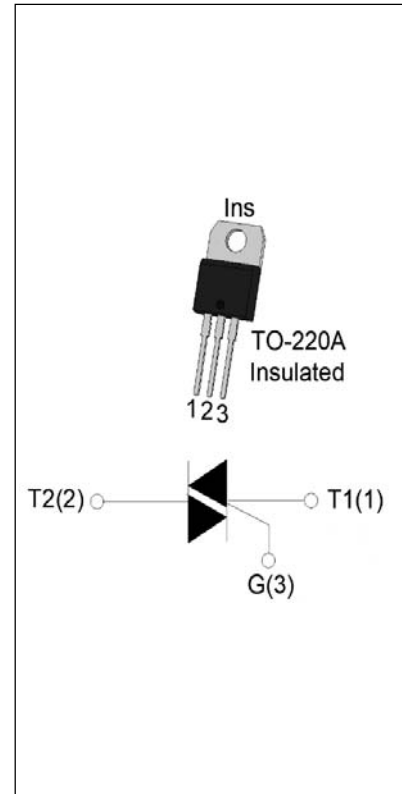


JST20A-600CW 20A TRIAC

Rev.A.1.0

DESCRIPTION:

The JST20A-600CW triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. JST20A-600CW snubberless triac is especially recommended for use on inductive loads. By using an internal ceramic pad, JST20A-600CW provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package TO-220A is RoHS compliant.


MAIN FEATURES

| Symbol | Value | Unit |
|--------------------|----------|------|
| $I_{T(RMS)}$ | 20 | A |
| V_{DRM}/V_{RRM} | 600 | V |
| $I_{GT\ I/II/III}$ | 35/35/35 | mA |

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 ($T_j=25^\circ\text{C}$) | V_{DRM} | 600 | V |
| Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$) | V_{RRM} | 600 | V |
| RMS on-state current ($T_c \leq 75^\circ\text{C}$) | $I_{T(RMS)}$ | 20 | A |
| Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$) | I_{TSM} | 200 | A |
| Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$) | | 220 | |
| I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$) | I^2t | 200 | A^2s |
| Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100\text{Hz}$, $T_j=125^\circ\text{C}$) | di/dt | 100 | $\text{A}/\mu\text{s}$ |
| Peak gate current ($t_p=20\mu\text{s}$, $T_j=125^\circ\text{C}$) | I_{GM} | 4 | A |
| Average gate power dissipation ($T_j=125^\circ\text{C}$) | $P_{G(AV)}$ | 0.5 | W |

| | | | |
|---|----------|----|----|
| Peak gate power | P_{GM} | 10 | W |
| Peak pulse voltage ($T_j=25^{\circ}C$; non-repetitive, off-state; FIG.7) | V_{pp} | 4 | kV |

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

| Symbol | Test Condition | Quadrant | Value | | Unit |
|----------------------|---|-------------|-------|------|------------|
| I_{GT} | $V_D=12V R_L=33\Omega$ | I - II -III | MAX. | 35 | mA |
| V_{GT} | | I - II -III | MAX. | 1 | V |
| V_{GD} | $V_D=V_{DRM} T_j=125^{\circ}C$ $R_L=3.3K\Omega$ | I - II -III | MIN. | 0.2 | V |
| I_L | $I_G=1.2I_{GT}$ | I -III | MAX. | 50 | mA |
| | | II | | 60 | |
| I_H | $I_T=500mA$ | | MAX. | 40 | mA |
| dV/dt | $V_D=400V$ Gate Open $T_j=125^{\circ}C$ | | MIN. | 2000 | V/ μs |
| (dI/dt) _c | (dV/dt) _c =20V/ μs $T_j=125^{\circ}C$ | | MIN. | 20 | A/ms |
| t_{on} | $I_G=40mA I_A=200mA I_R=20mA$ $T_j=25^{\circ}C$ | | TYP. | 7 | μs |
| t_{off} | | | | 50 | |

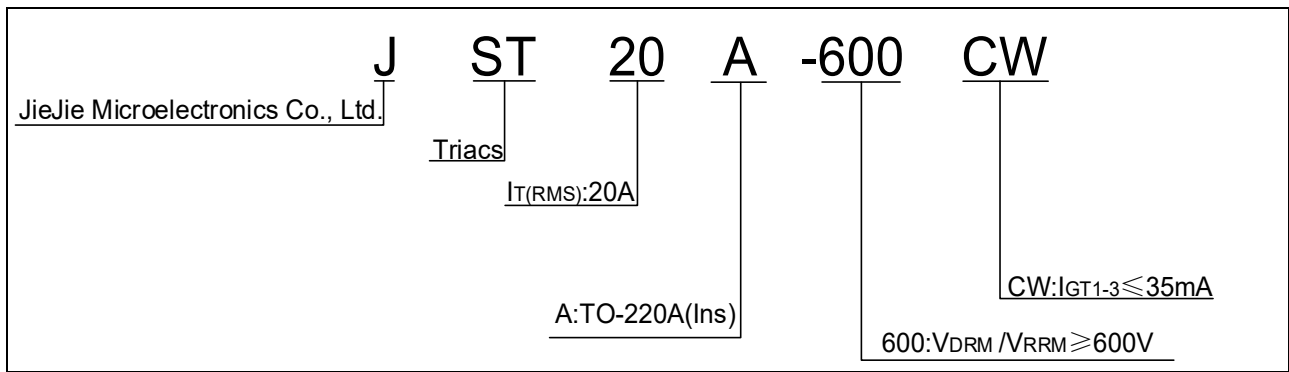
STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX.) | Unit |
|-----------|---------------------------|--------------------|-------------|------------|
| V_{TM} | $I_{TM}=28A t_p=380\mu s$ | $T_j=25^{\circ}C$ | 1.4 | V |
| V_{TO} | Threshold voltage | $T_j=125^{\circ}C$ | 0.75 | V |
| R_D | Dynamic resistance | $T_j=125^{\circ}C$ | 20 | m Ω |
| I_{DRM} | $V_D=V_{DRM} V_R=V_{RRM}$ | $T_j=25^{\circ}C$ | 5 | μA |
| I_{RRM} | | $T_j=125^{\circ}C$ | 0.8 | mA |

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|--------------------------|-------|---------------|
| $R_{th(j-c)}$ | junction to case (AC) | 1.9 | $^{\circ}C/W$ |
| $R_{th(j-a)}$ | junction to ambient (AC) | 60 | $^{\circ}C/W$ |

ORDERING INFORMATION



MARKING

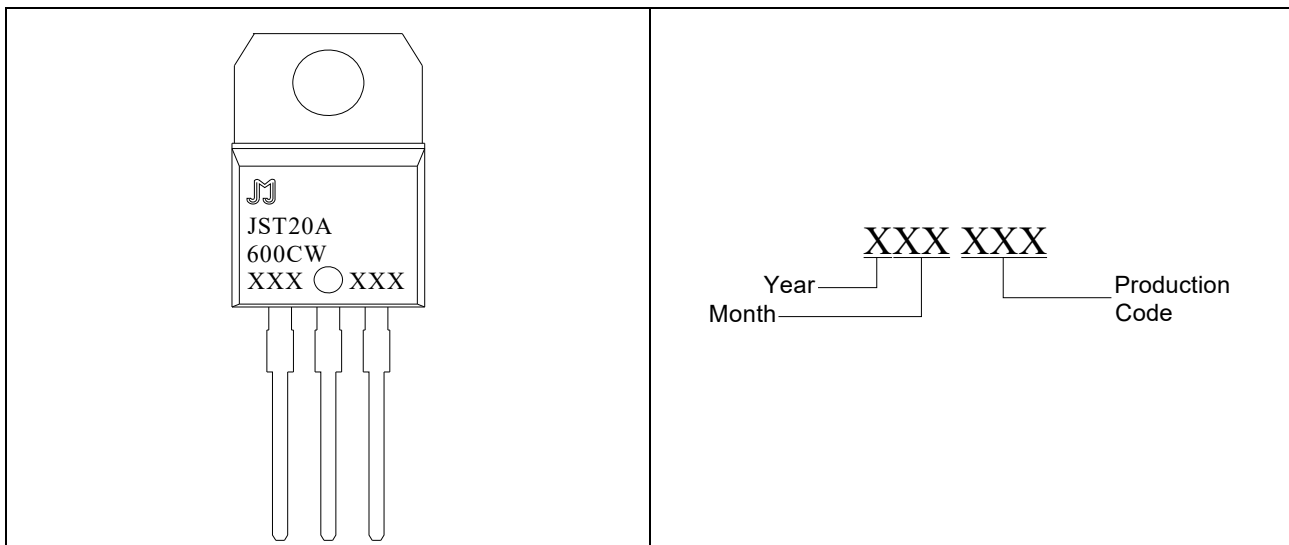


FIG.1 Maximum power dissipation versus RMS on-state current

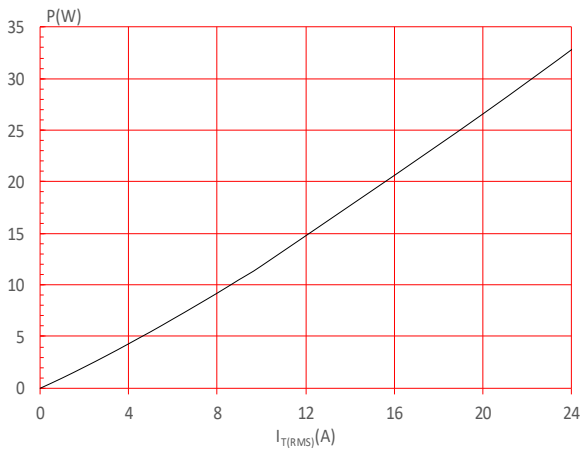


FIG.3: Surge peak on-state current versus number of cycles

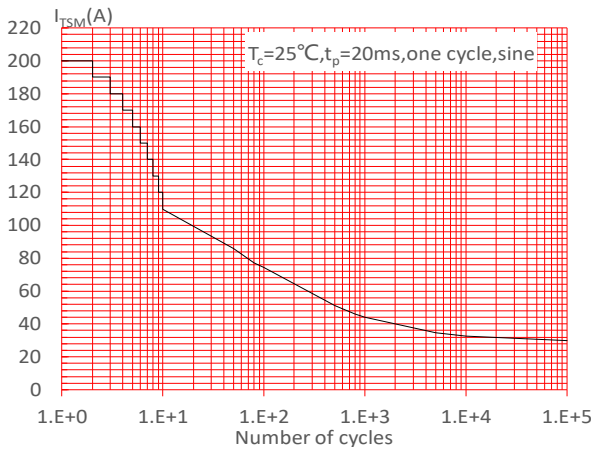


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

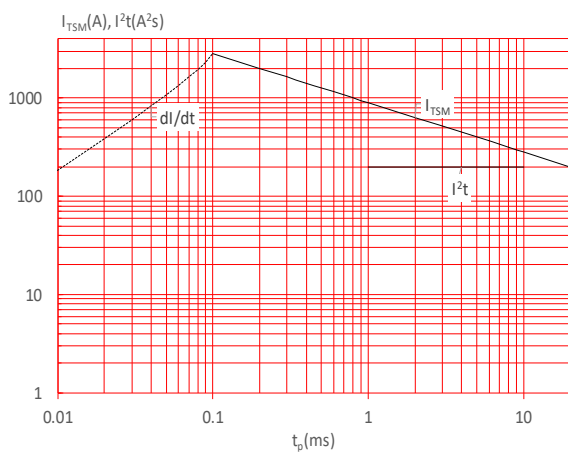


FIG.2: RMS on-state current versus case temperature

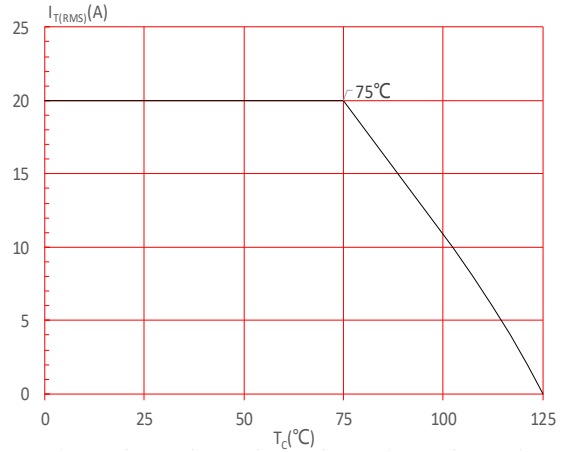


FIG.4: On-state characteristics

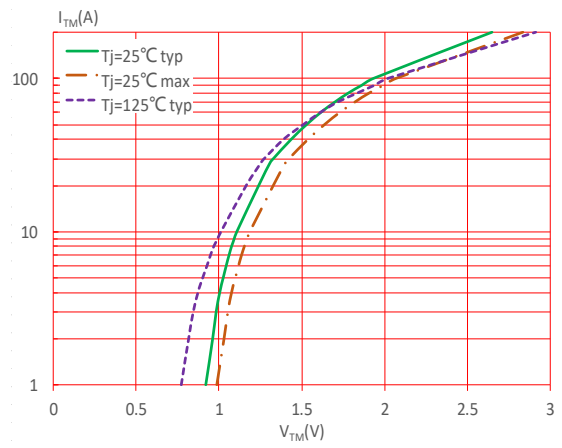


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

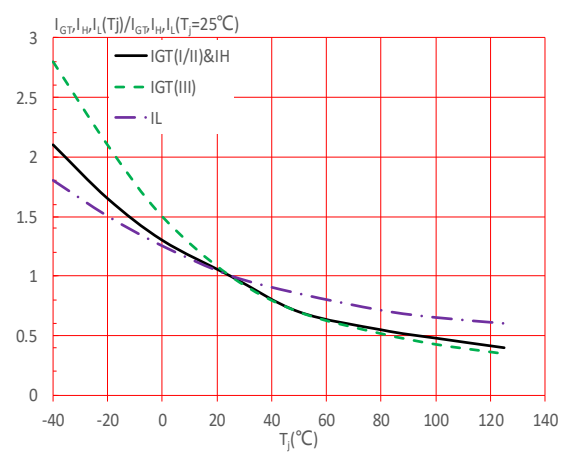
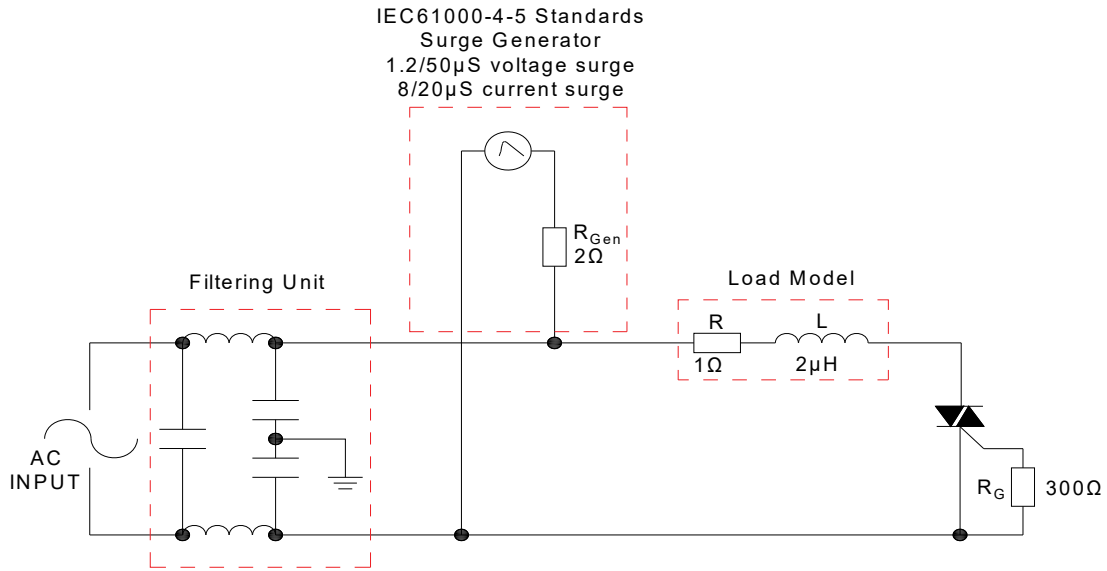


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



SHAPING AND SOLDERING PARAMETERS

Refer to 《Instructions for installation of plastic-sealed in-line power devices》 released by JieJie

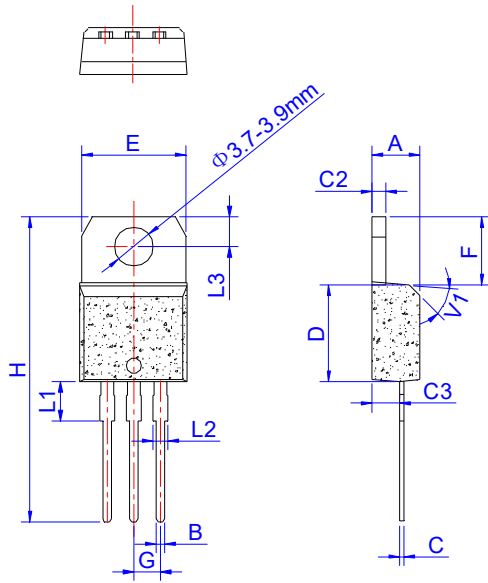
ORDERING INFORMATION

| Order code | Voltage V _{DRM} /V _{RPM} (V) | IGT(mA) | Package | Base qty. (pcs) | Delivery mode |
|--------------|---|--------------|--------------|--------------------|------------------|
| | | I - II - III | | | |
| JST20A-600CW | 600 | 35 | TO-220A(Ins) | 50 | Tube |

Document Revision History

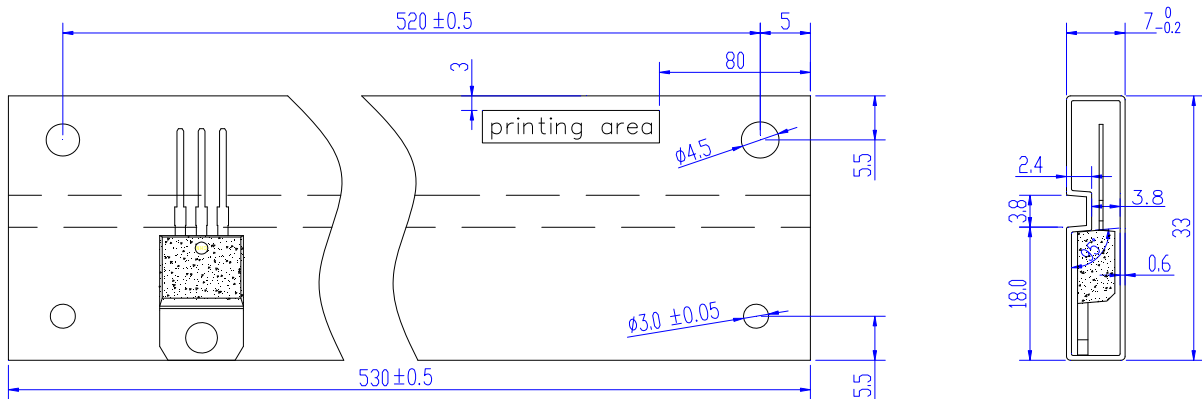
| Date | Revision | Changes |
|--------------|----------|--------------|
| Apr.12, 2023 | A.1.0 | Last updated |

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



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

Information furnished in this document is believed to be accurate and reliable. However, Jiangsu JieJie Microelectronics Co., Ltd. assumes no responsibility for the consequences of use without consideration for such information nor use beyond it. Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu JieJie complies with the agreement. Products and information provided in this document have no infringement of patents. Jiangsu JieJie assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information. This document supersedes and replaces all information previously supplied.



is a registered trademark of Jiangsu JieJie Microelectronics Co., Ltd.

Copyright ©2023 Jiangsu JieJie Microelectronics Co., Ltd. Printed All rights reserved.