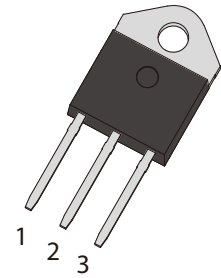


## FEATURES

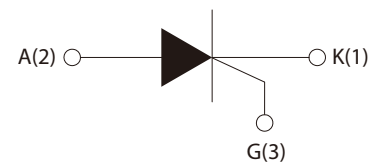
- | Glass-passivated mesa chip for reliability and uniform
- | High current output up to 55A
- | RoHS (2002/95/EC) compliant packages



TO-3P

## APPLICATIONS

- | Motor cycle
- | Power charger
- | T-tools etc



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 ( $T_j=25^\circ\text{C}$ )        | $V_{\text{DRM}}$    | 1600     | V                      |
| Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )          | $V_{\text{RRM}}$    | 1600     |                        |
| RMS on-state current ( $T_c=70^\circ\text{C}$ )                     | $I_{\text{T(RMS)}}$ | 55       | A                      |
| Non repetitive surge peak on-state current ( $t_p=10\text{ms}$ )    | $I_{\text{TSM}}$    | 550      |                        |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ )                       | $I^2t$              | 1500     | $\text{A}^2\text{S}$   |
| Critical rate of rise of on-state current ( $I_G=2*I_{\text{GT}}$ ) | $dI/dt$             | 150      | $\text{A}/\mu\text{s}$ |
| Peak gate current   | $I_{\text{GM}}$     | 5        | A                      |
| Average gate power dissipation                                      | $P_{\text{G(AV)}}$  | 1        | 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             |
|-----------|---|-------------|------------------|
| $I_{GT}$  | $V_D=12\text{V}, R_L=33\Omega$                                | $\leq 70$   | mA               |
| $V_{GT}$  |   | $\leq 1.5$  | V                |
| $V_{GD}$  | $V_D=V_{DRM}, R_L=3.3\text{K}\Omega, T_j=150^{\circ}\text{C}$ | $\geq 0.25$ |                  |
| $I_H$     | $I_T=500\text{mA}$  | $\leq 200$  | mA               |
| $I_L$     | $I_G=1.2I_{GT}$   | $\leq 250$  |                  |
| $dV_D/dt$ | $V_D=2/3V_{DRM}$ , Gate Open, $T_j=150^{\circ}\text{C}$       | $\geq 1000$ | V/ $\mu\text{s}$ |

## STATIC CHARACTERISTICS

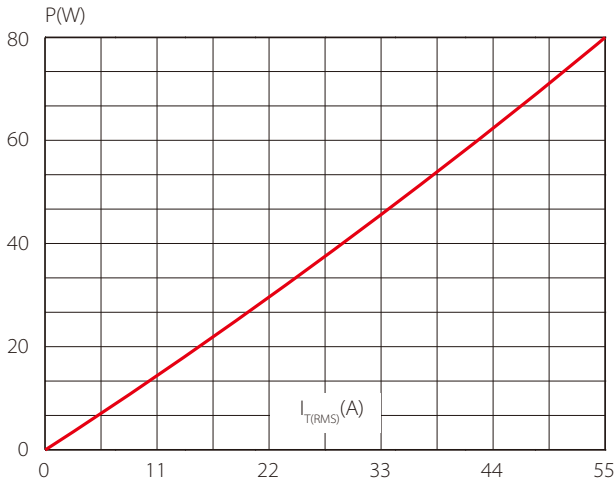
| Symbol    | Parameter                               | Value                     | Unit     |                          |
|-----------|---|---------------------------|----------|--------------------------|
| $V_{TM}$  | $I_{TM}=80\text{A}, t_p=380\mu\text{s}$ | $\leq 1.8$                | V        |                          |
| $I_{DRM}$ | $V_D=V_{DRM}, V_R=V_{RRM}$              |                           |          | $T_j=25^{\circ}\text{C}$ |
| $I_{RRM}$ |   | $T_j=150^{\circ}\text{C}$ | $\leq 8$ | mA                       |

## THERMAL RESISTANCES

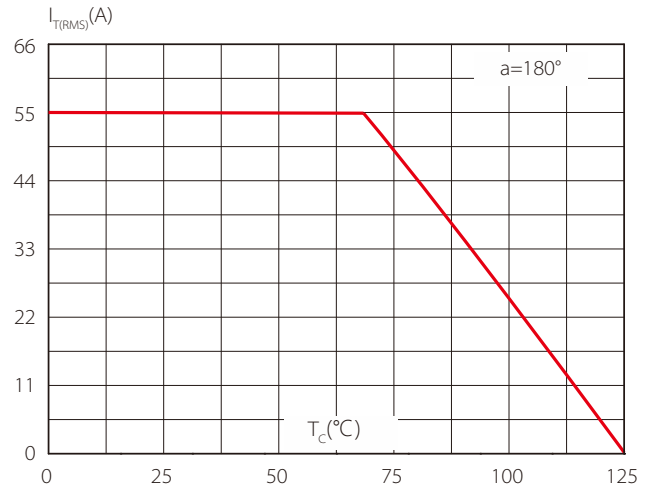
| Symbol        | Parameter            | Value | Unit                        |
|---------------|----------------------|-------|-----------------------------|
| $R_{th(j-c)}$ | Junction to case(AC) | 0.65  | $^{\circ}\text{C}/\text{W}$ |

## PARAMETER CHARACTERISTIC CURVE

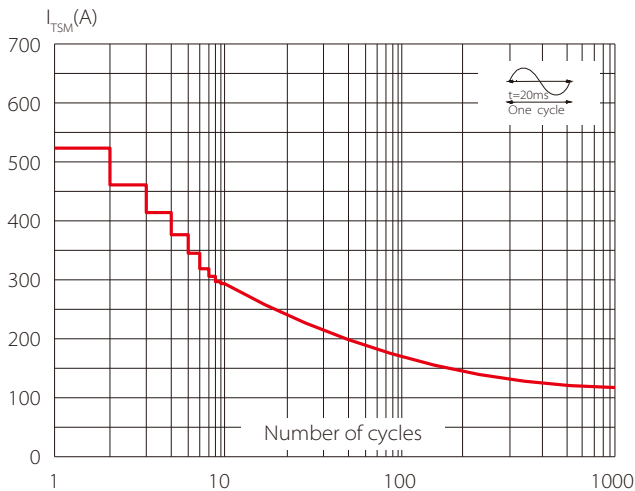
**FIG.1 Maximum power dissipation versus RMS on-state current**



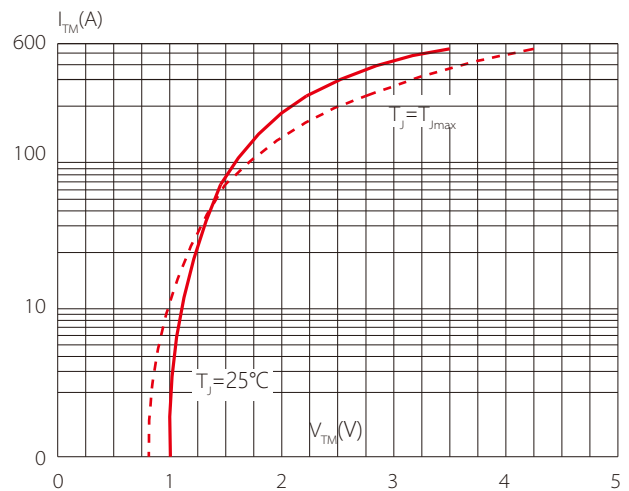
**FIG.2: RMS on-state current versus case temperature**



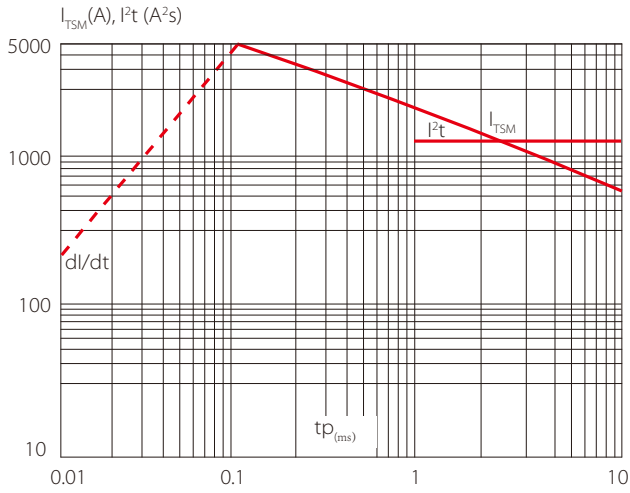
**FIG.3: Surge peak on-state current versus number of cycles**



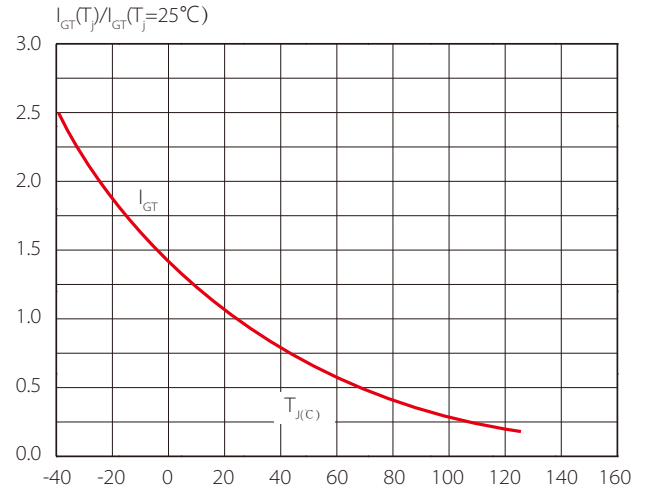
**FIG.4 On-state characteristics (maximum values)**



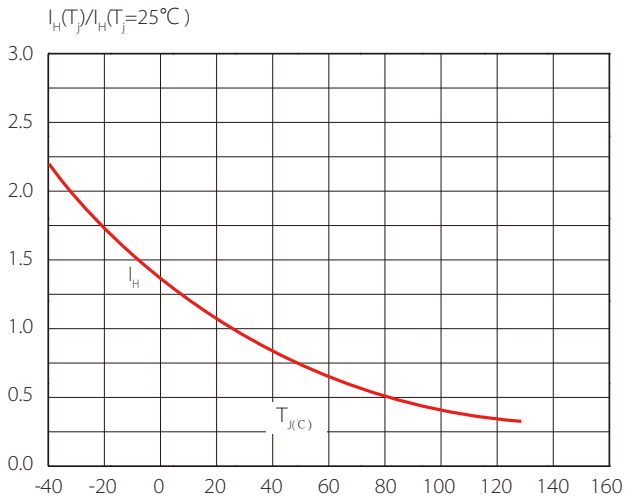
**FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$  and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )**



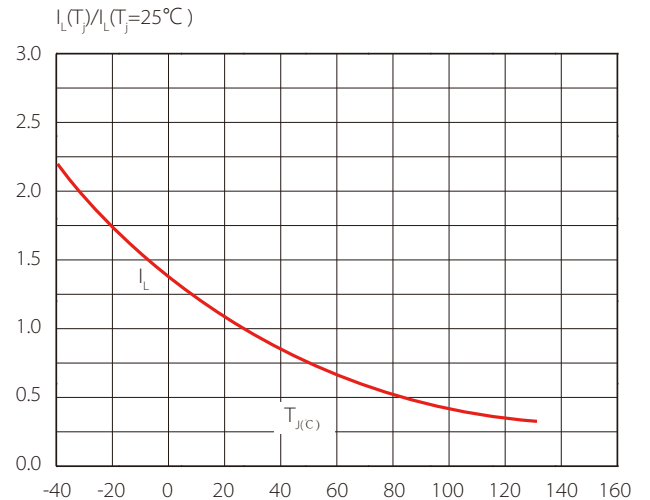
**FIG.6 Relative variations of gate trigger current, holding current and latching current versus junction temperature**



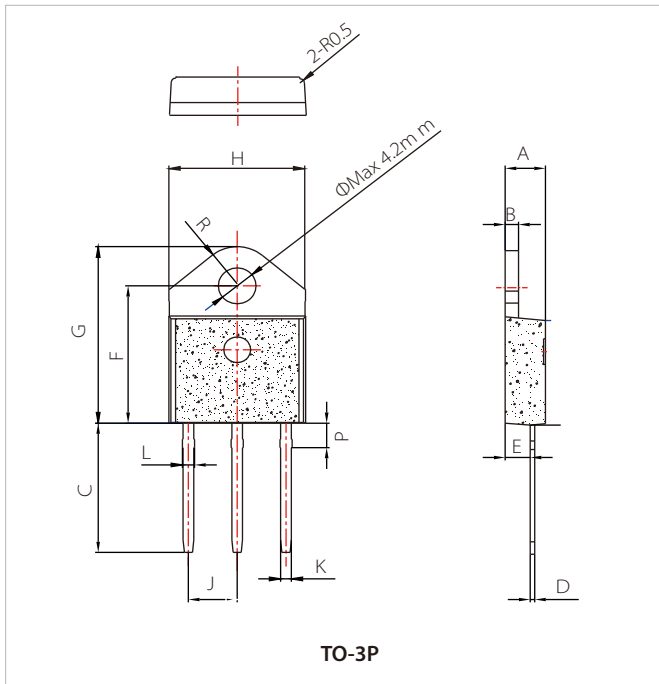
**FIG.7 Relative variations of holding current versus junction temperature**



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



## PACKAGE MECHANICAL DATA



| Ref. | Dimensions  |      |       |        |       |       |
|------|-------------|------|-------|--------|-------|-------|
|      | Millimeters |      |       | Inches |       |       |
|      | Min.        | Typ. | Max.  | Min.   | Typ.  | Max.  |
| A    | 4.40        |      | 4.60  | 0.173  |       | 0.181 |
| B    | 1.45        |      | 1.55  | 0.057  |       | 0.061 |
| C    | 14.35       |      | 15.60 | 0.565  |       | 0.614 |
| D    | 0.50        |      | 0.70  | 0.020  |       | 0.028 |
| E    | 2.70        |      | 2.90  | 0.106  |       | 0.114 |
| F    | 15.80       |      | 16.50 | 0.622  |       | 0.650 |
| G    | 20.40       |      | 21.10 | 0.803  |       | 0.831 |
| H    | 15.10       |      | 15.50 | 0.594  |       | 0.610 |
| J    | 5.40        |      | 5.65  | 0.213  |       | 0.222 |
| K    | 1.10        |      | 1.40  | 0.043  |       | 0.055 |
| L    | 1.35        |      | 1.50  | 0.053  |       | 0.059 |
| P    | 2.80        |      | 3.00  | 0.110  |       | 0.118 |
| R    |             | 4.35 |       |        | 0.171 |       |

## ORDERING INFORMATION

| Part Number | Package | Qty/pcs |           |        |
|-------------|---------|---------|-----------|--------|
|             |         | Tube    | Inner Box | Carton |
| SCZ55C160   | TO-3P   | 30      | 450       | 3600   |

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