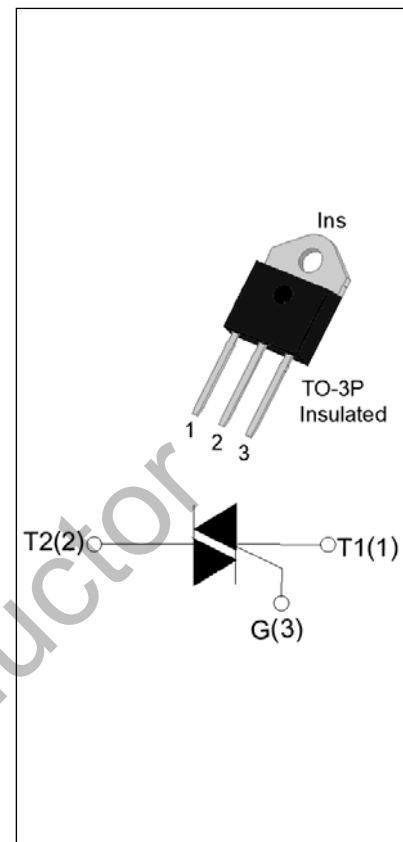


DESCRIPTION:

The BTA41-1200BW 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. BTA41-1200BW snubberless triac is especially recommended for use on inductive loads. By using an internal ceramic pad, BTA41-1200BW provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package TO-3P is RoHS compliant.

MAIN FEATURES

| Symbol | Value | Unit |
|--------------------|----------|------|
| $I_{T(RMS)}$ | 40 | A |
| V_{DRM}/V_{RRM} | 1200 | V |
| $I_{GT\ I/II/III}$ | 50/50/50 | 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} | 1200 | V |
| Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$) | V_{RRM} | 1200 | V |
| RMS on-state current ($T_c \leq 81^\circ\text{C}$) | $I_{T(RMS)}$ | 40 | A |
| Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$) | I_{TSM} | 420 | A |
| Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$) | | 462 | |
| I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$) | I^2t | 1000 | 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} | 8 | A |

| | | | |
|--|-------------|-----|----|
| Average gate power dissipation ($T_j=125^\circ\text{C}$) | $P_{G(AV)}$ | 0.5 | W |
| Peak gate power | P_{GM} | 40 | W |
| Peak pulse voltage ($T_j=25^\circ\text{C}$; non-repetitive, off-state; FIG.7) | V_{pp} | 2 | kV |

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

| Symbol | Test Condition | Quadrant | Value | | Unit |
|-------------|--|--------------|-------|------|------------------|
| I_{GT} | $V_D=12\text{V } R_L=33\Omega$ | I - II - III | MAX. | 50 | mA |
| V_{GT} | | I - II - III | MAX. | 1.3 | V |
| V_{GD} | $V_D=V_{DRM} T_j=125^\circ\text{C}$ $R_L=3.3\text{K}\Omega$ | I - II - III | MIN. | 0.2 | V |
| I_L | $I_G=1.2I_{GT}$ | I - III | MAX. | 80 | mA |
| | | II | | 200 | |
| I_H | $I_T=500\text{mA}$ | | MAX. | 100 | mA |
| dV/dt | $V_D=800\text{V}$ Gate Open $T_j=125^\circ\text{C}$ | | MIN. | 1500 | V/ μs |
| $(dI/dt)_c$ | $(dV/dt)_c=20\text{V}/\mu\text{s } T_j=125^\circ\text{C}$ | | MIN. | 25 | A/ms |
| t_{on} | $I_G=80\text{mA } I_A=400\text{mA } I_R=40\text{mA}$ $T_j=25^\circ\text{C}$ | | TYP. | 10 | μs |
| t_{off} | | | | 70 | |

STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX.) | Unit |
|-----------|---|-------------------------|-------------|------------------|
| V_{TM} | $I_{TM}=60\text{A } t_p=380\mu\text{s}$ | $T_j=25^\circ\text{C}$ | 1.4 | V |
| V_{TO} | Threshold voltage | $T_j=125^\circ\text{C}$ | 0.77 | V |
| R_D | Dynamic resistance | $T_j=125^\circ\text{C}$ | 20 | $\text{m}\Omega$ |
| I_{DRM} | $V_D=V_{DRM} V_R=V_{RRM}$ | $T_j=25^\circ\text{C}$ | 10 | μA |
| I_{RRM} | | $T_j=125^\circ\text{C}$ | 6 | mA |

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|--------------------------|-------|---------------------------|
| $R_{th(j-c)}$ | junction to case (AC) | 0.85 | $^\circ\text{C}/\text{W}$ |
| $R_{th(j-a)}$ | junction to ambient (AC) | 50 | $^\circ\text{C}/\text{W}$ |

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

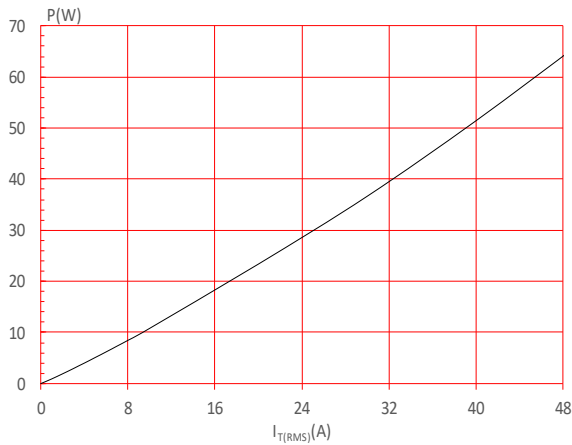


FIG.3: Surge peak on-state current versus number of cycles

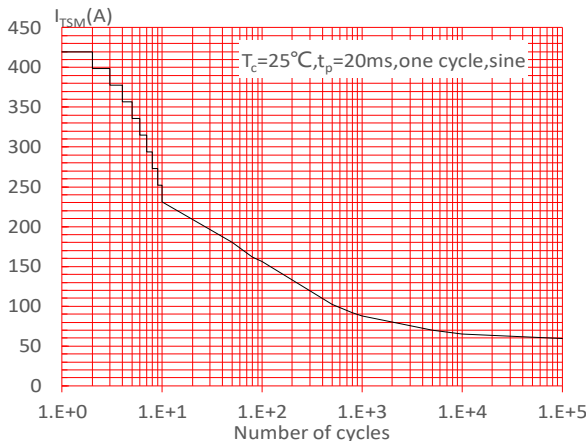


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t ($di/dt < 100\text{A}/\mu\text{s}$)

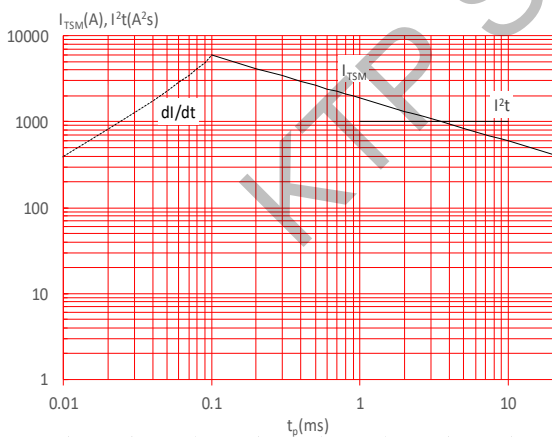


FIG.2: RMS on-state current versus case temperature

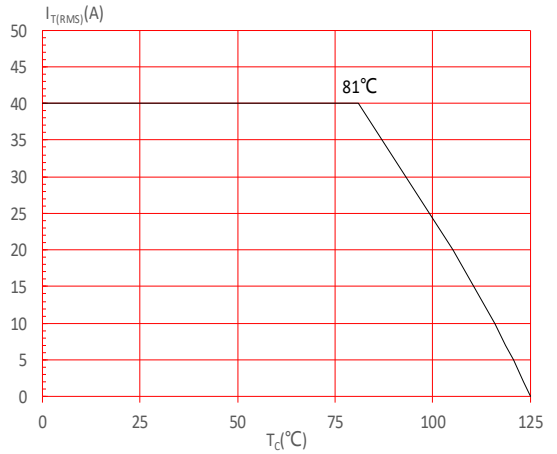


FIG.4: On-state characteristics

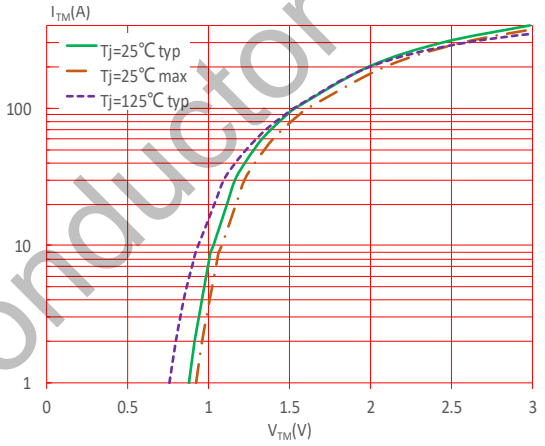


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature

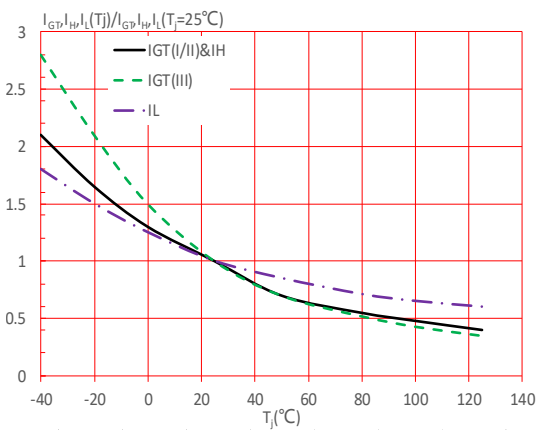
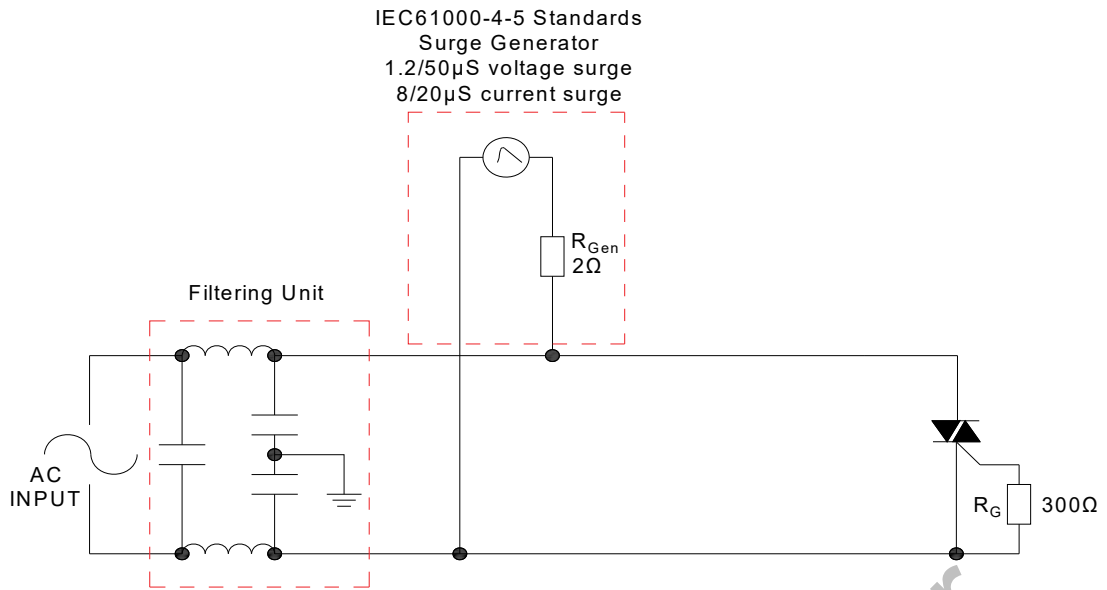


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards

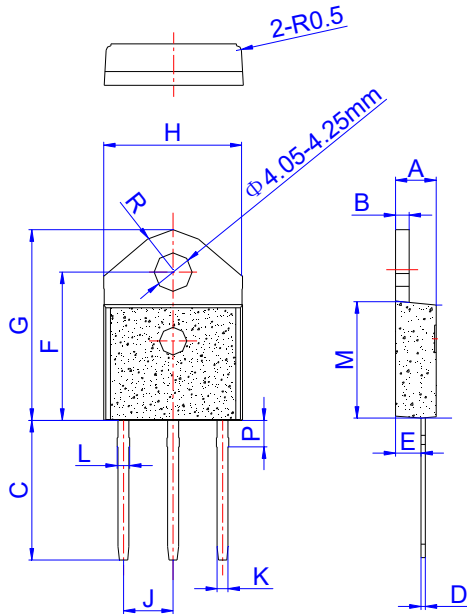


KTP Semiconductor

ORDERING INFORMATION

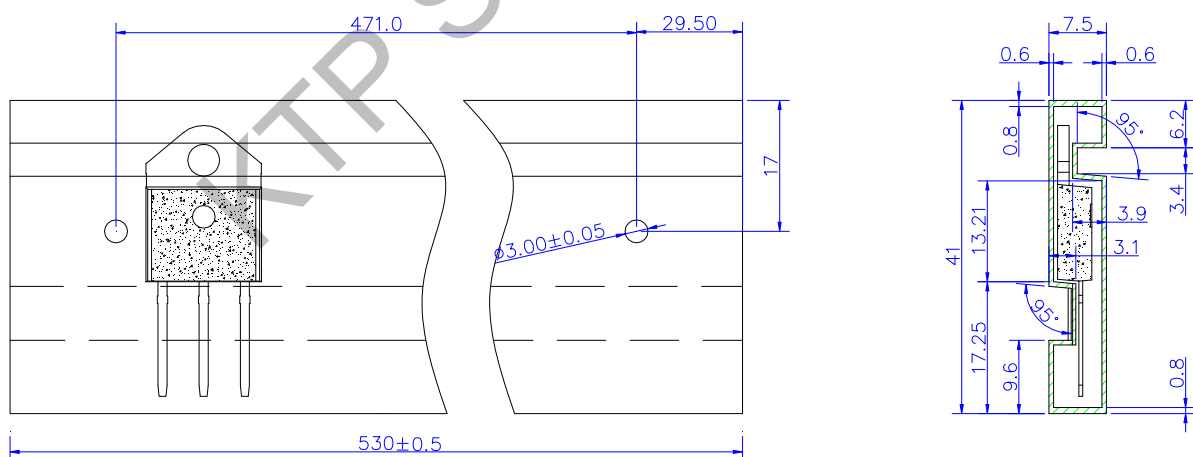
| Order code | Voltage V _{DRM} /V _{RRM} (V) | IGT(mA) | Package | Base qty. (pcs) | Delivery mode |
|--------------|---|--------------|------------|--------------------|---------------|
| | | I - II - III | | | |
| BTA41-1200BW | 1200 | 50 | TO-3P(Ins) | 30 | Tube |

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 | 1.25 | | 1.45 | 0.049 | | 0.057 |
| M | 12.37 | | 12.77 | 0.487 | | 0.503 |
| P | 2.80 | | 3.00 | 0.110 | | 0.118 |
| R | | 4.35 | | | 0.171 | |

DELIVERY MODE



| PACKAGE | OUTLINE | TUBE (PCS) | INNER BOX (PCS) | PER CARTON |
|---------|---------|---------------|--------------------|------------|
| TO-3P | TUBE | 30 | 450 | 2,250 |