

**JST139F-800D 16A TRIAC**

Rev.A.1.0

**DESCRIPTION:**

The JST139F-800D 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. By using an external plastic package, JST139F-800D provides a rated insulation voltage of 2000 VRMS, complying with UL standards (File ref: E252906). Package TO-220F is RoHS compliant.

**MAIN FEATURES****ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Value	Unit
Storage junction temperature range	$T_{stg}$	-40-150	
Operating junction temperature range	$T_j$	-40-125	
Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )	$V_{DRM}$	800	V
Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )	$V_{RRM}$	800	V
RMS on-state current ( $T_c=70^\circ\text{C}$ )	$I_{T(RMS)}$	16	A
Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I_{TSM}$	140	A
Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )		154	
$I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )	$I^2t$	98	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ , $f=100\text{Hz}$ , $T_j=125^\circ\text{C}$ )	-	50	A/s
	-	20	
Peak gate current ( $t_p=20\text{ }\mu\text{s}$ , $T_j=125^\circ\text{C}$ )	$I_{GM}$	4	A
Average gate power dissipation ( $T_j=125^\circ\text{C}$ )	$P_{G(AV)}$	0.5	W
Peak gate power	$P_{GM}$	10	W

Peak pulse voltage ( $T_j=25$ ; non-repetitive,off-state;FIG.7)	$V_{pp}$	4.5	kV
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**ELECTRICAL CHARACTERISTICS** ( $T_j=25$  unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
$I_{GT}$	$V_D=12V R_L=33$	- -	MAX.	5	mA
				10	
$V_{GT}$		ALL	MAX.	1	V
$V_{GD}$	$V_D=V_{DRM} T_j=125$ $R_L=3.3K$	ALL	MIN.	0.2	V
$I_L$	$I_G=1.2I_{GT}$	- -	MAX.	15	mA
				20	
$I_H$	$I_T=500mA$		MAX.	10	mA
dV/dt	$V_D=540V$ Gate Open $T_j=125$		MIN.	40	V s
(dV/dt)c	(dI/dt)c=7.2A/ms, $T_j=110$		MIN.	2	
$t_{on}$	$I_G=20mA I_A=200mA I_R=20mA$ $T_j=25$		TYP.	3	s
$t_{off}$				50	

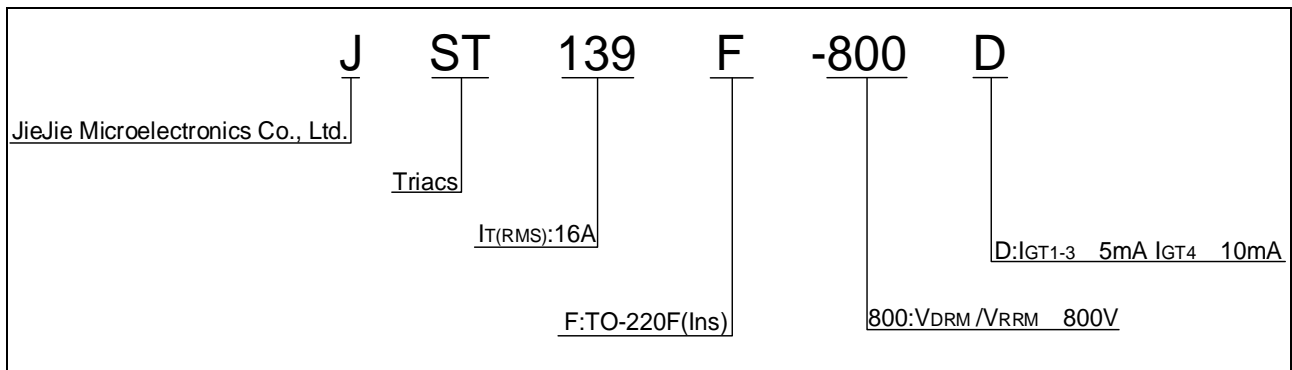
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=20A t_p=380 s$	$T_j=25$	1.5	V
$V_{TO}$	Threshold voltage	$T_j=125$	0.75	V
$R_D$	Dynamic resistance	$T_j=125$	27	
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25$	5	A
$I_{RRM}$		$T_j=125$	0.5	mA

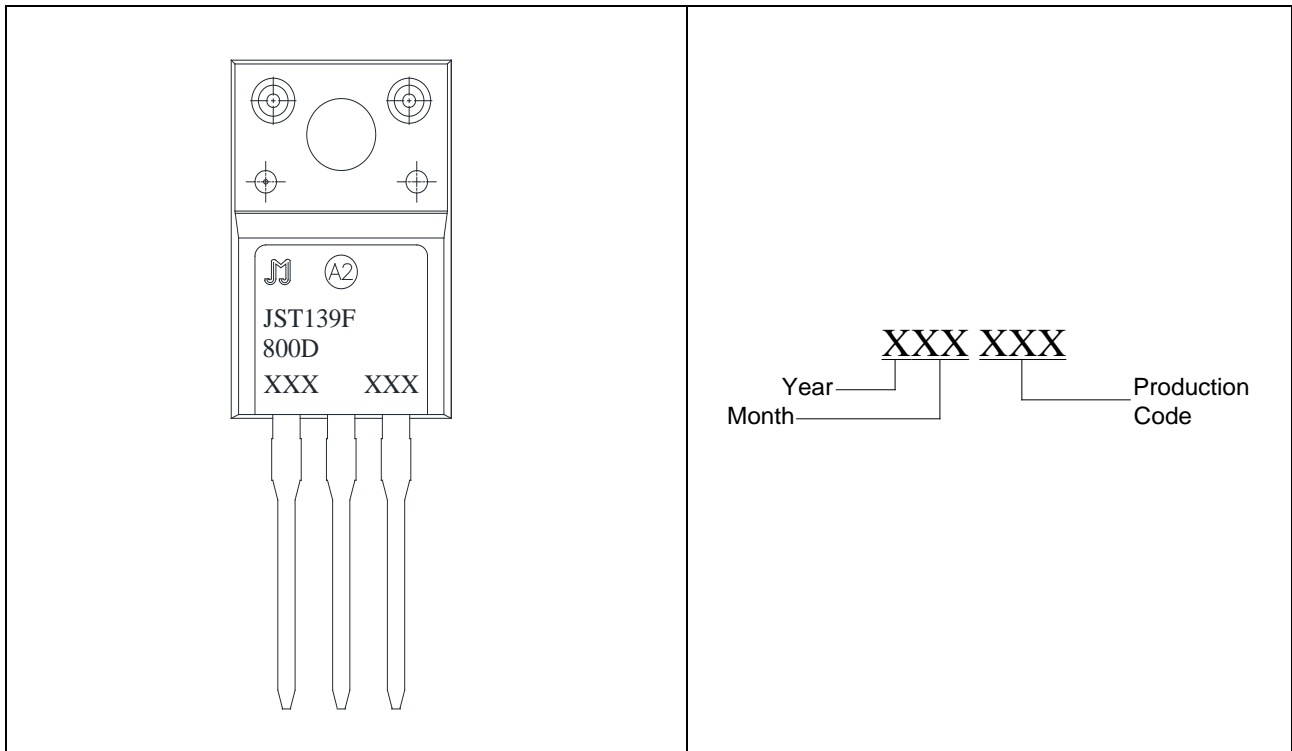
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (AC)	2.4	$\text{W}$
$R_{th(j-a)}$	junction to ambient (AC)	60	$\text{W}$

ORDERING INFORMATION



MARKING



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

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

FIG.7 Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

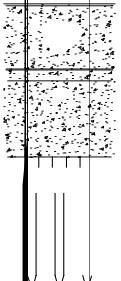
**ORDERING INFORMATION**

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		-	-			
<b>JST139F-800D</b>	<b>800</b>	<b>5</b>	<b>10</b>	<b>TO-220F(Ins)</b>	<b>50</b>	<b>Tube</b>

**Document Revision History**

Date	Revision	Changes
Apr.14, 2023	A.1.0	Last updated

PACKAGE MECHANICAL DATA



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