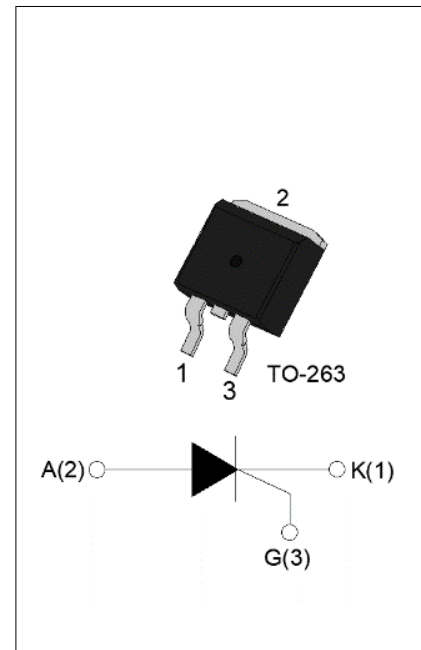


**DESCRIPTION:**

With high ability to withstand the shock loading of large current, JCT625EH SCR provides high  $dV/dt$  rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. Package TO-263 is RoHS compliant.

**MAIN FEATURES**

| Symbol            | Value     | Unit |
|-------------------|-----------|------|
| $I_{T(RMS)}$      | 25        | A    |
| $V_{DRM}/V_{RRM}$ | 600       | V    |
| $I_{GT}$          | $\leq 20$ | mA   |

**ABSOLUTE MAXIMUM RATINGS**

| Parameter                                                                                      | Symbol       | Value   | Unit        |
|------------------------------------------------------------------------------------------------|--------------|---------|-------------|
| Storage junction temperature range                                                             | $T_{stg}$    | -40-150 | $^{\circ}C$ |
| Operating junction temperature range                                                           | $T_j$        | -40-150 | $^{\circ}C$ |
| Repetitive peak off-state voltage ( $T_j=25^{\circ}C$ )                                        | $V_{DRM}$    | 600     | V           |
| Repetitive peak reverse voltage ( $T_j=25^{\circ}C$ )                                          | $V_{RRM}$    | 600     | V           |
| Average on-state current ( $T_c \leq 131^{\circ}C$ )                                           | $I_{T(AV)}$  | 16      | A           |
| RMS on-state current ( $T_c \leq 131^{\circ}C$ )                                               | $I_{T(RMS)}$ | 25      | A           |
| Non repetitive surge peak on-state current ( $t_p=10ms, T_j=25^{\circ}C$ )                     | $I_{TSM}$    | 320     | A           |
| Non repetitive surge peak on-state current ( $t_p=8.3ms, T_j=25^{\circ}C$ )                    |              | 352     |             |
| $I^2t$ value for fusing ( $t_p=10ms, T_j=25^{\circ}C$ )                                        | $I^2t$       | 512     | $A^2s$      |
| Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}, f=100Hz, T_j=150^{\circ}C$ ) | $di/dt$      | 150     | $A/\mu s$   |
| Peak gate current ( $t_p=20\mu s, T_j=150^{\circ}C$ )                                          | $I_{GM}$     | 5       | A           |
| Average gate power dissipation ( $T_j=150^{\circ}C$ )                                          | $P_{G(AV)}$  | 1       | W           |

|                                                                                      |          |     |    |
|--------------------------------------------------------------------------------------|----------|-----|----|
| Peak gate power                                                                      | $P_{GM}$ | 20  | W  |
| Peak pulse voltage<br>( $T_j=25^{\circ}\text{C}$ ; non-repetitive, off-state; FIG.8) | $V_{pp}$ | 0.5 | kV |

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

| Symbol    | Test Condition                                                                     | Value |      |      | Unit             |
|-----------|------------------------------------------------------------------------------------|-------|------|------|------------------|
|           |                                                                                    | MIN.  | TYP. | MAX. |                  |
| $I_{GT}$  | $V_D=12\text{V}$ $R_L=33\Omega$                                                    | -     | -    | 20   | mA               |
| $V_{GT}$  |                                                                                    | -     | -    | 1    | V                |
| $V_{GD}$  | $V_D=V_{DRM}$ $T_j=150^{\circ}\text{C}$ $R_L=3.3\text{k}\Omega$                    | 0.2   | -    | -    | V                |
| $I_L$     | $I_G=1.2I_{GT}$                                                                    | -     | -    | 70   | mA               |
| $I_H$     | $I_T=500\text{mA}$                                                                 | -     | -    | 60   | mA               |
| dV/dt     | $V_D=400\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$                              | 1200  | -    | -    | V/ $\mu\text{s}$ |
|           | $V_D=400\text{V}$ Gate Open $T_j=150^{\circ}\text{C}$                              | 800   | -    | -    |                  |
| $t_{on}$  | $I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$<br>$T_j=25^{\circ}\text{C}$ | -     | 2    | -    | $\mu\text{s}$    |
| $t_{off}$ |                                                                                    | -     | 50   | -    |                  |

**STATIC CHARACTERISTICS**

| Symbol    | Parameter                                |                           | Value(MAX.) | Unit             |
|-----------|------------------------------------------|---------------------------|-------------|------------------|
| $V_{TM}$  | $I_{TM}=50\text{A}$ $t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$  | 1.5         | V                |
| $V_{TO}$  | Threshold voltage                        | $T_j=150^{\circ}\text{C}$ | 0.7         | V                |
| $R_D$     | Dynamic resistance                       | $T_j=150^{\circ}\text{C}$ | 18          | $\text{m}\Omega$ |
| $I_{DRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$              | $T_j=25^{\circ}\text{C}$  | 5           | $\mu\text{A}$    |
| $I_{RRM}$ |                                          | $T_j=150^{\circ}\text{C}$ | 5           | mA               |

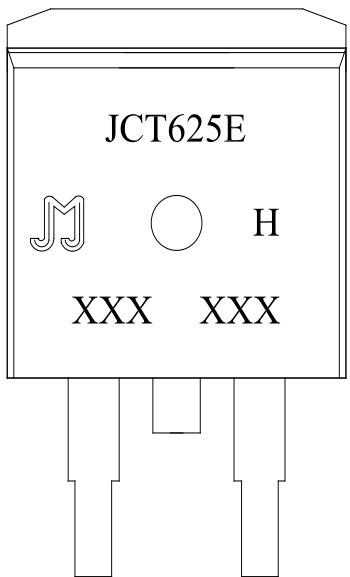
**THERMAL RESISTANCES**

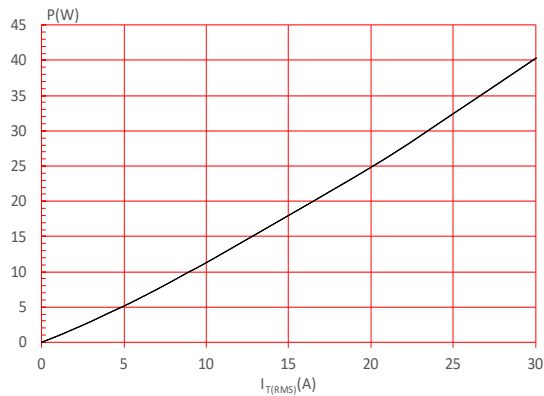
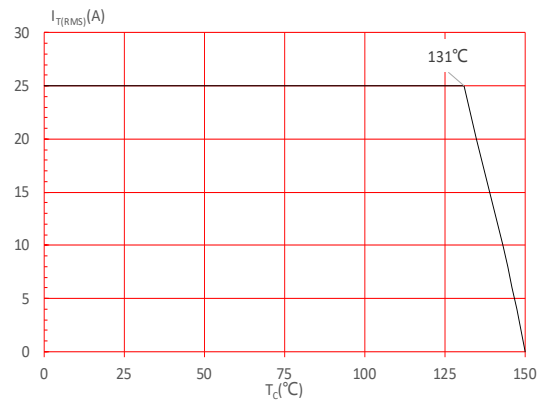
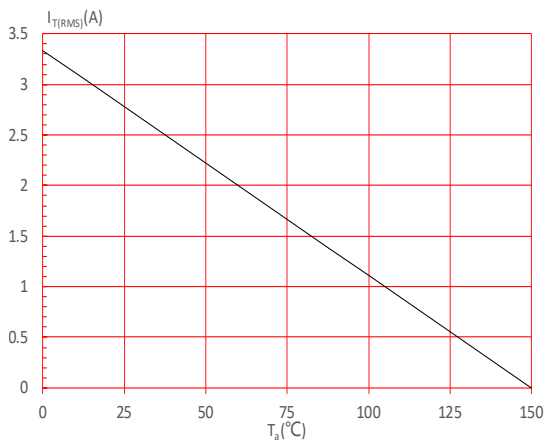
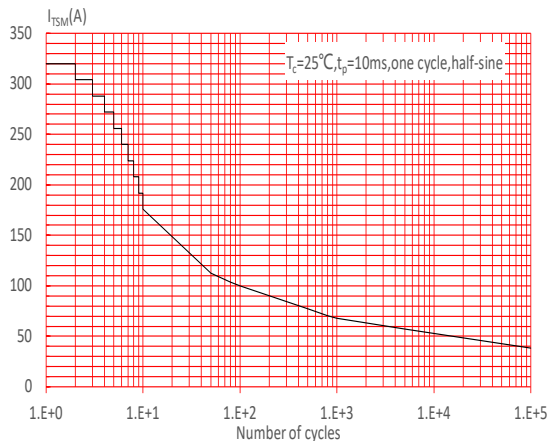
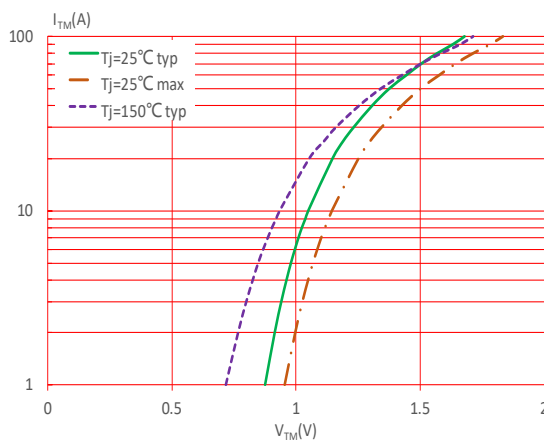
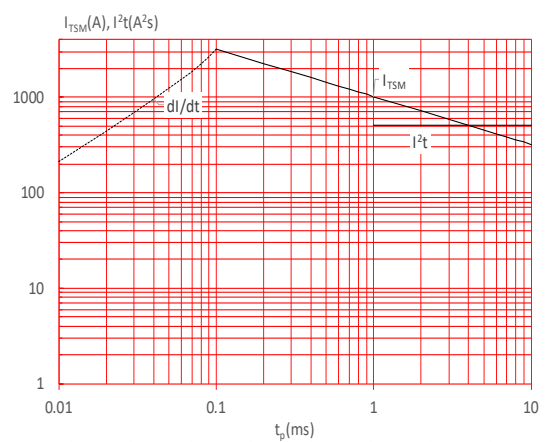
| Symbol        | Parameter                                                | Value | Unit                        |
|---------------|----------------------------------------------------------|-------|-----------------------------|
| $R_{th(j-c)}$ | junction to case (DC)                                    | 0.6   | $^{\circ}\text{C}/\text{W}$ |
| $R_{th(j-a)}$ | junction to ambient (DC, in free air, $S=1\text{cm}^2$ ) | 45    | $^{\circ}\text{C}/\text{W}$ |

## ORDERING INFORMATION

|                                   |                                |   |                   |           |                           |                               |
|-----------------------------------|--------------------------------|---|-------------------|-----------|---------------------------|-------------------------------|
| J                                 | CT                             | 6 | 25                | E         | H                         | -/                            |
| JieJie Microelectronics Co., Ltd. | SCRs                           |   |                   |           |                           | Blank:Tube<br>-TR:Tape & Reel |
|                                   | 6: $V_{DRM}/V_{RRM} \geq 600V$ |   | $I_{T(RMS)}: 25A$ | E: TO-263 | High junction temperature |                               |

## MARKING

|                                                                                     |                                                                         |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
|  | <p>XXX XXX</p> <p>Year _____<br/>Month _____</p> <p>Production Code</p> |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------|

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

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

**FIG.3:** RMS on-state current versus ambient temperature (printed circuit board FR4,copper thickness:35μm)(full cycle)

**FIG.4:** Surge peak on-state current versus number of cycles

**FIG.5:** On-state characteristics

**FIG.6:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ , and corresponding value of  $I^2t$  ( $dI/dt < 200A/\mu s$ )


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

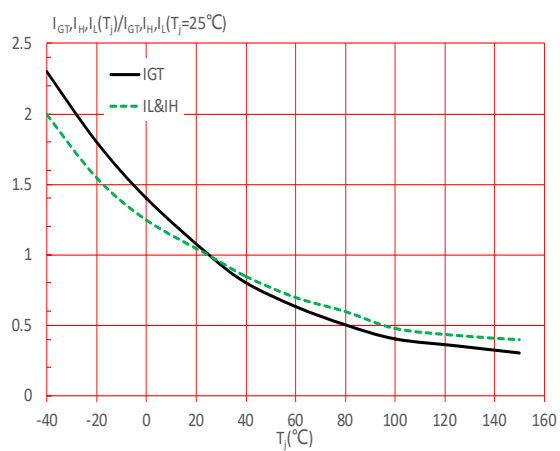
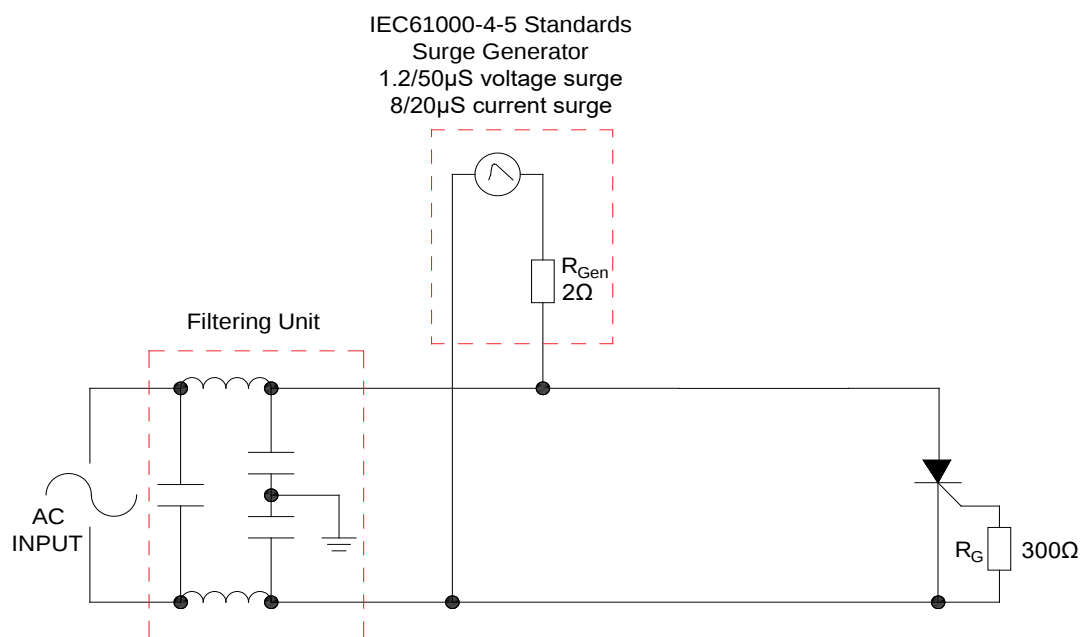
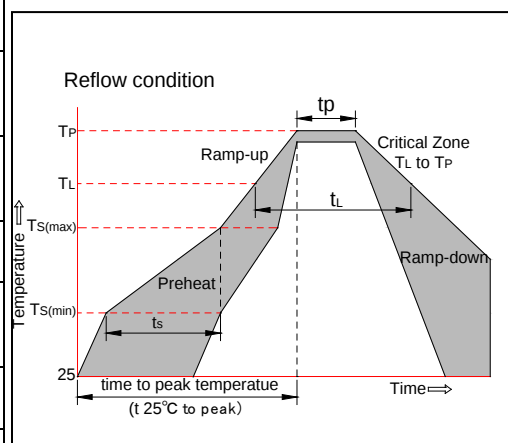


FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



## SOLDERING PARAMETERS

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



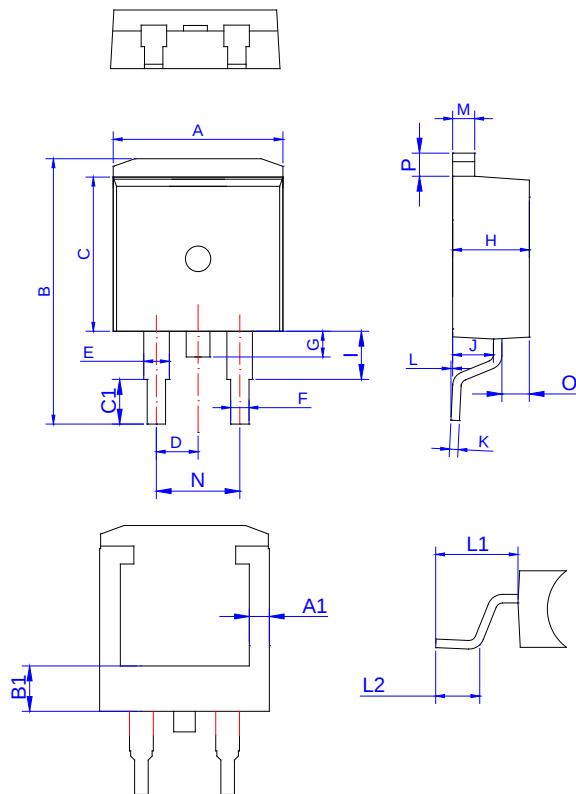
**ORDERING INFORMATION**

| Order code  | Voltage<br>$V_{\text{DRM}}/V_{\text{RRM}}$ (V) | IGT(mA) | Package | Base qty.<br>(pcs) | Delivery<br>mode |
|-------------|------------------------------------------------|---------|---------|--------------------|------------------|
| JCT625EH    | 600                                            | 20      | TO-263  | 50                 | Tube             |
| JCT625EH-TR |                                                |         |         | 800                | Tape & Reel      |

**Document Revision History**

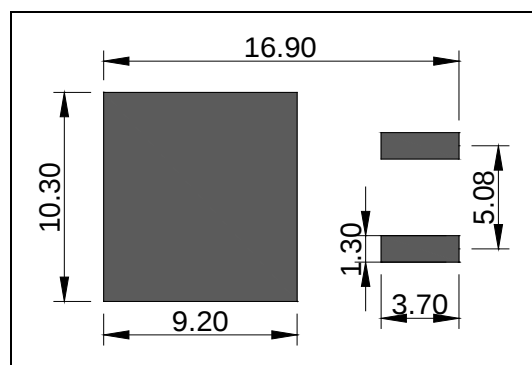
| Date         | Revision | Changes                        |
|--------------|----------|--------------------------------|
| Jun.12, 2023 | A.1.0    | Last update                    |
| Oct.16, 2025 | A.1.1    | Revise PACKAGE MECHANICAL DATA |

## PACKAGE MECHANICAL DATA



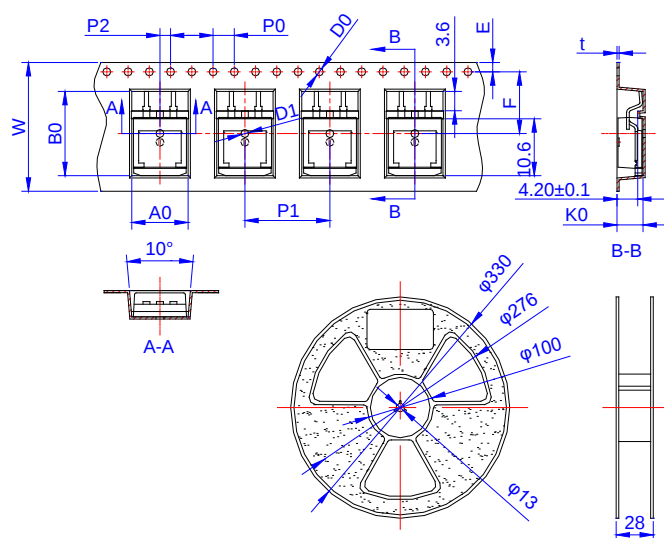
| Ref. | Dimensions  |      |       |        |       |       |
|------|-------------|------|-------|--------|-------|-------|
|      | Millimeters |      |       | Inches |       |       |
|      | Min.        | Typ. | Max.  | Min.   | Typ.  | Max.  |
| A    | 9.90        |      | 10.20 | 0.390  |       | 0.402 |
| A1   | 0.80        |      | 1.20  | 0.031  |       | 0.047 |
| B    | 14.70       |      | 15.80 | 0.579  |       | 0.622 |
| B1   | 2.15        |      | 2.55  | 0.085  |       | 0.100 |
| C    | 9.40        |      | 9.60  | 0.370  |       | 0.378 |
| C1   | 2.40        |      | 2.80  | 0.094  |       | 0.110 |
| 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 |
| I    | 1.80        |      | 2.20  |        |       |       |
| 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 |
| L1   | 4.65        |      | 5.05  | 0.183  |       | 0.199 |
| L2   | 1.90        |      |       | 0.075  |       |       |
| M    | 1.25        |      | 1.35  | 0.049  |       | 0.053 |
| N    | 4.80        |      | 5.20  |        |       |       |
| O    | 1.30        |      | 1.50  |        |       |       |
| P    | 1.20        |      | 1.50  | 0.047  |       | 0.059 |

## FOOTPRINT-TO-263 (dimensions in mm)



The technical drawing illustrates the dimensions of a sensor assembly. The top view shows a rectangular component with two pins, positioned on a surface with horizontal lines. Key dimensions include a total width of  $530 \pm 0.5$ , a distance from the left edge to the center of the component of 518, and a vertical offset of 12.9 from the bottom edge to the center of the component. A circular feature is located at a distance of  $\phi 3.0$  from the right edge and has a diameter tolerance of  $\pm 0.05$ . The side view shows the profile of the component, with a total height of 33, a mounting flange thickness of 7-0.2, and internal features with dimensions 1.5, 1.5, 0.6, and 2.6. A vertical dimension of 17.5 is also indicated.

| PACKAGE | OUTLINE | TUBE<br>(PCS) | INNER BOX<br>(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 |
| A0   | 10.80       | 10.90 | 11.00 | 0.425  | 0.429 | 0.433 |
| 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 |

| PACKAGE | OUTLINE | REEL<br>(PCS) | PER CARTON<br>(PCS) | TAPE & REEL |
|---------|---------|---------------|---------------------|-------------|
| TO-263  | TAPING  | 800           | 4,000               | 13 inch     |

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 © 2025 Jiangsu JieJie Microelectronics Co., Ltd. All rights reserved.