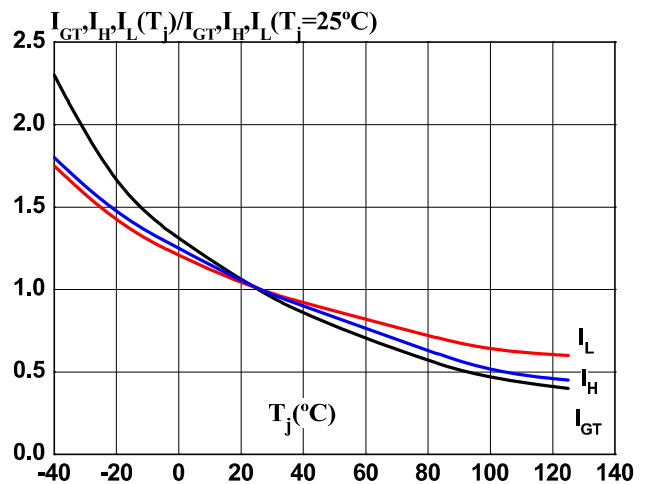
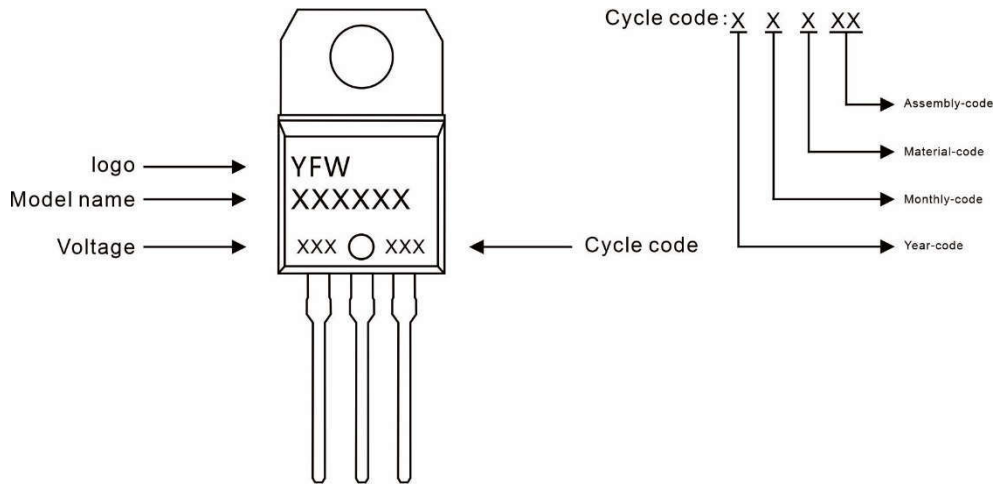


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



**Marking Diagram**



**Ordering information**

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
BT139	TO-220A	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

**Package Dimensions**

TO-220A(Insulated)

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	9.80	10.40	0.386	0.409
B	2.65	3.10	0.104	0.122
C	14.80	16.10	0.583	0.634
D	0.70	0.92	0.028	0.036
D1	1.18	1.42	0.047	0.056
E	2.40	2.70	0.095	0.106
L	2.80	4.20	0.11	0.17
L1	13.05	13.60	0.514	0.535
H	5.85	6.82	0.23	0.27
K	2.35	2.75	0.093	0.108
T	4.38	4.61	0.172	0.181
T1	1.15	1.36	0.045	0.054
T2	0.35	0.65	0.014	0.026
ΦR	3.75	3.95	0.148	0.156

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