



## JCT840CH 40A SCR

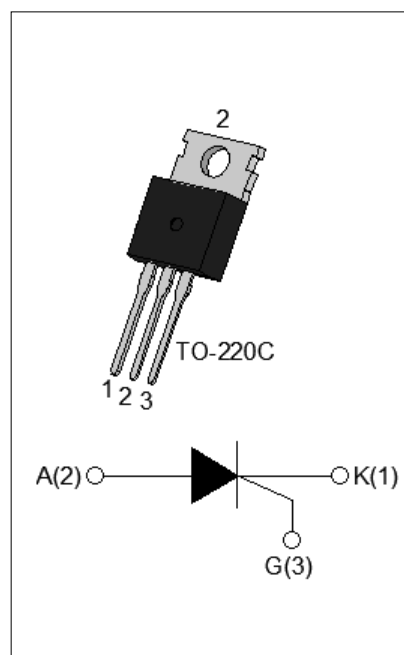
Rev.A.1.1

### DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT840CH 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. Package TO-220C is RoHS compliant.

### MAIN FEATURES

| Symbol            | Value     | Unit |
|-------------------|-----------|------|
| $I_{T(RMS)}$      | 40        | A    |
| $V_{DRM}/V_{RRM}$ | 800       | V    |
| $I_{GT}$          | $\leq 35$ | mA   |



### ABSOLUTE MAXIMUM RATINGS

| Parameter                                                                                      | Symbol       | Value   | Unit        |
|------------------------------------------------------------------------------------------------|--------------|---------|-------------|
| Storage junction temperature range                                                             | $T_{stg}$    | -40-150 | $^{\circ}C$ |
| Operating junction temperature range                                                           | $T_j$        | -40-150 | $^{\circ}C$ |
| 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 ( $T_c \leq 134^{\circ}C$ )                                           | $I_{T(AV)}$  | 25      | A           |
| RMS on-state current ( $T_c \leq 134^{\circ}C$ )                                               | $I_{T(RMS)}$ | 40      | A           |
| Non repetitive surge peak on-state current ( $t_p=10ms, T_j=25^{\circ}C$ )                     | $I_{TSM}$    | 500     | A           |
| Non repetitive surge peak on-state current ( $t_p=8.3ms, T_j=25^{\circ}C$ )                    |              | 540     |             |
| $I^2t$ value for fusing ( $t_p=10ms, T_j=25^{\circ}C$ )                                        | $I^2t$       | 1250    | $A^2s$      |
| Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}, f=100Hz, T_j=150^{\circ}C$ ) | $di/dt$      | 180     | $A/\mu s$   |
| Peak gate current ( $t_p=20\mu s, T_j=150^{\circ}C$ )                                          | $I_{GM}$     | 10      | A           |
| Average gate power dissipation ( $T_j=150^{\circ}C$ )                                          | $P_{G(AV)}$  | 1       | W           |

|                                                                                      |          |     |    |
|--------------------------------------------------------------------------------------|----------|-----|----|
| Peak gate power                                                                      | $P_{GM}$ | 20  | W  |
| Peak pulse voltage<br>( $T_j=25^{\circ}\text{C}$ ; non-repetitive, off-state; FIG.7) | $V_{pp}$ | 0.5 | kV |

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

| Symbol    | Test Condition                                                                     | Value |      |      | Unit             |
|-----------|------------------------------------------------------------------------------------|-------|------|------|------------------|
|           |                                                                                    | MIN.  | TYP. | MAX. |                  |
| $I_{GT}$  | $V_D=12\text{V}$ $R_L=33\Omega$                                                    | -     | -    | 35   | mA               |
| $V_{GT}$  |                                                                                    | -     | -    | 1    | V                |
| $V_{GD}$  | $V_D=V_{DRM}$ $T_j=150^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$                    | 0.2   | -    | -    | V                |
| $I_L$     | $I_G=1.2I_{GT}$                                                                    | -     | -    | 80   | mA               |
| $I_H$     | $I_T=500\text{mA}$                                                                 | -     | -    | 70   | mA               |
| dV/dt     | $V_D=540\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$                              | 1100  | -    | -    | V/ $\mu\text{s}$ |
|           | $V_D=540\text{V}$ Gate Open $T_j=150^{\circ}\text{C}$                              | 500   | -    | -    |                  |
| $t_{on}$  | $I_G=40\text{mA}$ $I_A=400\text{mA}$ $I_R=40\text{mA}$<br>$T_j=25^{\circ}\text{C}$ | -     | 2    | -    | $\mu\text{s}$    |
| $t_{off}$ |                                                                                    | -     | 60   | -    |                  |

**STATIC CHARACTERISTICS**

| Symbol    | Parameter                                |                           | Value(MAX.) | Unit          |
|-----------|------------------------------------------|---------------------------|-------------|---------------|
| $V_{TM}$  | $I_{TM}=80\text{A}$ $t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$  | 1.55        | V             |
| $V_{TO}$  | Threshold voltage                        | $T_j=150^{\circ}\text{C}$ | 0.65        | V             |
| $R_D$     | Dynamic resistance                       | $T_j=150^{\circ}\text{C}$ | 17          | m $\Omega$    |
| $I_{DRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$              | $T_j=25^{\circ}\text{C}$  | 5           | $\mu\text{A}$ |
| $I_{RRM}$ |                                          | $T_j=150^{\circ}\text{C}$ | 10          | mA            |

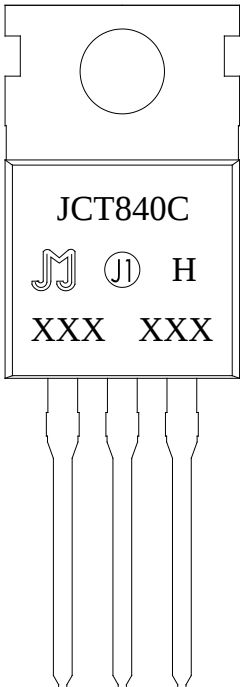
**THERMAL RESISTANCES**

| Symbol        | Parameter                | Value | Unit                 |
|---------------|--------------------------|-------|----------------------|
| $R_{th(j-c)}$ | junction to case (DC)    | 0.3   | $^{\circ}\text{C/W}$ |
| $R_{th(j-a)}$ | junction to ambient (DC) | 60    | $^{\circ}\text{C/W}$ |

## ORDERING INFORMATION

|                                   |      |                                |                 |            |                           |
|-----------------------------------|------|--------------------------------|-----------------|------------|---------------------------|
| J                                 | CT   | 8                              | 40              | C          | H                         |
| JieJie Microelectronics Co., Ltd. | SCRs | 8: $V_{DRM}/V_{RRM} \geq 800V$ | $I_T(RMS): 40A$ | C: TO-220C | High junction temperature |

## MARKING

|                                                                                                                                                                                                                                                                                                                             |                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
|  <p>Diagram showing the marking on the JCT840C package. The marking includes the part number JCT840C, the manufacturer logo (J), the package type (J1), the high junction temperature symbol (H), and the production code (XXX XXX).</p> | <p>XXX XXX</p> <p>Year _____<br/>Month _____</p> <p>Production Code</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|

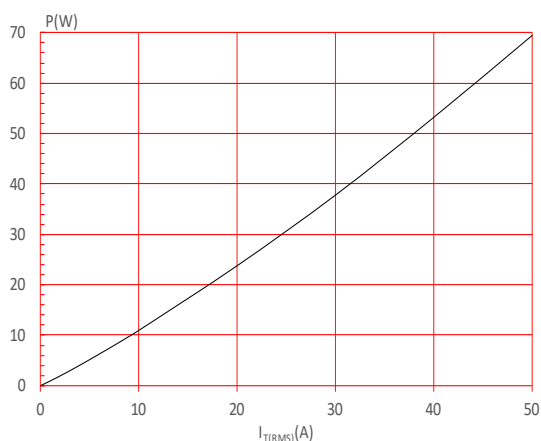
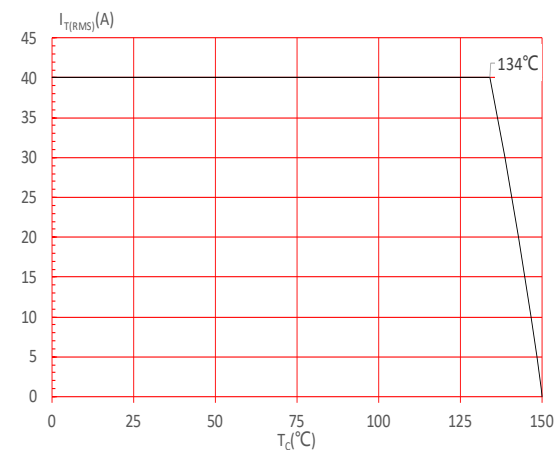
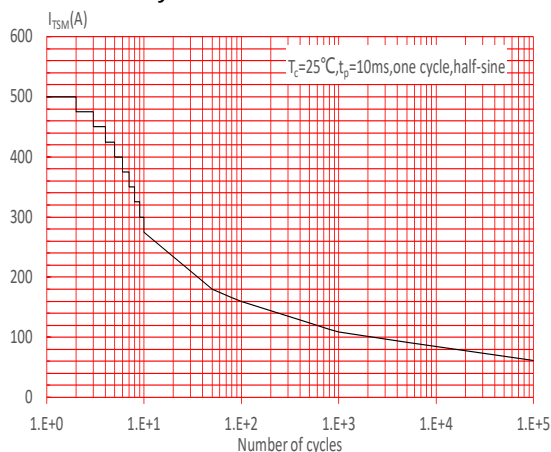
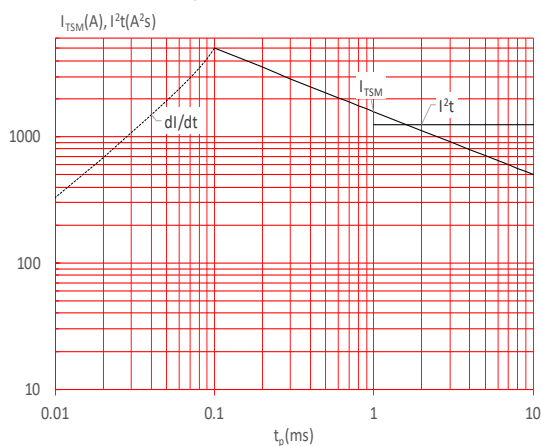
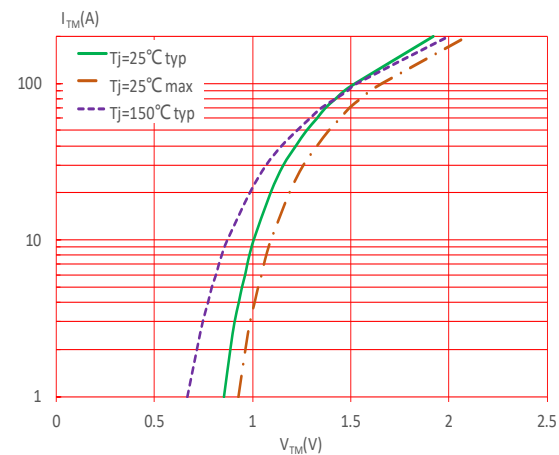
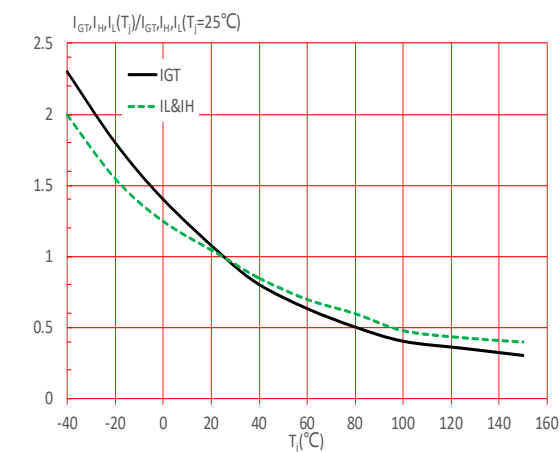
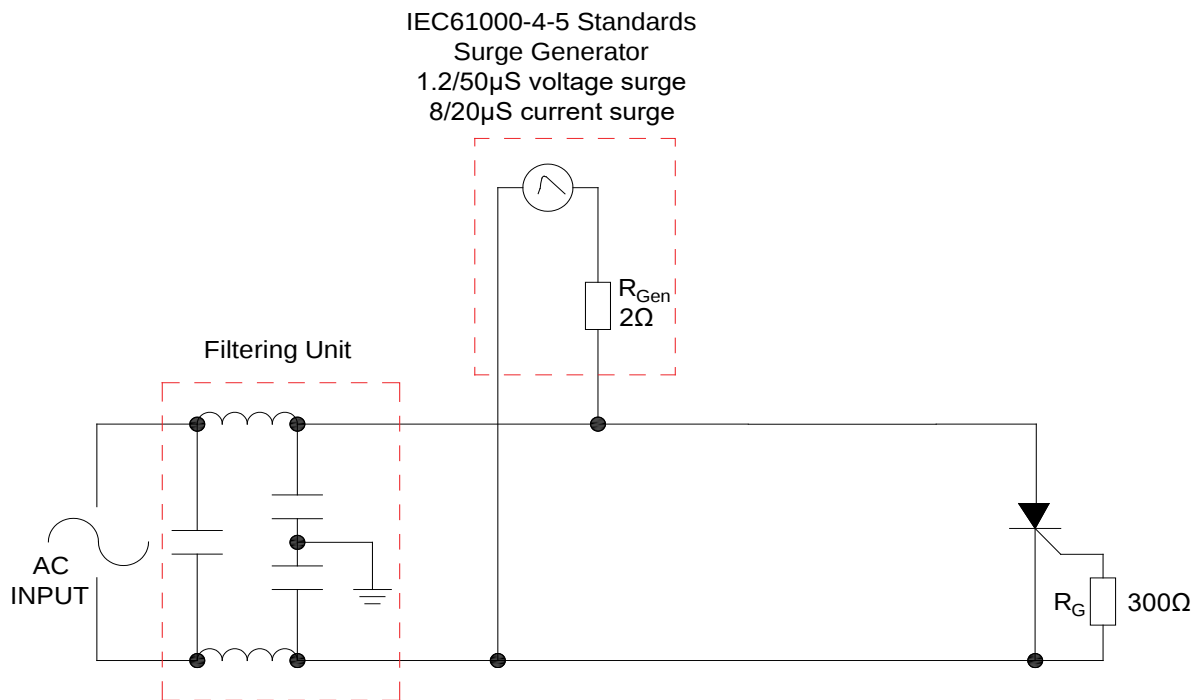
**FIG.1:** Maximum power dissipation versus RMS on-state current**FIG.2:** RMS on-state current versus case temperature**FIG.3:** Surge peak on-state current versus number of cycles**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ , and corresponding value of  $I^2t$  ( $di/dt < 150A/\mu s$ )**FIG.4:** On-state characteristics**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature

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



## LEAD FORMING AND SOLDERING

Refer to the application note "Assembly Instructions for Thyristors in Through-hole Package" released by JieJie Microelectronics

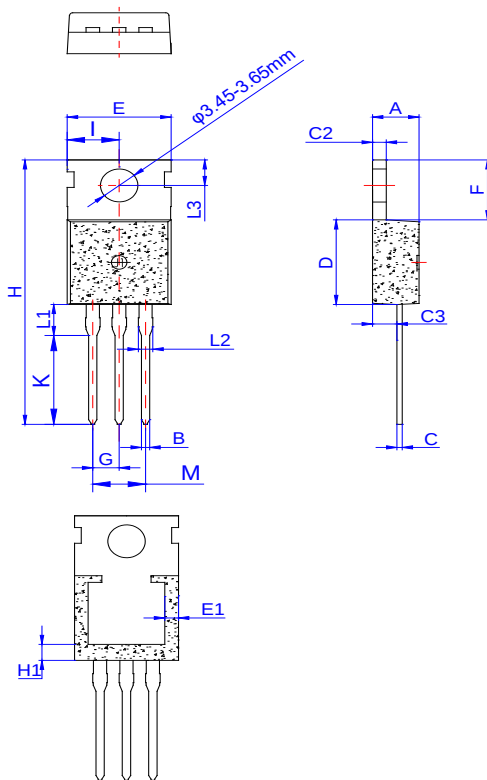
**ORDERING INFORMATION**

| Order code | Voltage<br>$V_{\text{DRM}}/V_{\text{RRM}}$ (V) | IGT(mA) | Package | Base qty.<br>(pcs) | Delivery<br>mode |
|------------|------------------------------------------------|---------|---------|--------------------|------------------|
| JCT840CH   | 800                                            | 35      | TO-220C | 50                 | Tube             |

**Document Revision History**

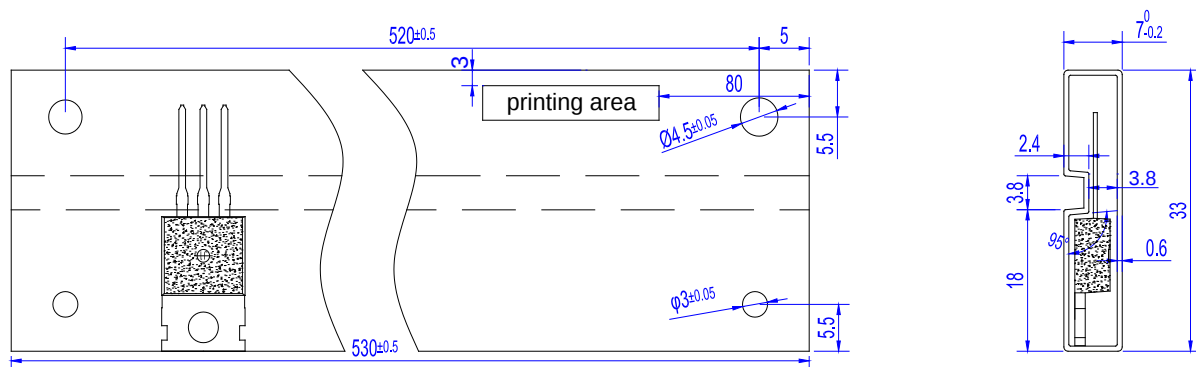
| Date         | Revision | Changes                        |
|--------------|----------|--------------------------------|
| Jun.15, 2023 | A.1.0    | Last update                    |
| Oct.14, 2025 | A.1.1    | Revise PACKAGE MECHANICAL DATA |

## PACKAGE MECHANICAL DATA



| Ref. | Dimensions  |      |       |        |      |       |
|------|-------------|------|-------|--------|------|-------|
|      | Millimeters |      |       | Inches |      |       |
|      | Min.        | Typ. | Max.  | Min.   | Typ. | Max.  |
| A    | 4.40        |      | 4.60  | 0.173  |      | 0.181 |
| B    | 0.70        |      | 0.90  | 0.028  |      | 0.035 |
| C    | 0.45        |      | 0.60  | 0.018  |      | 0.024 |
| C2   | 1.25        |      | 1.35  | 0.049  |      | 0.053 |
| C3   | 2.20        |      | 2.60  | 0.087  |      | 0.102 |
| D    | 8.90        |      | 9.90  | 0.350  |      | 0.390 |
| E    | 9.90        |      | 10.30 | 0.390  |      | 0.406 |
| E1   | 0.80        |      | 1.20  | 0.031  |      | 0.047 |
| F    | 6.30        |      | 6.90  | 0.248  |      | 0.272 |
| G    | 2.40        |      | 2.70  | 0.094  |      | 0.106 |
| H    | 28.00       |      | 29.80 | 1.102  |      | 1.173 |
| H1   | 2.15        |      | 2.55  | 0.085  |      | 0.100 |
| I    | 4.70        |      | 5.10  | 0.185  |      | 0.201 |
| K    | 9.90        |      | 10.30 | 0.390  |      | 0.406 |
| L1   | 2.70        |      | 3.30  | 0.106  |      | 0.130 |
| L2   | 1.14        |      | 1.70  | 0.045  |      | 0.067 |
| L3   | 2.65        |      | 2.95  | 0.104  |      | 0.116 |
| M    | 4.80        |      | 5.20  | 0.189  |      | 0.205 |

## DELIVERY MODE



| PACKAGE | OUTLINE | TUBE (PCS) | INNER BOX (PCS) | PER CARTON |
|---------|---------|------------|-----------------|------------|
| TO-220C | TUBE    | 50         | 1,000           | 5,000      |

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