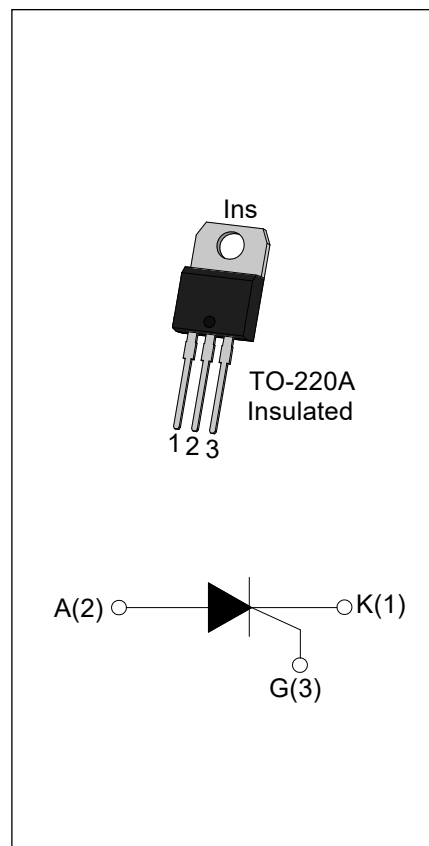




DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT640A SCRs provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. From all three terminals to external heatsink, JCT640A provides a rated insulation voltage of 2500 V_{RMS}, complying with UL standards (File ref: E252906). Package TO-220A is RoHS compliant.(2011/65/EU)



MAIN FEATURES

| | |
|---|---------|
| Symbol | JCT640A |
| V _{DRM} / V _{R_{RRM}} | 600V |
| I _{T(RMS)} | 40A |
| I _{GT} | ≤35mA |

ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|--|------------------------------|---------|------------------|
| Storage junction temperature range | T _{stg} | -40-150 | °C |
| Operating junction temperature range | T _j | -40-125 | °C |
| Repetitive peak off-state voltage(T _j =25°C) | V _{DRM} | 600 | V |
| Repetitive peak reverse voltage(T _j =25°C) | V _{R_{RRM}} | 600 | V |
| RMS on-state current | I _{T(RMS)} | 40 | A |
| TO-220A(Ins) (T _C =60°C) | | | |
| Non repetitive surge peak on-state current (tp=10ms) | I _{TSM} | 460 | A |
| I ² t value for fusing (tp=10ms) | I ² t | 1060 | A ² s |
| Critical rate of rise of on-state current (I _G =2×I _{GT}) | dI/dt | 50 | A/μs |
| Peak gate current | I _{GM} | 4 | A |

| | | | |
|--------------------------------|-------------|---|---|
| Average gate power dissipation | $P_{G(AV)}$ | 1 | W |
| Peak gate power | P_{GM} | 5 | W |

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

| Symbol | Test Condition | Value | | | Unit |
|----------|--|-------|------|------|------------------|
| | | MIN. | TYP. | MAX. | |
| I_{GT} | $V_D=12\text{V } R_L=33\Omega$ | - | 15 | 35 | mA |
| V_{GT} | | - | - | 1.5 | V |
| V_{GD} | $V_D=V_{DRM} T_j=125^{\circ}\text{C } R_L=3.3\text{K}\Omega$ | 0.2 | - | - | V |
| I_L | $I_G=1.2I_{GT}$ | - | - | 90 | mA |
| I_H | $I_T=500\text{mA}$ | - | - | 75 | mA |
| dv/dt | $V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$ | 200 | - | - | V/ μs |

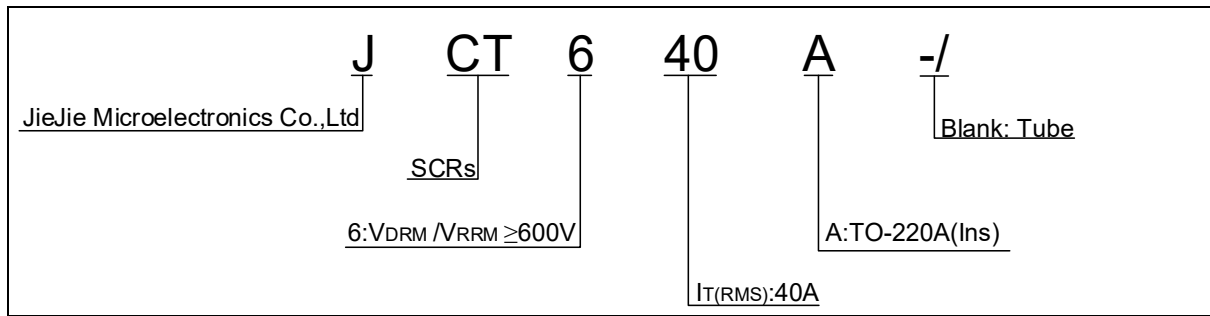
STATIC CHARACTERISTICS

| 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 |
| I_{DRM} | $V_D=V_{DRM} V_R=V_{RRM}$ | $T_j=25^{\circ}\text{C}$ | 10 | μA |
| I_{RRM} | | $T_j=125^{\circ}\text{C}$ | 4 | mA |

THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|---------------|----------------------|--------------|-------|----------------------|
| $R_{th(j-c)}$ | junction to case(AC) | TO-220A(Ins) | 1.2 | $^{\circ}\text{C/W}$ |

ORDERING INFORMATION



MARKING

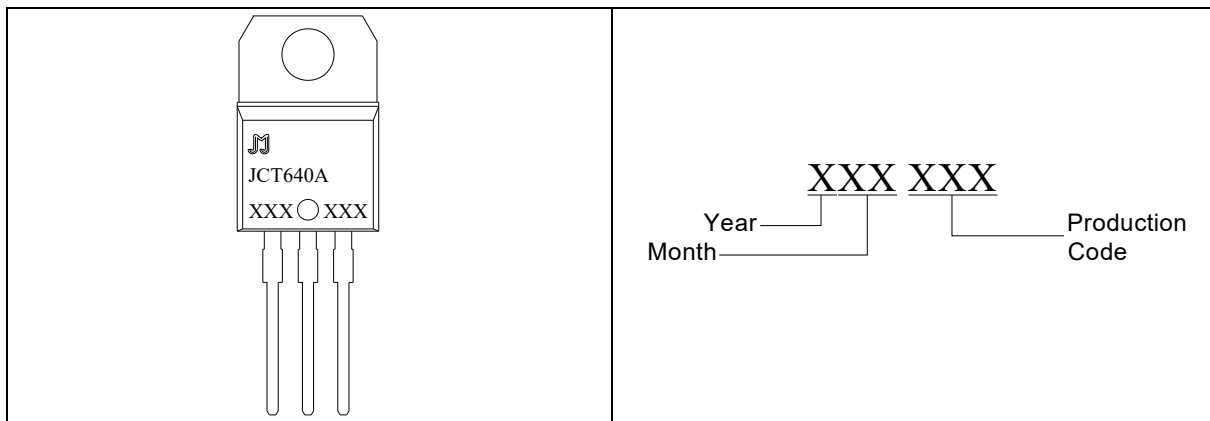


FIG.1: Maximum power dissipation versus RMS on-state current

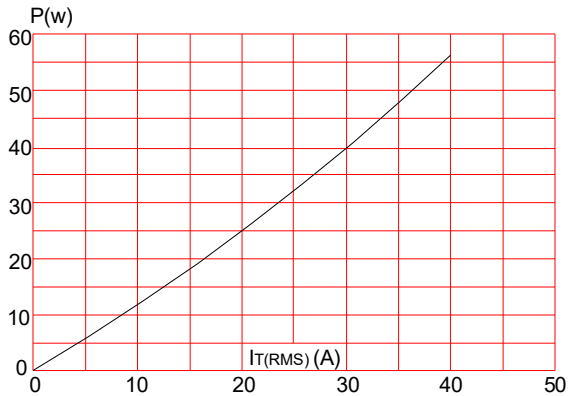


FIG.3: Surge peak on-state current versus number of cycles

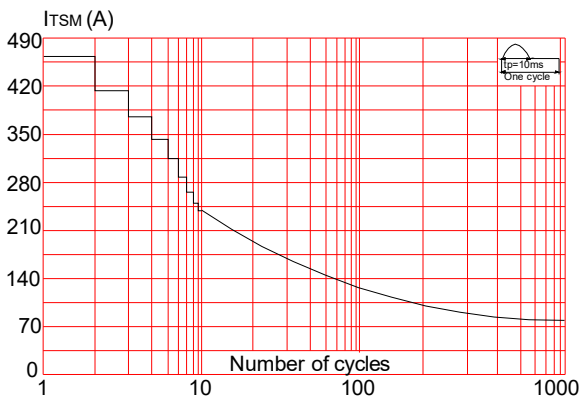


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

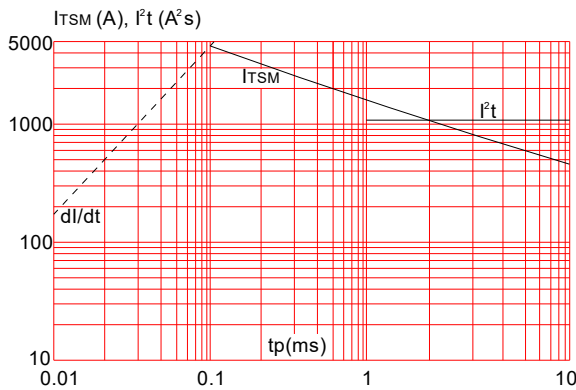


FIG.2: RMS on-state current versus case temperature

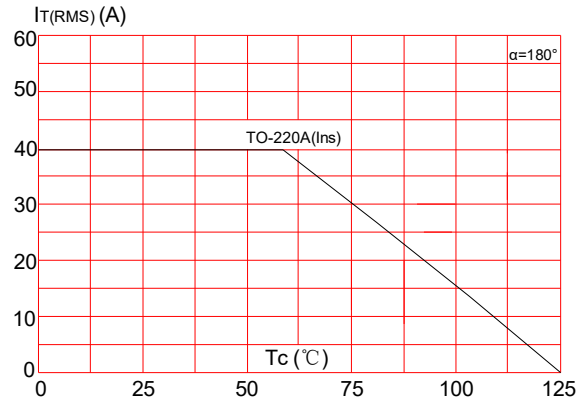


FIG.4: On-state characteristics (maximum values)

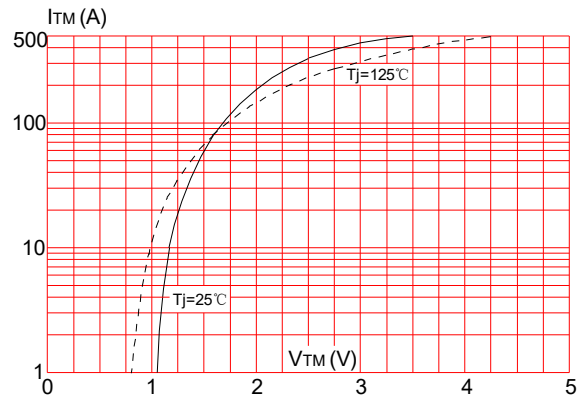
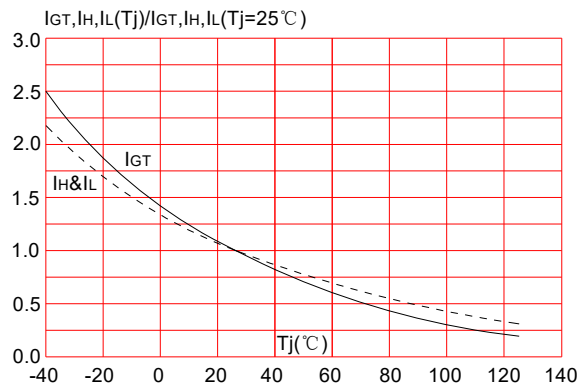


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



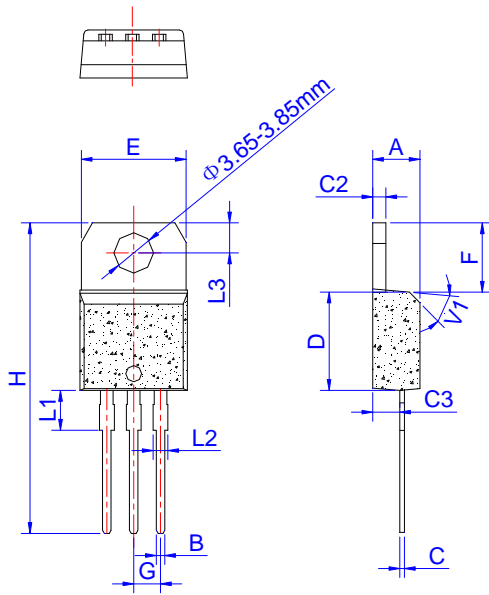
ORDERING INFORMATION

| Order code | Voltage V_{DRM}/V_{RRM} (V) | IGT(mA) | Package | Base qty. (pcs) | Delivery mode |
|------------|----------------------------------|---------|--------------|--------------------|------------------|
| JCT640A | 600 | 35 | TO-220A(Ins) | 50 | Tube |

Document Revision History

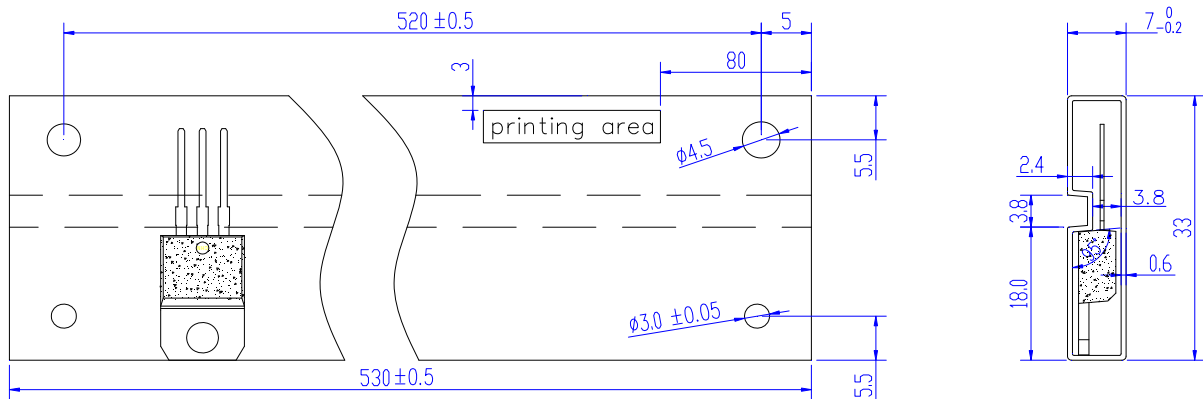
| Date | Revision | Changes |
|--------------|----------|-------------|
| Mar 18, 2022 | 1 | Last update |

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 | 6.55 | | 6.95 | 0.258 | | 0.274 |
| G | 2.40 | | 2.70 | 0.094 | | 0.106 |
| H | 28.0 | | 29.8 | 1.102 | | 1.173 |
| L1 | | 3.75 | | | 0.148 | |
| L2 | 1.14 | | 1.70 | 0.045 | | 0.067 |
| L3 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| V1 | | 45° | | | 45° | |


DELIVERY MODE



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



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