## DESCRIPTION:

The JST139F-800F 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-800F 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

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

| | | | |
|---|---|---|---|
| Peak pulse voltage<br>($T_j$=25 ; non-repetitive,off-state;FIG.7) | $V_{pp}$ | 1 | kV |

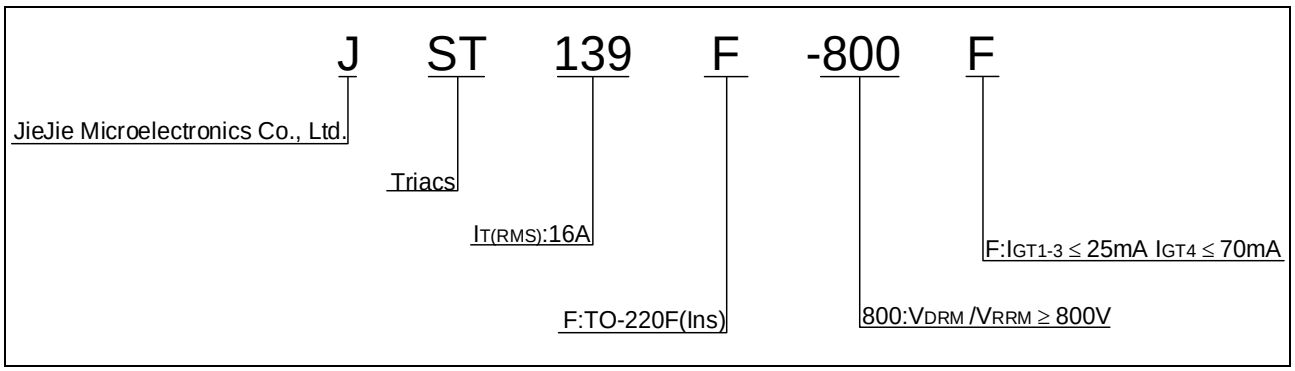
## ELECTRICAL CHARACTERISTICS ($T_j$=25 unless otherwise specified)

| | | | | | |
|---|---|---|---|---|---|
| $I_{GT}$ | $V_D$=12V $R_L$=33Ω | - - | MAX. | 25 | mA |
| | | | | 70 | |
| $V_{GT}$ | | ALL | MAX. | 1 | V |
| $V_{GD}$ | $V_D$=$V_{DRM}$ $T_j$=125<br>$R_L$=3.3kΩ | ALL | MIN. | 0.2 | V |
| $I_L$ | $I_G$=1.2$I_{GT}$ | - - | MAX. | 50 | mA |
| | | | | 100 | |
| $I_H$ | $I_T$=500mA | | MAX. | 40 | mA |
| dV/dt | $V_D$=540V Gate Open $T_j$=125 | | MIN. | 200 | V/μs |
| (dV/dt)c | (dI/dt)c=7.2A/ms, $T_j$=110 | | MIN. | 10 | V/μs |
| $t_{on}$ | $I_G$=80mA $I_A$=400mA $I_R$=40mA<br>$T_j$=25 | | TYP. | 10 | μs |
| $t_{off}$ | | | | 70 | |

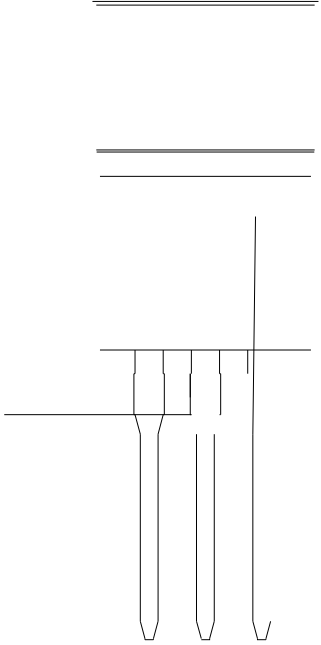
## STATIC CHARACTERISTICS

| | | | | |
|---|---|---|---|---|
| $V_{TM}$ | $I_{TM}$=20A $t_p$=380μs | $T_j$=25 | 1.5 | V |
| $V_{TO}$ | Threshold voltage | $T_j$=125 | 0.75 | V |
| $R_D$ | Dynamic resistance | $T_j$=125 | 27 | mΩ |
| $I_{DRM}$ | $V_D$=$V_{DRM}$ $V_R$=$V_{RRM}$ | $T_j$=25 | 5 | μA |
| $I_{RRM}$ | | $T_j$=125 | 0.5 | A |

## ORDERING INFORMATION

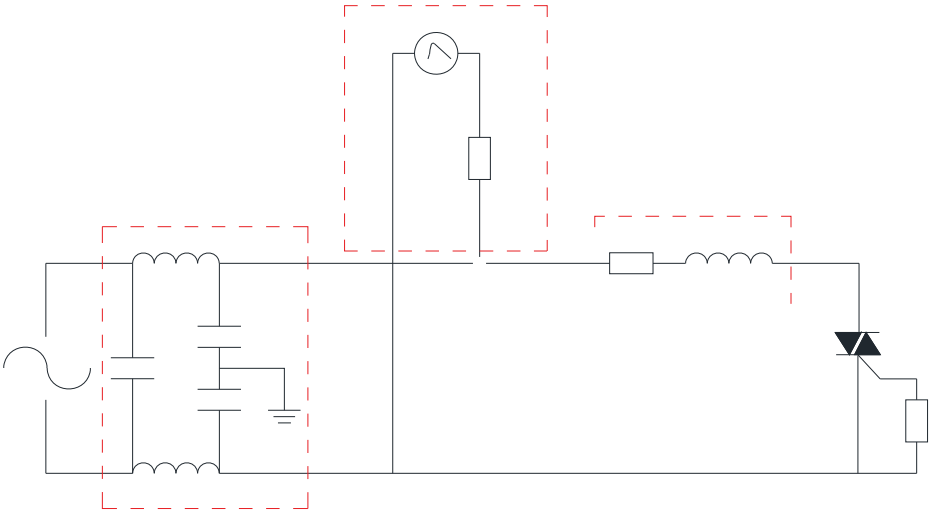



**MARKING**



TEL +86-513-68528666

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



## ORDERING INFORMATION

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

| Date | Revision | Changes |
|---|---|---|
| Apr.14, 2023 | A.1.0 | Last updated |
| Oct.15, 2025 | A.1.1 | Revise PACKAGE MECHANICAL DATA |

## PACKAGE MECHANICAL DATA



Information furnished in this document is believed to be accurate and reliable. However, Jiangsu JieJie Microelectronics Co., Ltd assumes no responsibility for the consequences of use without consideration for such information nor use beyond it. Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu JieJie complies with the agreement.
Products and information provided in this document have no infringement of patents. Jiangsu JieJie assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information. This document supersedes and replaces all information previously supplied.
is a registered trademark of Jiangsu JieJie Microelectronics Co., Ltd.
Copyright © 2025 Jiangsu JieJie Microelectronics Co., Ltd. All rights reserved.