



1A 500V/600V BIDIRECTIONAL TRIACS

Description:

Glasspassivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications. These devices are intended to be interfaced directly to micro controllers, logic integrated circuits and other low power gate trigger circuits.

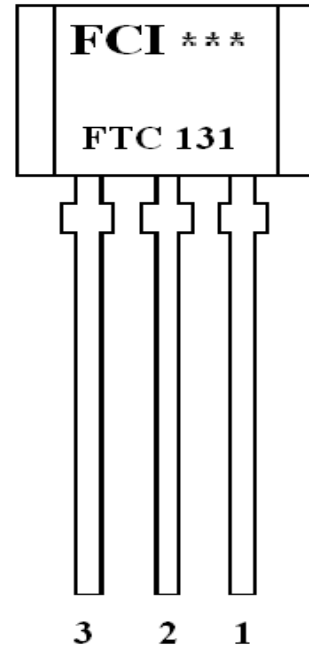
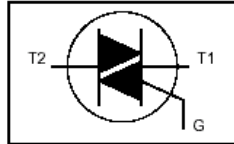
FTC131

V_{DRM} 500V/600 V

$I_{T(RMS)}$ 1A

I_{TSM} 16A

SYMBOL



Pinning :TO-92: DESCRIPTION

Pin1: Main Terminal 2

Pin 2: G

Pin 3: Main Terminal 3

LIMITING VALUES

Limiting values in accordance with the Absolute Maximum System (IEC 134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | | UNIT |
|--------------|--|--|------|-------------|-------------|------------------|
| | | | | -500 500 | -600 600 | |
| V_{DRM} | Repetitive peak off-state voltages | | - | | | V |
| $I_{T(RMS)}$ | RMS on-state current | full sine wave; $T_{lead} \leq 51^\circ C$ | - | 1 | | A |
| I_{TSM} | Non-repetitive peak on-state current | full sine wave; $T_j = 25^\circ C$ prior to surge | - | 16 | | A |
| | | $t = 20$ ms | - | 17.6 | | A |
| | | $t = 16.7$ ms | - | 1.28 | | A ² s |
| I^2t | I^2t for fusing | $t = 10$ ms | - | | | A ² s |
| di_T/dt | Repetitive rate of rise of on-state current after triggering | $I_{TM} = 1.5$ A; $I_G = 0.2$ A; $di_G/dt = 0.2$ A/ μ s | - | | | |
| | | T2+ G+ | - | 50 | | A/ μ s |
| | | T2+ G- | - | 50 | | A/ μ s |
| | | T2- G- | - | 50 | | A/ μ s |
| | | T2- G+ | - | 10 | | A/ μ s |
| I_{GM} | Peak gate current | | - | 2 | | A |
| V_{GM} | Peak gate voltage | | - | 5 | | V |
| P_{GM} | Peak gate power | | - | 5 | | W |
| $P_{G(AV)}$ | Average gate power | over any 20 ms period | - | 0.5 | | W |
| T_{stg} | Storage temperature | | -40 | 150 | | $^\circ C$ |
| T_j | Operating junction temperature | | - | 125 | | $^\circ C$ |

1 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 3 A/ μ s.



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THERMAL RESISTANCES

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|------------------|--|--------------------------------|------|------|------|------|
| $R_{th\ j-lead}$ | Thermal resistance junction to lead | full cycle | - | - | 60 | K/W |
| | | half cycle | - | - | 80 | K/W |
| $R_{th\ j-a}$ | Thermal resistance junction to ambient | pcb mounted; lead length = 4mm | - | 150 | - | K/W |

STATIC CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise stated

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|----------|---------------------------|---|------|------|------|------|
| I_{GT} | Gate trigger current | $V_D = 12\text{ V}; I_T = 0.1\text{ A}$ | | | | |
| | | T2+ G+ | - | 0.4 | 3 | mA |
| | | T2+ G- | - | 1.3 | 3 | mA |
| | | T2- G- | - | 1.4 | 3 | mA |
| | | T2- G+ | - | 3.8 | 7 | mA |
| I_L | Latching current | $V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$ | | | | |
| | | T2+ G+ | - | 1.2 | 5 | mA |
| | | T2+ G- | - | 4.0 | 8 | mA |
| | | T2- G- | - | 1.0 | 5 | mA |
| | | T2- G+ | - | 2.5 | 8 | mA |
| I_H | Holding current | $V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$ | - | 1.3 | 5 | mA |
| V_T | On-state voltage | $I_T = 2.0\text{ A}$ | - | 1.2 | 1.5 | V |
| V_{GT} | Gate trigger voltage | $V_D = 12\text{ V}; I_T = 0.1\text{ A}$ | - | 0.7 | 1.5 | V |
| | | $V_D = 400\text{ V}; I_T = 0.1\text{ A}; T_j = 125\text{ }^\circ\text{C}$ | 0.2 | 0.3 | - | V |
| I_D | Off-state leakage current | $V_D = V_{DRM(max)}; T_j = 125\text{ }^\circ\text{C}$ | - | 0.1 | 0.5 | mA |

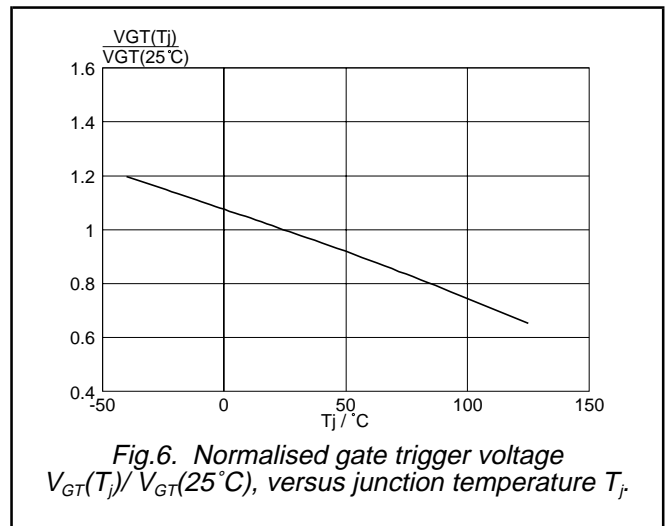
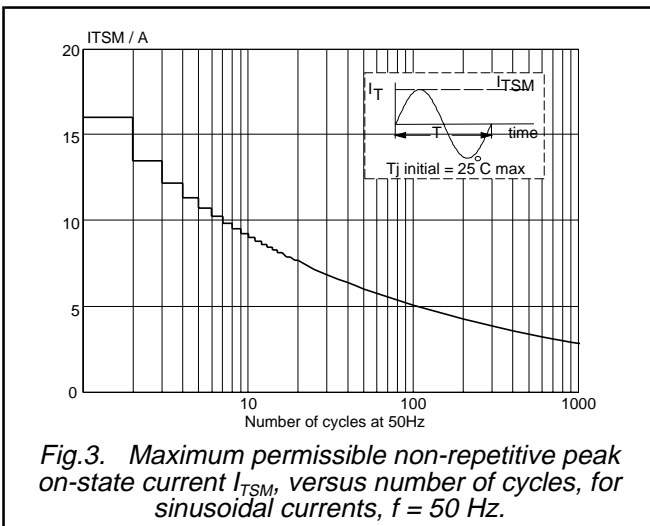
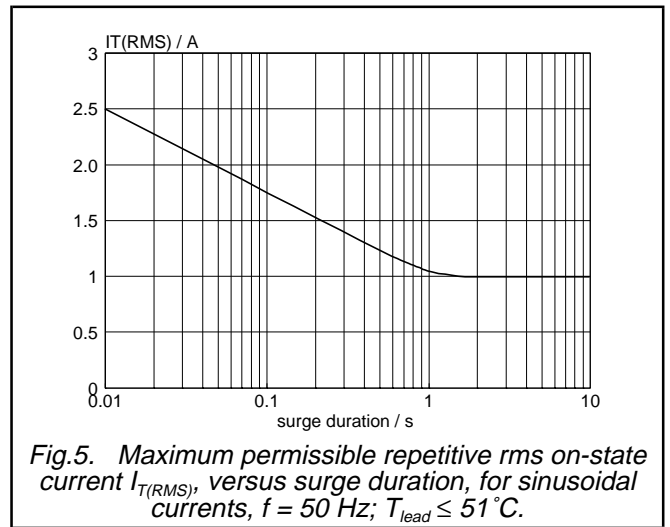
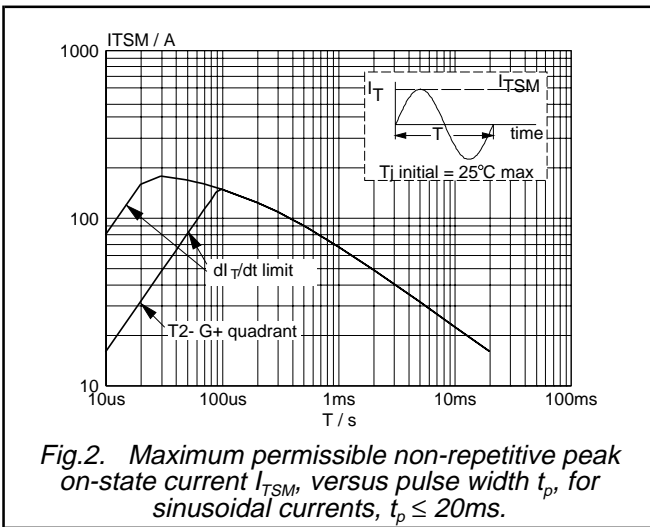
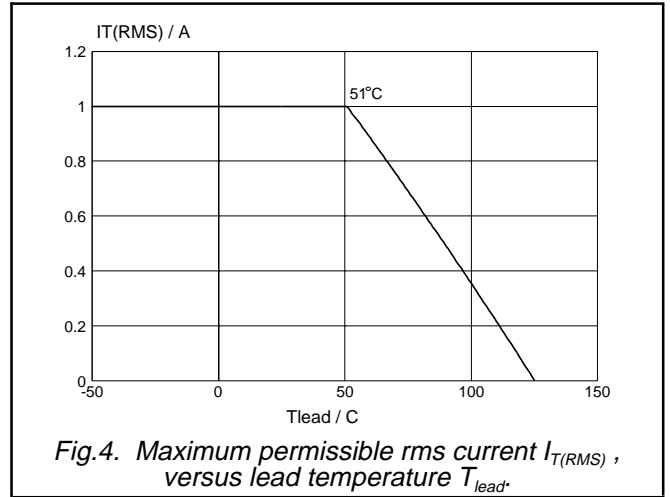
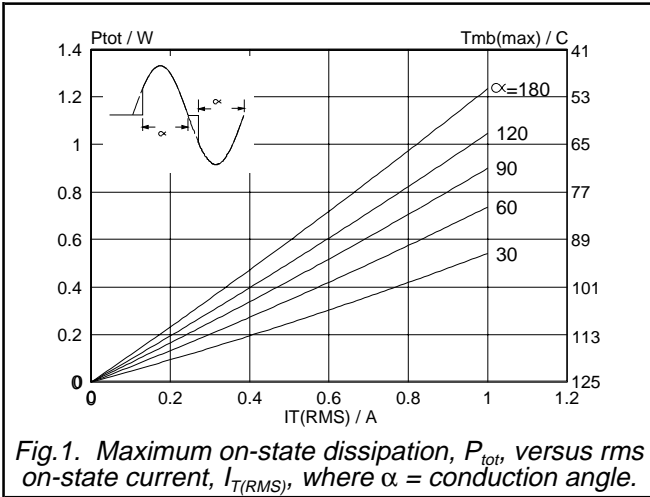
DYNAMIC CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise stated

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-----------|--|---|------|------|------|------------------|
| dV_D/dt | Critical rate of rise of off-state voltage | $V_{DM} = 67\% V_{DRM(max)}; T_j = 125\text{ }^\circ\text{C};$ exponential waveform; $R_{GK} = 1\text{ k}\Omega$ | 5 | 15 | - | V/ μs |
| t_{gt} | Gate controlled turn-on time | $I_{TM} = 1.5\text{ A}; V_D = V_{DRM(max)}; I_G = 0.1\text{ A};$ $dl_G/dt = 5\text{ A}/\mu\text{s}$ | - | 2 | - | μs |



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