

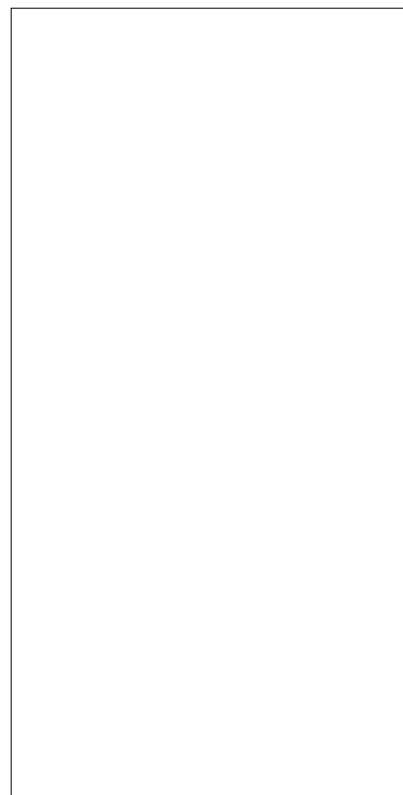


## JCT825A 25A SCR

Rev.A.1.0

### DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT825A SCR provides high  $dV/dt$  rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. From all three terminals to external heatsink, JCT825A provides a rated insulation voltage of 2500  $V_{RMS}$ , complying with UL standards (File ref: E252906). Package TO-220A is RoHS compliant.



### MAIN FEATURES

### ABSOLUTE MAXIMUM RATINGS

| Parameter   | Symbol       | Value   | Unit        |
|---|--------------|---------|-------------|
| Storage junction temperature range                              | $T_{stg}$    | -40-150 | $^{\circ}C$ |
| Operating junction temperature range                            | $T_j$        | -40-125 | $^{\circ}C$ |
| Repetitive peak off-state voltage ( $T_j=25^{\circ}C$ )         | $V_{DRM}$    | 800     | V           |
| Repetitive peak reverse voltage ( $T_j=25^{\circ}C$ )           | $V_{RRM}$    | 800     | V           |
| Average on-state current ( $T_c \leq 61^{\circ}C$ )             | $I_{T(AV)}$  | 16      | A           |
| RMS on-state current ( $T_c \leq 61^{\circ}C$ )                 | $I_{T(RMS)}$ | 25      | A           |
| Non repetitive surge current<br>( $t_p=10ms, T_j=25^{\circ}C$ ) | $I_{TSM}$    | 320     |             |

|  |             |     |    |
|--|-------------|-----|----|
| Peak gate current ( $t_p=20\mu s$ , $T_j=125^\circ C$ )                      | $I_{GM}$    | 5   | A  |
| Average gate power dissipation ( $T_j=125^\circ C$ )                         | $P_{G(AV)}$ | 1   | W  |
| Peak gate power  | $P_{GM}$    | 20  | W  |
| Peak pulse voltage<br>( $T_j=25^\circ C$ ; non-repetitive, off-state; FIG.7) | $V_{pp}$    | 0.5 | kV |

**ELECTRICAL CHARACTERISTICS** ( $T_j=25^\circ C$  unless otherwise specified)

| Symbol    | Test Condition  | Value |      |      | Unit       |
|-----------|---|-------|------|------|------------|
|           |   | MIN.  | TYP. | MAX. |            |
| $I_{GT}$  | $V_D=12V$ $R_L=33$                                    | -     | -    | 20   | mA         |
| $V_{GT}$  |   | -     | -    | 1    | V          |
| $V_{GD}$  | $V_D=V_{DRM}$ $T_j=125^\circ C$ $R_L=3.3K$            | 0.2   | -    | -    | V          |
| $I_L$     | $I_G=1.2I_{GT}$                                       | -     | -    | 70   | mA         |
| $I_H$     | $I_T=500mA$   | -     | -    | 60   | mA         |
| dV/dt     | $V_D=540V$ Gate Open $T_j=125^\circ C$                | 1000  | -    | -    | V/ $\mu s$ |
| $t_{on}$  | $I_G=20mA$ $I_A=200mA$ $I_R=20mA$<br>$T_j=25^\circ C$ | -     | 2    | -    | $\mu s$    |
| $t_{off}$ |   | -     | 50   | -    |            |

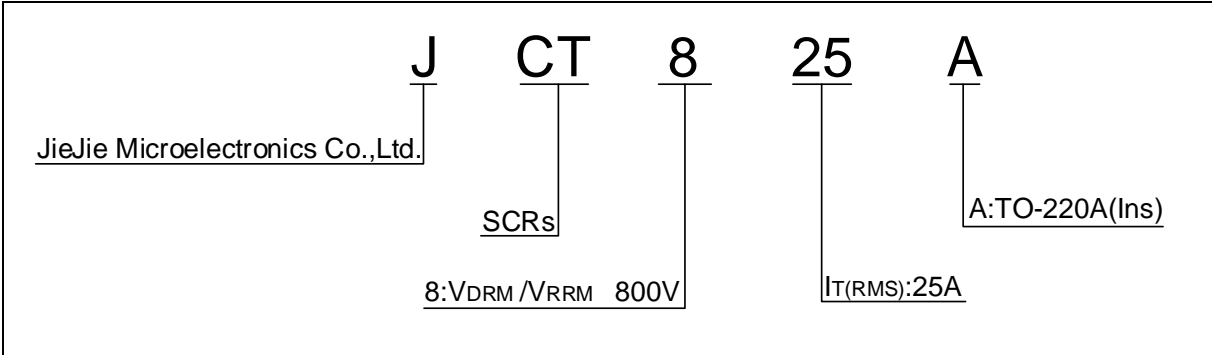
**STATIC CHARACTERISTICS**

| Symbol    | Parameter                   |                   | Value(MAX.) | Unit    |
|-----------|-----------------------------|-------------------|-------------|---------|
| $V_{TM}$  | $I_{TM}=50A$ $t_p=380\mu s$ | $T_j=25^\circ C$  | 1.5         | V       |
| $V_{TO}$  | Threshold voltage           | $T_j=125^\circ C$ | 0.72        | V       |
| $R_D$     | Dynamic resistance          | $T_j=125^\circ C$ | 16          | m       |
| $I_{DRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$ | $T_j=25^\circ C$  | 5           | $\mu A$ |
| $I_{RRM}$ |                             | $T_j=125^\circ C$ | 0.7         | mA      |

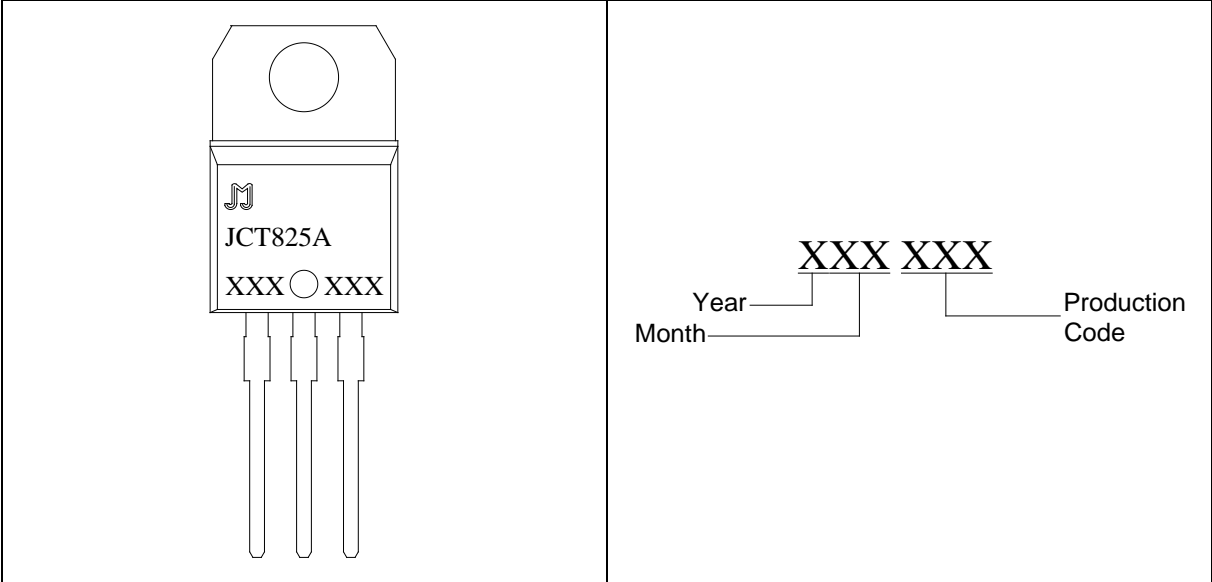
**THERMAL RESISTANCES**

| Symbol        | Parameter                | Value | Unit         |
|---------------|--------------------------|-------|--------------|
| $R_{th(j-c)}$ | junction to case(DC)     | 2     | $^\circ C/W$ |
| $R_{th(j-a)}$ | junction to ambient (DC) | 60    | $^\circ C/W$ |

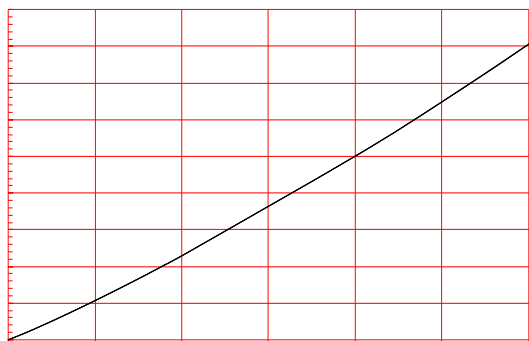
ORDERING INFORMATION



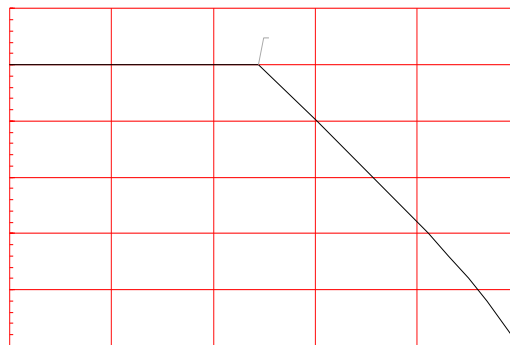
MARKING



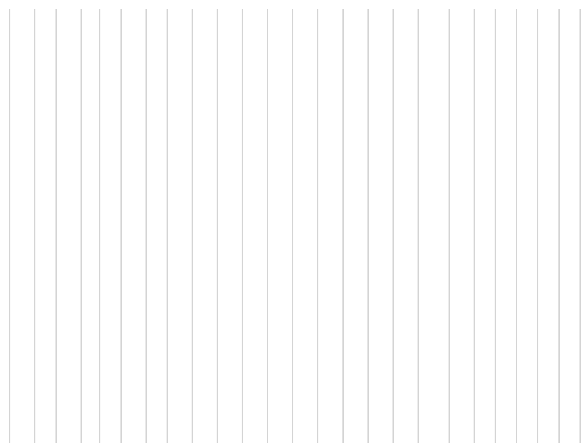
**FIG.1** Maximum power dissipation versus RMS on-state current



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

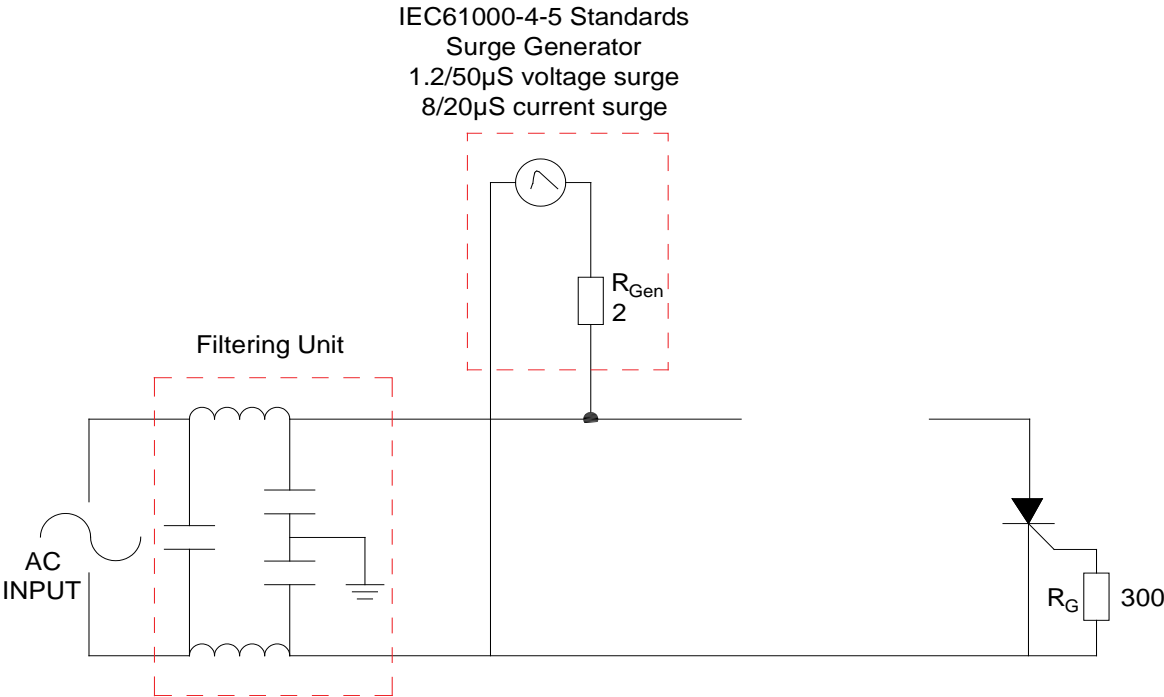


**FIG.3:** Surge peak on-state current versus number of cycles



**FIG.4:** On-state characteristics

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



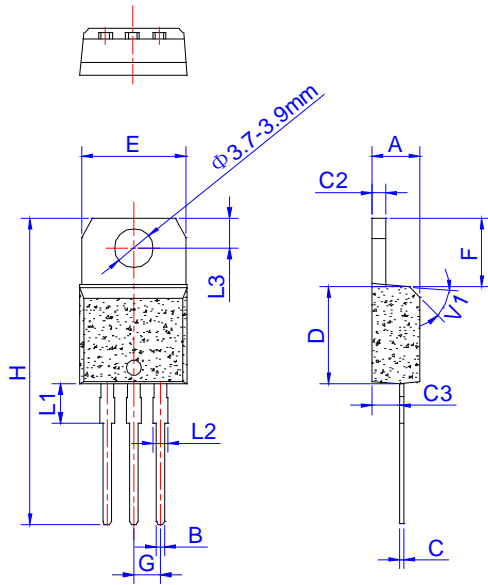
**ORDERING INFORMATION**

| <b>Order code</b> | <b>Voltage<br/><math>V_{DRM}/V_{RRM}</math> (V)</b> | <b>IGT(mA)</b> | <b>Package</b> | <b>Base qty.<br/>(pcs)</b> | <b>Delivery<br/>mode</b> |
|-------------------|---|----------------|----------------|----------------------------|--------------------------|
| JCT825A           | 800   | 20             | TO-220A(Ins)   | 50                         | Tube                     |

**Document Revision History**

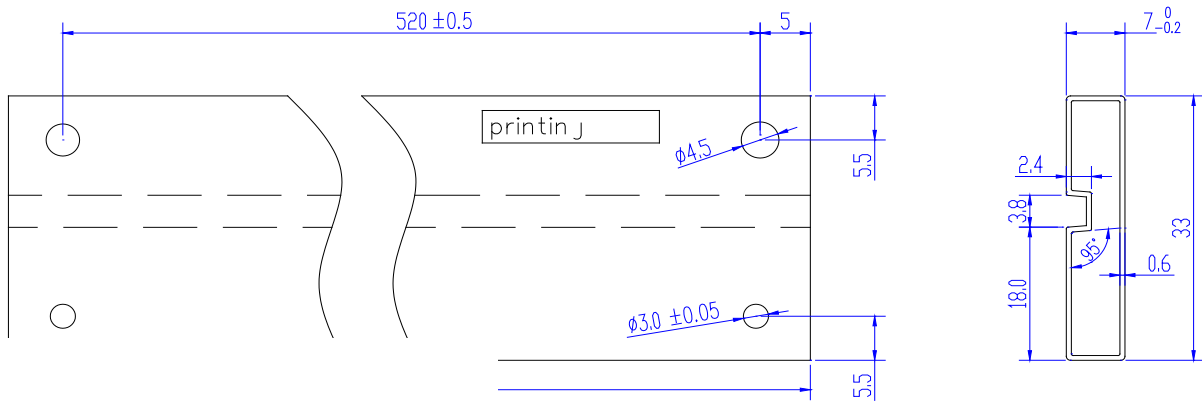
| <b>Date</b>  | <b>Revision</b> | <b>Changes</b> |
|--------------|-----------------|----------------|
| Apr.13, 2023 | A.1.0           | Last update    |

PACKAGE MECHANICAL DATA




| Ref. | Dimensions  |      |      |        |      |       |
|------|-------------|------|------|--------|------|-------|
|      | Millimeters |      |      | Inches |      |       |
|      | Min.        | Typ. | Max. | Min.   | Typ. | Max.  |
| A    | 4.40        |      | 4.60 | 0.173  |      | 0.181 |
| B    | 0.61        |      | 0.88 | 0.024  |      | 0.035 |
| C    | 0.46        |      | 0.70 | 0.018  |      | 0.028 |
| C2   | 1.21        |      | 1.32 | 0.048  |      | 0.052 |
| C3   | 2.40        |      | 2.72 | 0.094  |      | 0.107 |
| D    | 8.60        |      | 9.70 | 0.339  |      | 0.382 |
| E    | 9.80        |      | 10.4 | 0.386  |      | 0.409 |
| F    | 6.25        |      | 6.85 | 0.246  |      | 0.270 |
| G    | 2.40        |      | 2.70 | 0.094  |      | 0.106 |
| H    | 28.0        |      | 29.8 | 1.102  |      | 1.173 |
| L1   | 3.45        |      | 4.05 | 0.136  |      | 0.159 |
| L2   | 1.14        |      | 1.70 | 0.045  |      | 0.067 |
| L3   | 2.65        |      | 2.95 | 0.104  |      | 0.116 |
| V1   |             | 45°  |      |        | 45°  |       |

DELIVERY MODE



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