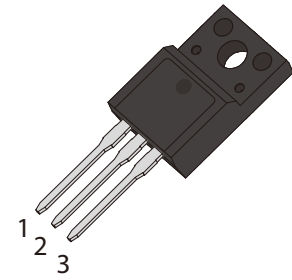


## FEATURES

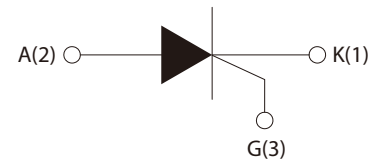
- | Glass-passivated mesa chip for reliability and uniform
- | High current output up to 12 A
- | RoHS (2002/95/EC) compliant packages



TO-220F

## APPLICATIONS

- | Flash lamp
- | Electronic ballast
- | Igniter



Schematic Symbol

## APPROVALS

|             |                                    |
|-------------|------------------------------------|
| <b>RoHS</b> | Compliance with 2011/65/EU         |
| <b>HF</b>   | Compliance with IEC61249-2-21:2003 |

## ABSOLUTE MAXIMUM RATINGS

| Parameter                                                        | Symbol              | Value    | Unit                   |
|------------------------------------------------------------------|---------------------|----------|------------------------|
| Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )     | $V_{\text{DRM}}$    | 600      | V                      |
| Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )       | $V_{\text{RRM}}$    | 600      |                        |
| RMS on-state current ( $T_c=85^\circ\text{C}$ )                  | $I_{\text{T(RMS)}}$ | 12       | A                      |
| Non repetitive surge peak on-state current ( $t_p=10\text{ms}$ ) | $I_{\text{TSM}}$    | 100      |                        |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ )                    | $I^2t$              | 50       | $\text{A}^2\text{S}$   |
| Critical rate of rise of on-state current ( $I_G=2*I_{GT}$ )     | $d/d_t$             | 50       | $\text{A}/\mu\text{s}$ |
| Peak gate current                                                | $I_{\text{GM}}$     | 1.2      | A                      |
| Average gate power dissipation                                   | $P_{\text{G(AV)}}$  | 0.2      | W                      |
| Storage junction temperature range                               | $T_{\text{STG}}$    | -40~+150 | $^\circ\text{C}$       |
| Operating junction temperature range                             | $T_j$               | -40~+125 |                        |

## ELECTRICAL CHARACTERISTICS ( $T_j=25^{\circ}\text{C}$ unless otherwise specified)

| Symbol    | Test Condition                                               | Value |      |      | Unit                   |
|-----------|--------------------------------------------------------------|-------|------|------|------------------------|
|           |                                                              | Min.  | Typ. | Max. |                        |
| $I_{GT}$  | $V_D=12\text{V}, R_L=33\Omega$                               | -     | 60   | 200  | $\mu\text{A}$          |
| $V_{GT}$  |                                                              | -     | -    | 0.8  | V                      |
| $V_{GD}$  | $V_D=V_{DRM}, T_j=110^{\circ}\text{C}$                       | 0.2   | -    | -    |                        |
| $I_H$     | $I_T=50\text{mA}$                                            | -     | -    | 5    |                        |
| $I_L$     | $I_G=1.2I_{GT}$                                              | -     | -    | 6    |                        |
| $dV_D/dt$ | $V_D=536\text{V}, R_{GK}=100\Omega, T_j=110^{\circ}\text{C}$ | 50    | 100  | -    | $\text{V}/\mu\text{s}$ |

## STATIC CHARACTERISTICS

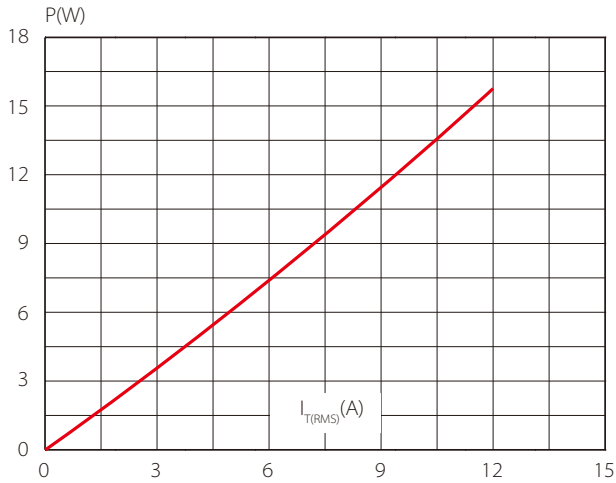
| Symbol    | Parameter                               | Value      | Unit          |
|-----------|-----------------------------------------|------------|---------------|
| $V_{TM}$  | $I_{TM}=24\text{A}, t_p=380\mu\text{s}$ | $\leq 1.6$ | V             |
| $I_{DRM}$ | $V_D=V_{DRM}, V_R=V_{RRM}$              | $\leq 10$  | $\mu\text{A}$ |
| $I_{RRM}$ |                                         | $\leq 2$   | mA            |

## THERMAL RESISTANCES

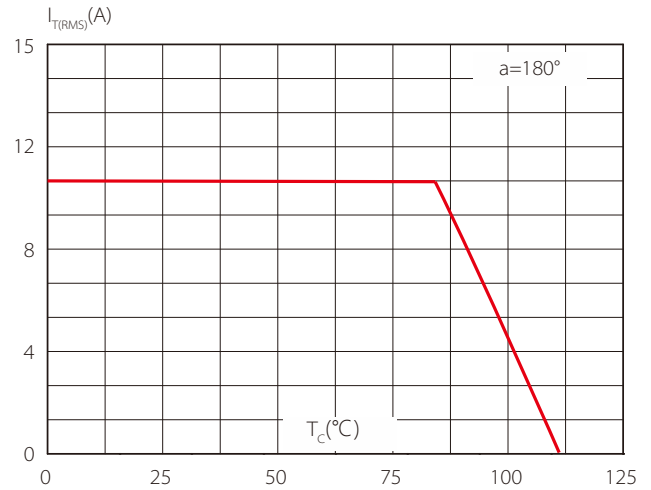
| Symbol        | Parameter            | Value | Unit                        |
|---------------|----------------------|-------|-----------------------------|
| $R_{th(j-c)}$ | Junction to case(AC) | 2.3   | $^{\circ}\text{C}/\text{W}$ |

# PARAMETER CHARACTERISTIC CURVE

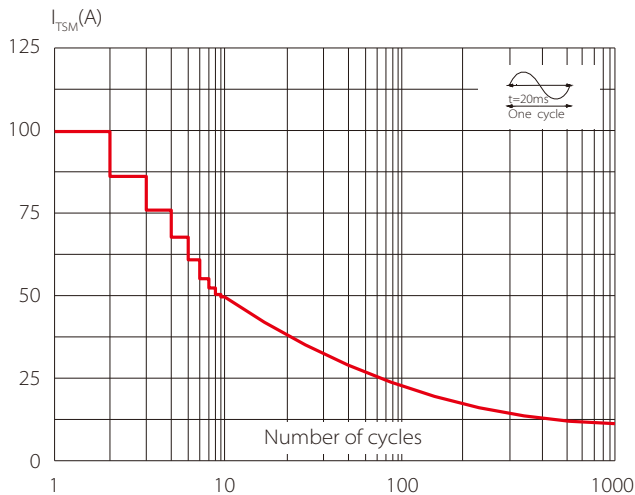
**FIG.1 Maximum power dissipation versus RMS on-state current**



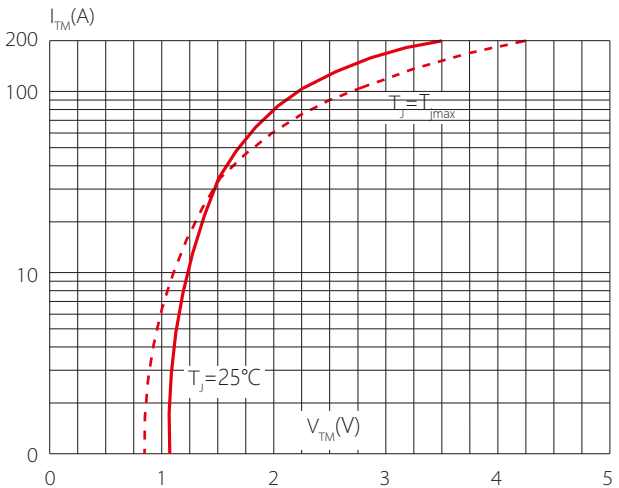
**FIG.2: RMS on-state current versus case temperature**



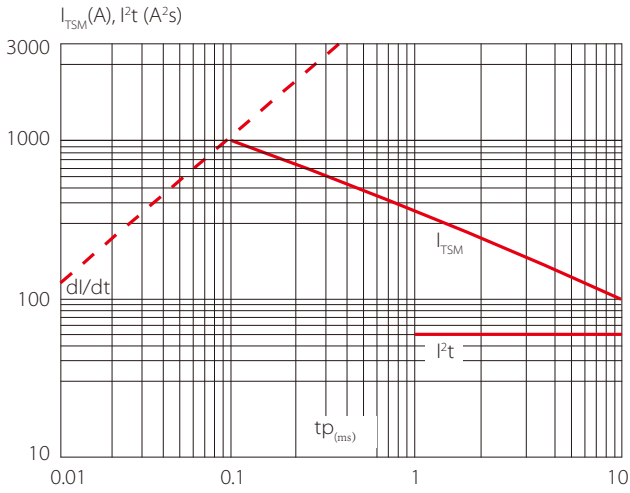
**FIG.3: Surge peak on-state current versus number of cycles**



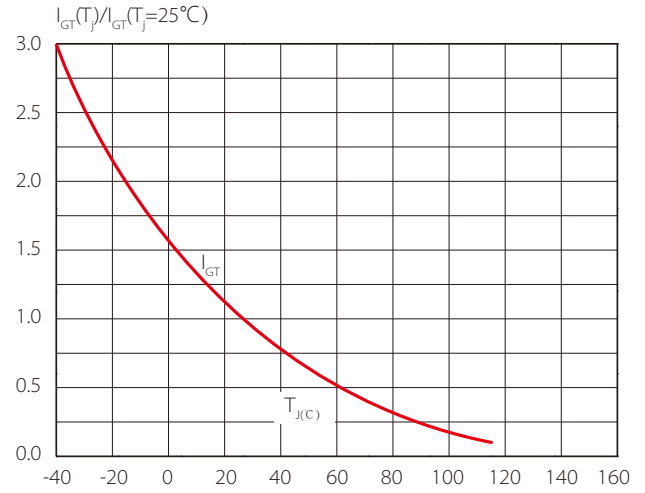
**FIG.4 On-state characteristics (maximum values)**



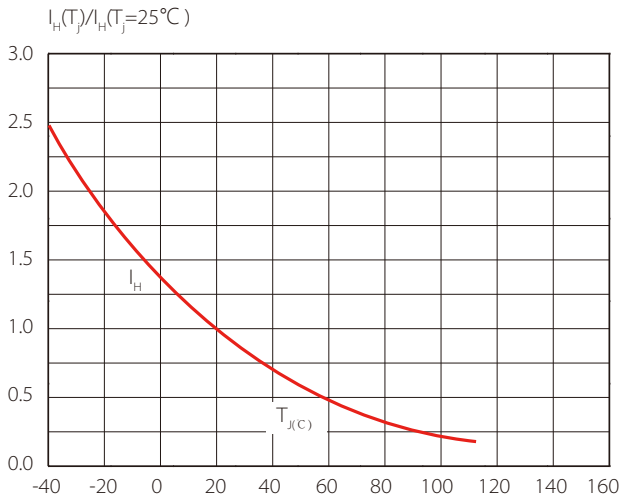
**FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$  and corresponding value of  $I^2t$  ( $dI/dt < 50\text{A}/\mu\text{s}$ )**



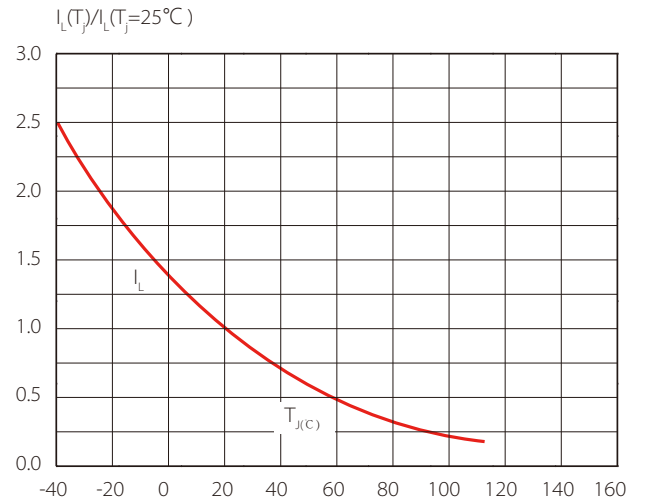
**FIG.6 Relative variations of gate trigger current versus junction temperature**



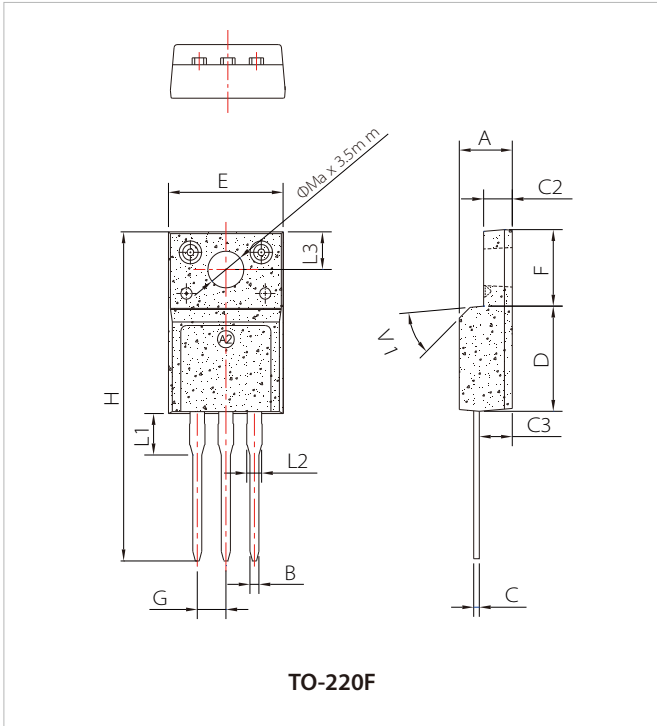
**FIG.7 Relative variations of holding current versus junction temperature**



**FIG.8 Relative variations of latching current versus junction temperature**



## PACKAGE MECHANICAL DATA



| Ref. | Dimensions  |      |      |        |       |       |
|------|-------------|------|------|--------|-------|-------|
|      | Millimeters |      |      | Inches |       |       |
|      | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| A    | 4.50        |      | 4.90 | 0.177  |       | 0.193 |
| B    | 0.74        | 0.80 | 0.83 | 0.029  | 0.029 | 0.033 |
| C    | 0.47        |      | 0.65 | 0.019  |       | 0.026 |
| C2   | 2.45        |      | 2.75 | 0.096  |       | 0.108 |
| C3   | 2.60        |      | 3.00 | 0.102  |       | 0.118 |
| D    | 8.80        |      | 9.30 | 0.346  |       | 0.366 |
| E    | 9.80        |      | 10.4 | 0.386  |       | 0.410 |
| F    | 6.40        |      | 6.80 | 0.252  |       | 0.268 |
| G    |             | 2.54 |      |        | 0.1   |       |
| H    | 28.0        |      | 29.8 | 1.102  |       | 1.173 |
| L1   |             | 3.63 |      |        | 0.143 |       |
| L2   | 1.14        |      | 1.70 | 0.045  |       | 0.067 |
| L3   |             | 3.30 |      |        | 0.130 |       |
| V1   |             | 45°  |      |        | 45°   |       |

## ORDERING INFORMATION

| Part Number | Package | Qty/pcs |           |        |
|-------------|---------|---------|-----------|--------|
|             |         | Tube    | Inner Box | Carton |
| SCF12M60    | TO-220F | 50      | 1000      | 5000   |

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