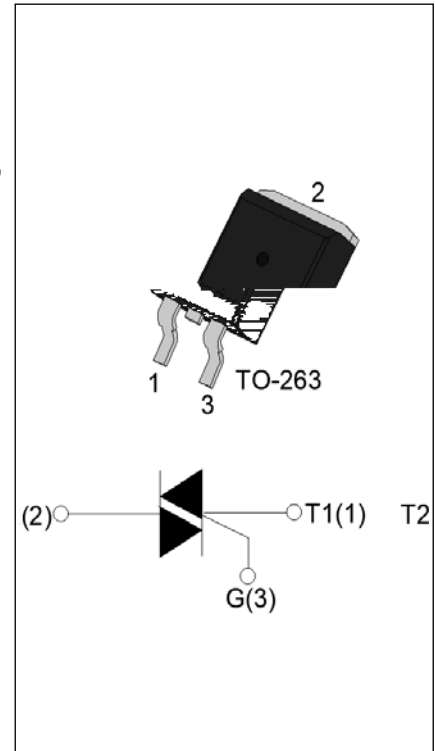


**T0835H-8E 8A TRIAC**

Rev.A.1.0

**DESCRIPTION:**

The T0835H-8E 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. Compared to traditional triacs, T0835H-8E provides a very high switching capability up to junction temperatures of 150°C. Package TO-263 is RoHS compliant.


**MAIN FEATURES**

| Symbol            | Value    | Unit |
|-------------------|----------|------|
| $I_{T(RMS)}$      | 8        | A    |
| $V_{DRM}/V_{RRM}$ | 800      | V    |
| $I_{GT} / /$      | 35/35/35 | mA   |

**ABSOLUTE MAXIMUM RATINGS**

| Parameter   | Symbol       | Value   | Unit                   |
|---|--------------|---------|------------------------|
| Storage junction temperature range  | $T_{stg}$    | -40-150 |                        |
| Operating junction temperature range  | $T_j$        | -40-150 |                        |
| 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 ( $T_c = 133^\circ\text{C}$ )  | $I_{T(RMS)}$ | 8       | A                      |
| Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )      | $I_{TSM}$    | 80      | A                      |
| Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )    |              | 88      |                        |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )                                    | $I^2t$       | 32      | $\text{A}^2\text{s}$   |
| Critical rate of rise of on-state current ( $I_G=2 I_{GT}$ , $f=100\text{Hz}$ , $T_j=150^\circ\text{C}$ ) | $di/dt$      | 100     | $\text{A}/\mu\text{s}$ |
| Peak gate current ( $t_p=20\mu\text{s}$ , $T_j=150^\circ\text{C}$ )                                       | $I_{GM}$     | 4       | A                      |
| Average gate power dissipation ( $T_j=150^\circ\text{C}$ )  | $P_{G(AV)}$  | 1       | W                      |
| Peak gate power   | $P_{GM}$     | 10      | W                      |

|  |          |   |    |
|--|----------|---|----|
| Peak pulse voltage<br>( $T_j=25$ ; non-repetitive, off-state; FIG.8) | $V_{pp}$ | 3 | kV |
|--|----------|---|----|

**ELECTRICAL CHARACTERISTICS** ( $T_j=25$  unless otherwise specified)

| Symbol      | Test Condition                                | Quadrant | Value |      | Unit       |
|-------------|---|----------|-------|------|------------|
| $I_{GT}$    | $V_D=12V$ $R_L=33$                            | - -      | MAX.  | 35   | mA         |
| $V_{GT}$    |   | - -      | MAX.  | 1    | V          |
| $V_{GD}$    | $V_D=V_{DRM}$ $T_j=150$<br>$R_L=3.3K$         | - -      | MIN.  | 0.2  | V          |
| $I_L$       | $I_G=1.2I_{GT}$                               | -        | MAX.  | 50   | mA         |
|             |   |          |       | 70   |            |
| $I_H$       | $I_T=100mA$                                   |          | MAX.  | 45   | mA         |
| $dV/dt$     | $V_D=540V$ Gate Open $T_j=150$                |          | MIN.  | 1000 | V/ $\mu s$ |
| $(dI/dt)_c$ | $(dV/dt)_c=20V/\mu s$ , $T_j=150$             |          | MIN.  | 5    | A/ms       |
| $t_{on}$    | $I_G=40mA$ $I_A=200mA$ $I_R=20mA$<br>$T_j=25$ |          | TYP.  | 3    | $\mu s$    |
| $t_{off}$   |   |          |       | 30   |            |

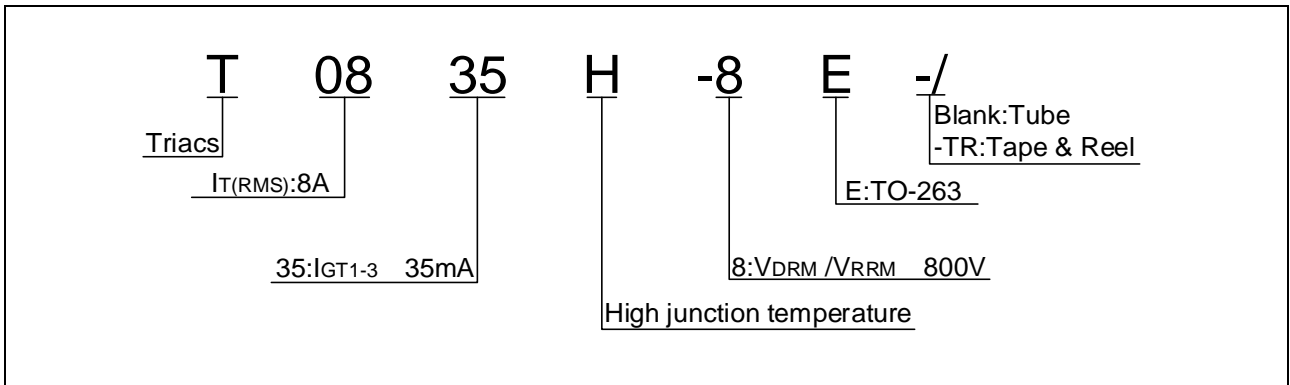
**STATIC CHARACTERISTICS**

| Symbol    | Parameter                   |           | Value(MAX.) | Unit    |
|-----------|-----------------------------|-----------|-------------|---------|
| $V_{TM}$  | $I_{TM}=11A$ $t_p=380\mu s$ | $T_j=25$  | 1.4         | V       |
| $V_{TO}$  | Threshold voltage           | $T_j=150$ | 0.79        | V       |
| $R_D$     | Dynamic resistance          | $T_j=150$ | 51          | m       |
| $I_{DRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$ | $T_j=25$  | 5           | $\mu A$ |
| $I_{RRM}$ |                             | $T_j=150$ | 1.5         | mA      |

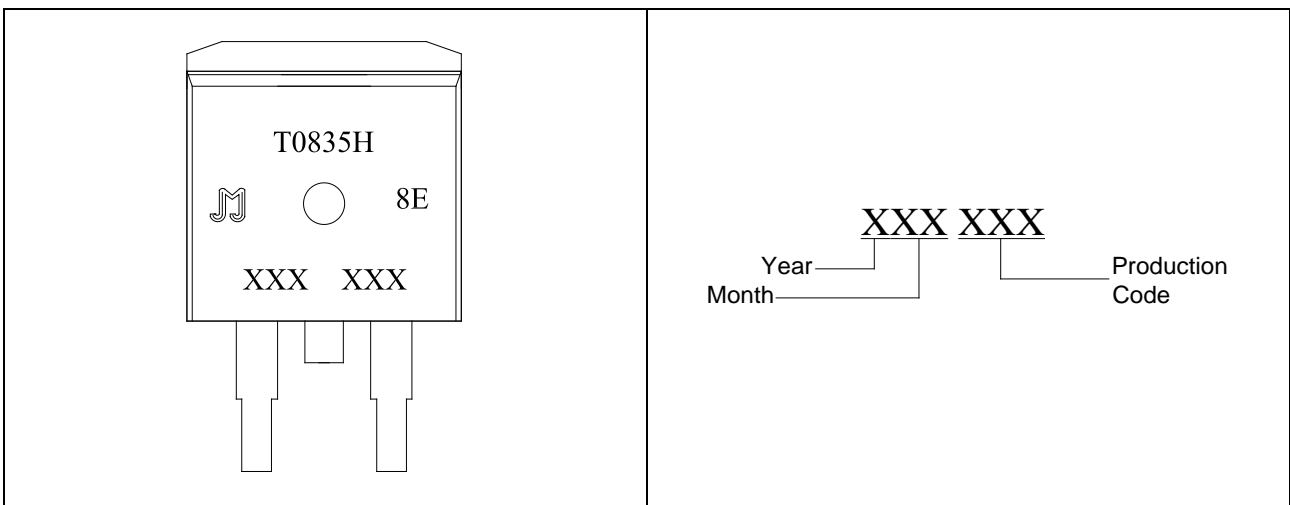
**THERMAL RESISTANCES**

| Symbol        | Parameter   | Value | Unit        |
|---------------|---|-------|-------------|
| $R_{th(j-c)}$ | junction to case (AC)                             | 1.6   | $\text{}/W$ |
| $R_{th(j-a)}$ | junction to ambient (AC, in free air, $S=2cm^2$ ) | 45    | $\text{}/W$ |

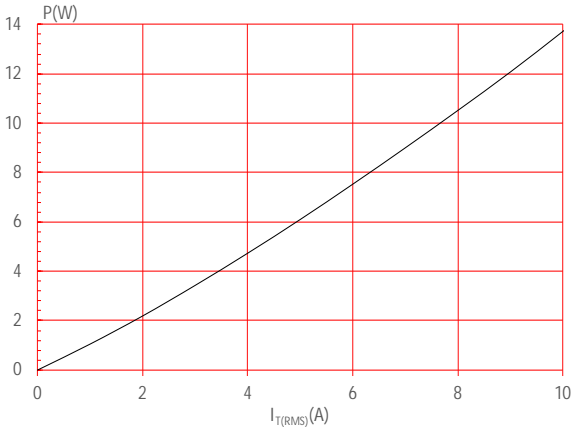
ORDERING INFORMATION



MARKING



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



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



FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature

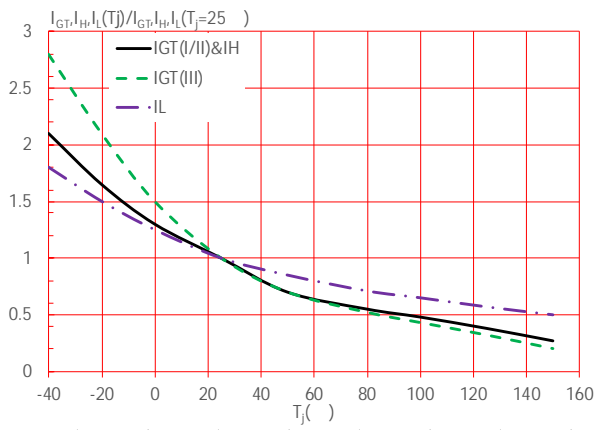
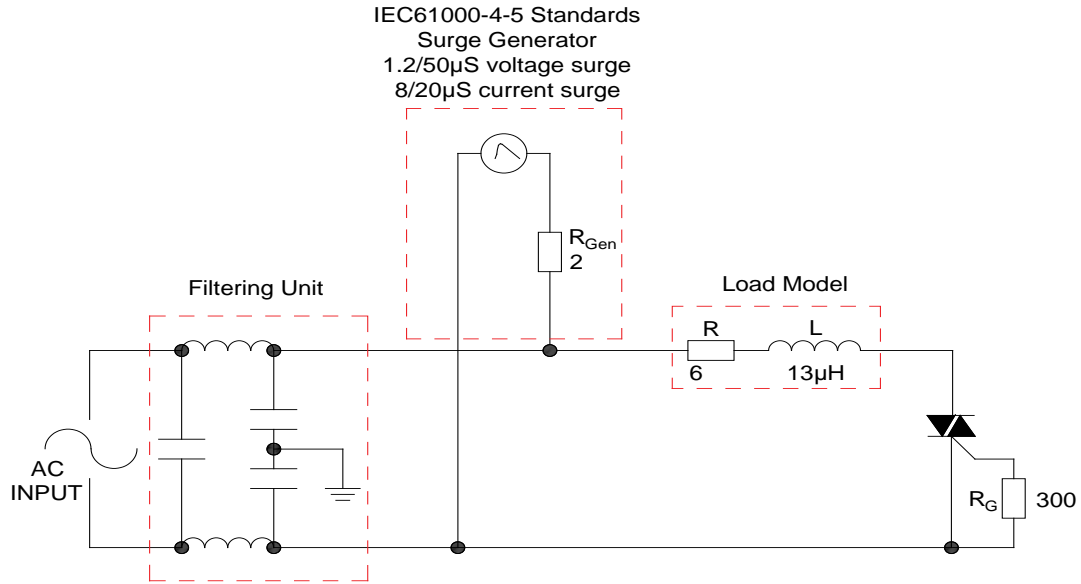
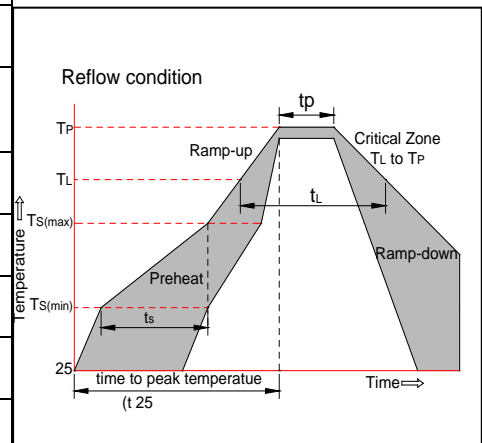


FIG.8 Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



**SOLDERING PARAMETERS**

|   |                                   |   |
|---|-----------------------------------|---|
| Reflow Condition  |                                   | Pb-Free assembly<br>(see figure at right) |
| Pre Heat  | -Temperature Min ( $T_{s(min)}$ ) | +150                                      |
|   | -Temperature Max( $T_{s(max)}$ )  | +200                                      |
|   | -Time (Min to Max) (ts)           | 60-180 secs.                              |
| Average ramp up rate<br>(Liquidus Temp ( $T_L$ ) to peak) |                                   | 3 /sec. Max                               |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                      |                                   | 3 /sec. Max                               |
| Reflow  | -Temperature( $T_L$ )(Liquidus)   | +217                                      |
|   | -Temperature( $t_L$ )             | 60-150 secs.                              |
| Peak Temp ( $T_p$ )                                       |                                   | +260(+0/-5)                               |
| Time within 5 of actual<br>Peak Temp ( $t_p$ )            |                                   | 20-40secs.                                |
| Ramp-down Rate  |                                   | 6 /sec. Max                               |
| Time 25 to Peak Temp ( $T_p$ )                            |                                   | 8 min. Max                                |
| Do not exceed   |                                   | +260                                      |



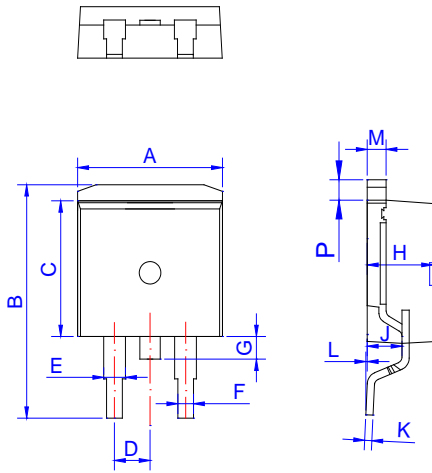
**ORDERING INFORMATION**

| Order code   | Voltage<br>$V_{DRM}/V_{RRM}$ (V) | IGT(mA) | Package | Base qty.<br>(pcs) | Delivery<br>mode |
|--------------|----------------------------------|---------|---------|--------------------|------------------|
|              |                                  | H I- J  |         |                    |                  |
| T0835H-8E    | 800                              | 35      | TO-263  | 50                 | Tube             |
| T0835H-8E-TR |                                  |         |         | 800                | Tape & Reel      |

**Document Revision History**

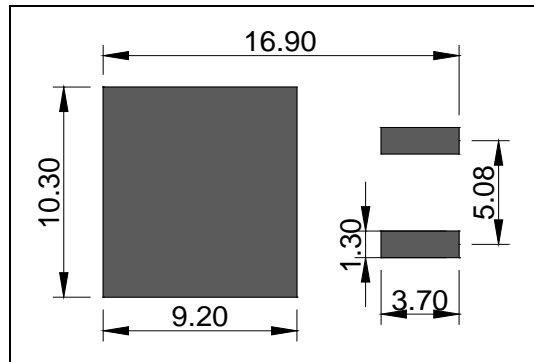
| Date         | Revision | Changes      |
|--------------|----------|--------------|
| Apr.11, 2023 | A.1.0    | Last updated |

PACKAGE MECHANICAL DATA



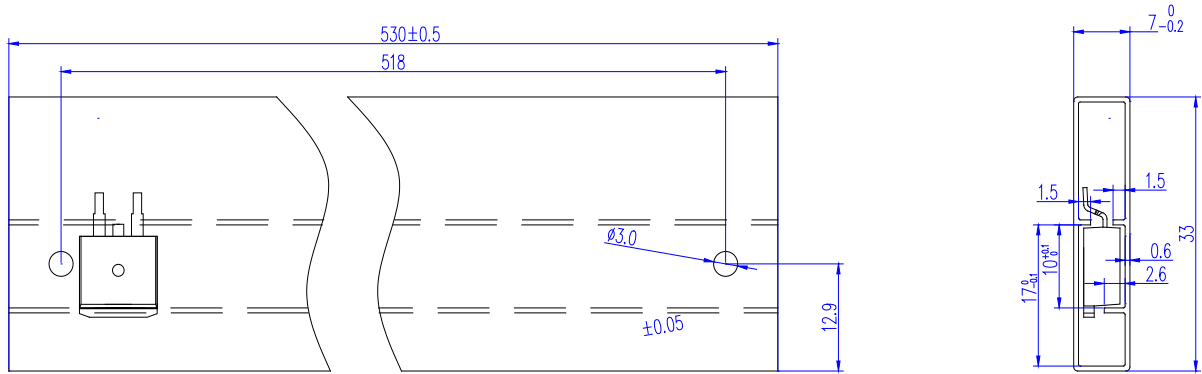
| Ref. | Dimensions  |      |       |        |       |       |
|------|-------------|------|-------|--------|-------|-------|
|      | Millimeters |      |       | Inches |       |       |
|      | Min.        | Typ. | Max.  | Min.   | Typ.  | Max.  |
| A    | 9.90        |      | 10.20 | 0.390  |       | 0.402 |
| B    | 14.70       |      | 15.80 | 0.579  |       | 0.622 |
| C    | 9.40        |      | 9.60  | 0.37   |       | 0.378 |
| D    | 2.40        |      | 2.70  | 0.094  |       | 0.106 |
| E    | 1.20        |      | 1.50  | 0.047  |       | 0.059 |
| F    | 0.75        |      | 0.85  | 0.029  |       | 0.033 |
| G    | 1.00        |      | 1.50  | 0.039  |       | 0.059 |
| H    | 4.40        |      | 4.70  | 0.173  |       | 0.185 |
| J    | 2.30        |      | 2.70  | 0.091  |       | 0.106 |
| K    | 0.38        |      | 0.55  | 0.015  |       | 0.022 |
| L    | 0           | 0.10 | 0.25  | 0      | 0.004 | 0.010 |
| M    | 1.25        |      | 1.35  | 0.049  |       | 0.053 |
| P    | 1.20        |      | 1.50  | 0.047  |       | 0.059 |

FOOTPRINT-TO-263 (dimensions in mm)

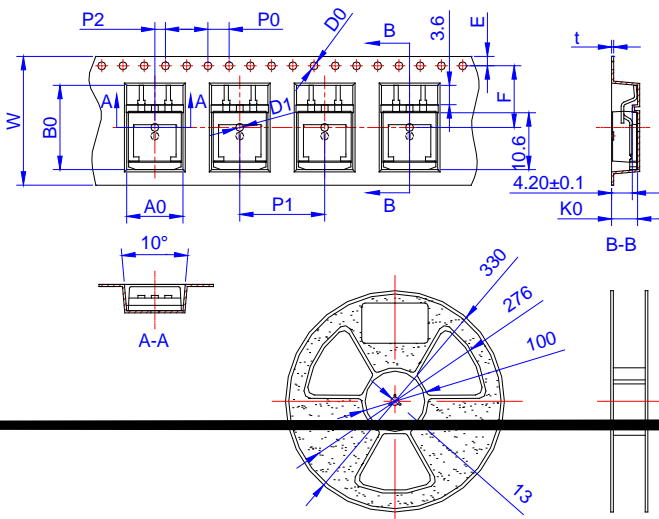




DELIVERY MODE




| PACKAGE | OUTLINE | TUBE (PCS) | INNER BOX (PCS) | PER CARTON |
|---------|---------|------------|-----------------|------------|
| TO-263  | TUBE    | 50         | 1,000           | 5,000      |



| Ref. | Dimensions  |       |       |        |       |       |
|------|-------------|-------|-------|--------|-------|-------|
|      | Millimeters |       |       | Inches |       |       |
|      | Min.        | Typ.  | Max.  | Min.   | Typ.  | Max.  |
| W    | 23.70       | 24.00 | 24.30 | 0.933  | 0.945 | 0.957 |
| E    | 1.65        | 1.75  | 1.85  | 0.065  | 0.069 | 0.073 |
| F    | 11.40       | 11.50 | 11.60 | 0.449  | 0.453 | 0.457 |
| D0   | -           | 1.50  | 1.60  | -      | 0.059 | 0.063 |
| D1   | -           | 1.50  | 1.60  | -      | 0.059 | 0.063 |
| P0   | 3.90        | 4.00  | 4.10  | 0.154  | 0.157 | 0.161 |
| P1   | 15.90       | 16.00 | 16.10 | 0.626  | 0.630 | 0.634 |
| P2   | 1.90        | 2.00  | 2.10  | 0.075  | 0.079 | 0.083 |
| B0   | 16.20       | 16.30 | 16.40 | 0.638  | 0.642 | 0.646 |
| K0   | 4.80        | 4.90  | 5.00  | 0.189  | 0.193 | 0.197 |
| t    | 0.35        | 0.40  | 0.45  | 0.014  | 0.016 | 0.018 |

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