

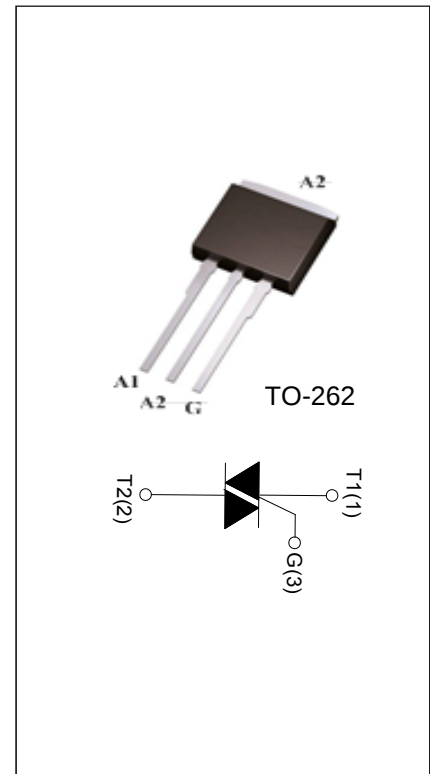
## BTB24-800CW-H

### MAIN FEATURES 3Q TRIAC

| Symbol            | Value    | Unit |
|-------------------|----------|------|
| $I_{T(RMS)}$      | 24       | A    |
| $V_{DRM}/V_{RRM}$ | 800      | V    |
| $I_{GT1/2/3}$     | 35/35/35 | mA   |

#### DESCRIPTION:

The BTB24-800CW-H 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. BTB24-800CW-H snubberless triac is especially recommended for use on inductive loads. From T2 terminals to external heatsink. Package TO-262 is RoHS compliant.



### 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 ( $T_j=25^{\circ}\text{C}$ )                                         | $V_{DRM}$    | 800     | V                      |
| Repetitive peak reverse voltage ( $T_j=25^{\circ}\text{C}$ )                                           | $V_{RRM}$    | 800     | V                      |
| RMS on-state current ( $T_c \leq 90^{\circ}\text{C}$ )                                                 | $I_{T(RMS)}$ | 24      | A                      |
| Non repetitive surge peak on-state current (full cycle, $t_p=10\text{ms}$ , $T_j=25^{\circ}\text{C}$ ) | $I_{TSM}$    | 240     | A                      |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^{\circ}\text{C}$ )                               | $I^2t$       | 288     | $\text{A}^2\text{s}$   |
| Critical rate of rise of on-state current ( $T_j=125^{\circ}\text{C}$ )                                | $di/dt$      | 50      | $\text{A}/\mu\text{s}$ |
| Peak gate current ( $t_p=20\mu\text{s}$ , $T_j=125^{\circ}\text{C}$ )                                  | $I_{GM}$     | 4       | A                      |
| Average gate power dissipation ( $T_j=125^{\circ}\text{C}$ )                                           | $P_{G(AV)}$  | 1       | W                      |

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

| Symbol      | Test Condition                                             | Quadrant    | Value |     | Unit             |
|-------------|------------------------------------------------------------|-------------|-------|-----|------------------|
| $I_{GT}$    | $V_D=12\text{V}$ $R_L=100\Omega$                           | I - II -III | MAX.  | 35  | mA               |
| $V_{GT}$    |                                                            | I - II -III | MAX.  | 1   | V                |
| $V_{GD}$    | $V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$<br>$R_L=100\Omega$ | I - II -III | MIN.  | 0.2 | V                |
| $I_L$       | $I_G=1.2I_{GT}$                                            | I -III      | MAX.  | 80  | mA               |
|             |                                                            | II          |       | 100 |                  |
| $I_H$       | $I_T=500\text{mA}$                                         |             | MAX.  | 80  | mA               |
| $dV/dt$     | $V_D=2/3V_{DRM}$ $T_j=125^{\circ}\text{C}$                 |             | MIN.  | 500 | V/ $\mu\text{s}$ |
| $(dI/dt)_c$ | $T_j=125^{\circ}\text{C}$                                  |             | MIN.  | 10  | A/ms             |

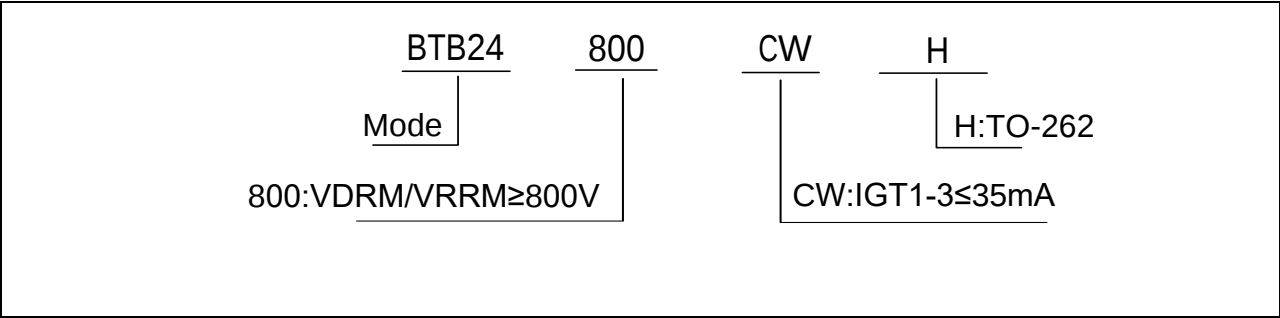
**STATIC CHARACTERISTICS**

| Symbol    | Parameter                                |                           | Value(MAX.) | Unit             |
|-----------|------------------------------------------|---------------------------|-------------|------------------|
| $V_{TM}$  | $I_{TM}=35\text{A}$ $t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$  | 1.55        | V                |
| $V_{TO}$  | Threshold voltage                        | $T_j=125^{\circ}\text{C}$ | 0.87        | V                |
| $R_D$     | Dynamic resistance                       | $T_j=125^{\circ}\text{C}$ | 14.6        | $\text{m}\Omega$ |
| $I_{DRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$              | $T_j=25^{\circ}\text{C}$  | 5           | $\mu\text{A}$    |
| $I_{RRM}$ |                                          | $T_j=125^{\circ}\text{C}$ | 1           | mA               |

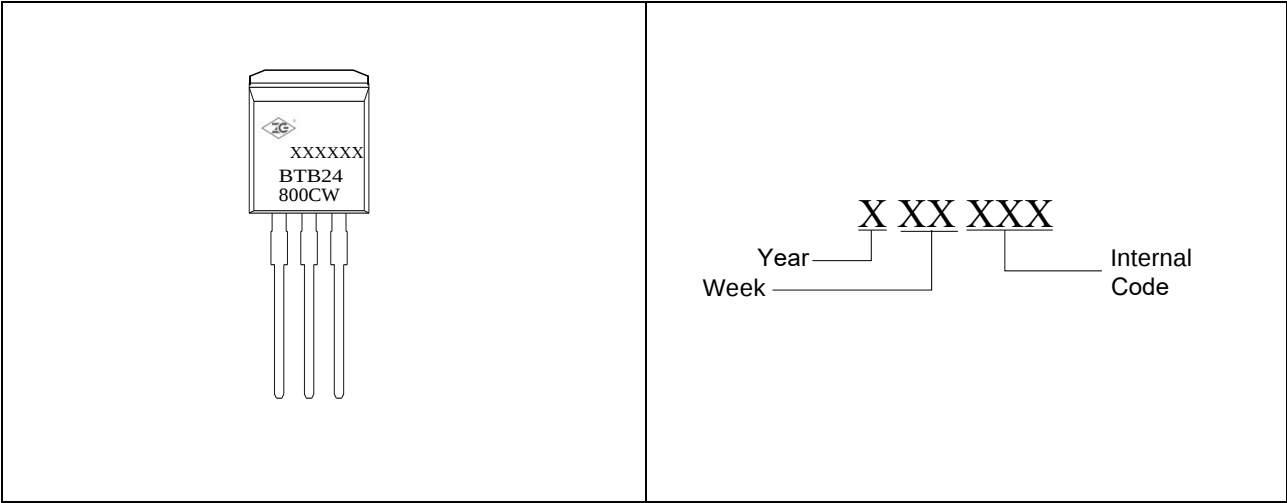
**THERMAL RESISTANCES**

| Symbol        | Parameter             | Value | Unit                        |
|---------------|-----------------------|-------|-----------------------------|
| $R_{th(j-c)}$ | junction to case (AC) | 1.25  | $^{\circ}\text{C}/\text{W}$ |

ORDERING INFORMATION



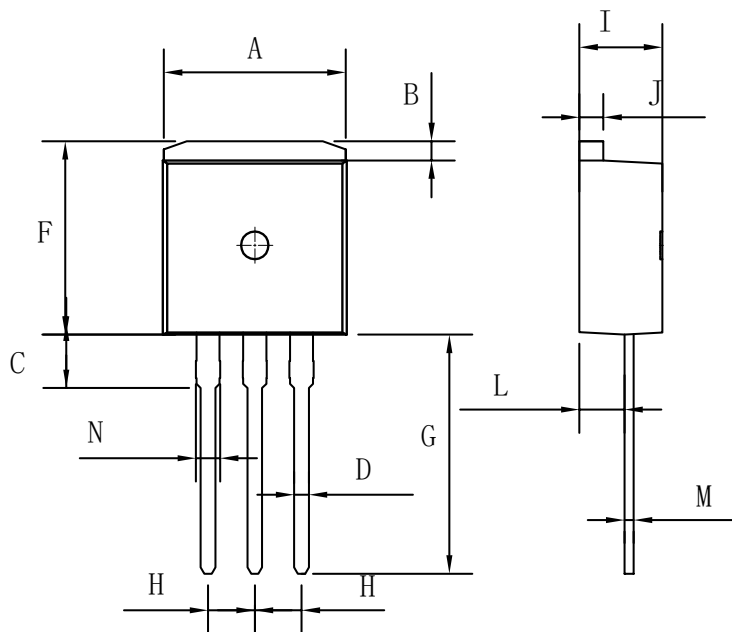
MARKING



ORDERING INFORMATION

| Order code    | Voltage<br>V <sub>DRM</sub> /V <sub>RRM</sub> (V) | IGT(mA)   | Package | Base qty.<br>(pcs) | Delivery mode |
|---------------|---------------------------------------------------|-----------|---------|--------------------|---------------|
|               |                                                   | I -II-III |         |                    |               |
| BTB24-800CW-H | 800                                               | 35        | TO-262  | 50                 | Tube          |

## PACKAGE MECHANICAL DATA



TO-262

| Ref. | Dimensions  |       |       |
|------|-------------|-------|-------|
|      | Millimeters |       |       |
|      | Min.        | Typ.  | Max.  |
| A    | 9.70        | 10.00 | 10.30 |
| B    | 1.10        | 1.30  | 1.50  |
| C    | 3.10        | 3.40  | 3.70  |
| D    | 0.60        | 0.80  | 1.00  |
| F    | 9.90        | 10.20 | 10.50 |
| G    | 13.20       | 13.50 | 13.80 |
| H    | 2.34        | 2.54  | 2.74  |
| I    | 4.25        | 4.55  | 4.85  |
| J    | 1.07        | 1.27  | 1.47  |
| L    | 2.30        | 2.60  | 2.90  |
| M    | 0.18        | 0.38  | 0.58  |
| N    | 1.07        | 1.27  | 1.47  |

| PACKAGE | OUTLINE | TUBE (PCS) | INNER BOX (PCS) | PER CARTON |
|---------|---------|------------|-----------------|------------|
| TO-262  | TUBE    | 50         | 1,000           | 5,000      |

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

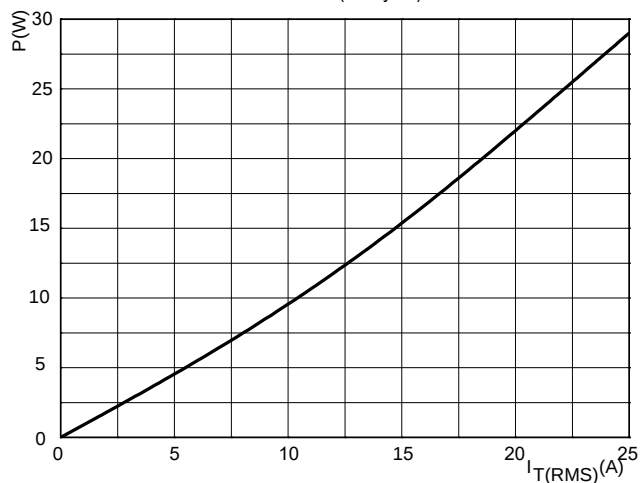


FIG.2: RMS on-state current versus case temperature (full cycle)

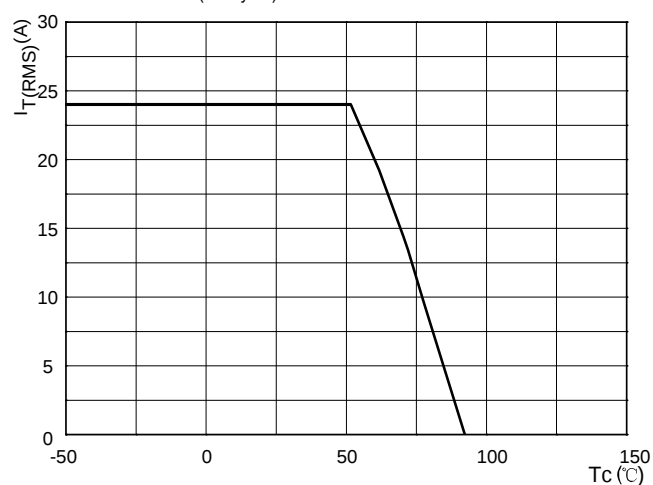


FIG.3: Surge peak on-state current versus number of cycles

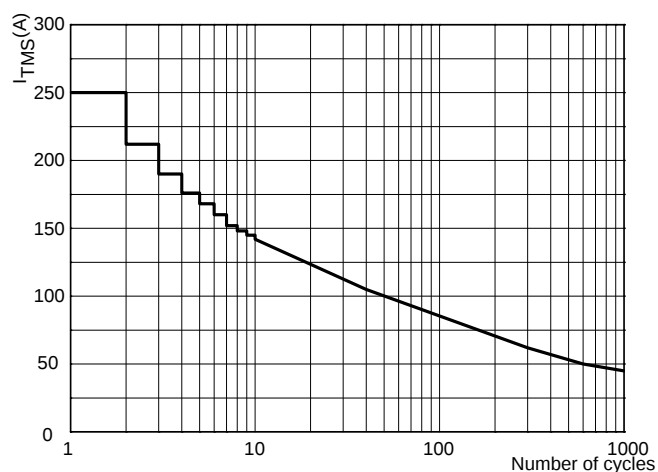


FIG.4: On-state characteristics (maximum values)

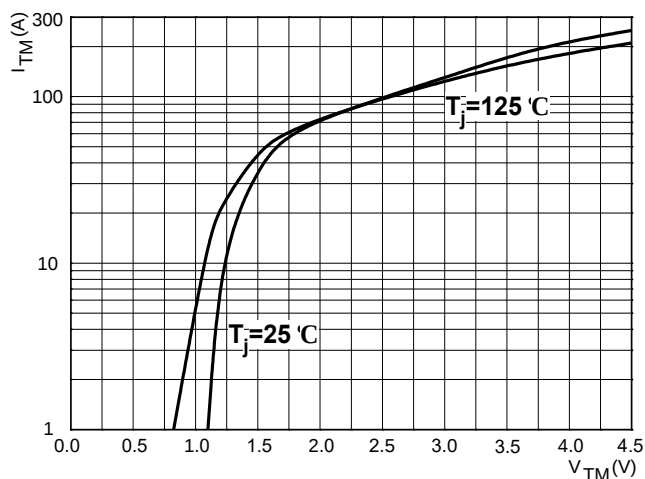
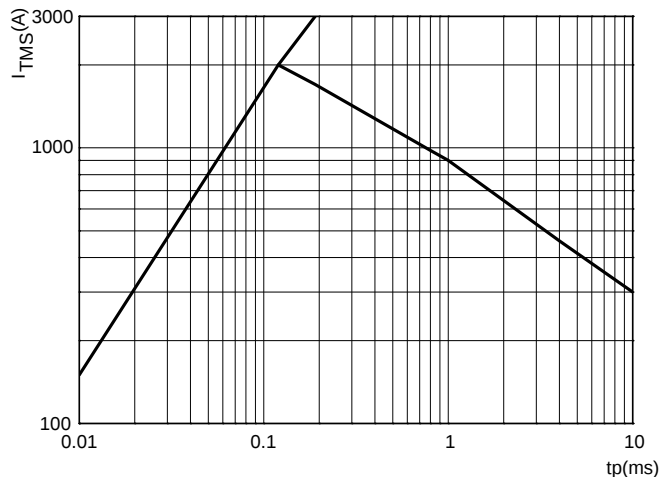
FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ 

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

