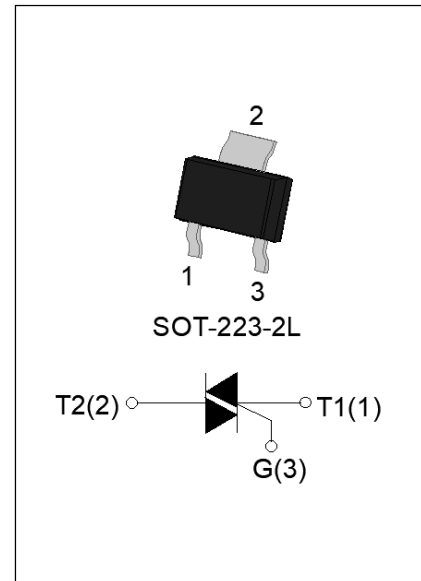


**DESCRIPTION:**

The SST136W-800E 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. Package SOT-223-2L is RoHS compliant.


**MAIN FEATURES**

| Symbol                | Value       | Unit |
|-----------------------|-------------|------|
| $I_{T(RMS)}$          | 1           | A    |
| $V_{DRM}/V_{RRM}$     | 800         | V    |
| $I_{GT\ I/II/III/IV}$ | 10/10/10/25 | 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 ( $T_j=25^\circ\text{C}$ )   |              | $V_{DRM}$    | 800     | V                      |
| Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )   |              | $V_{RRM}$    | 800     | V                      |
| RMS on-state current ( $T_c \leq 107^\circ\text{C}$ )  |              | $I_{T(RMS)}$ | 1       | A                      |
| Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )             |              | $I_{TSM}$    | 25      | A                      |
| Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )           |              |              | 27.5    |                        |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )   |              | $I^2t$       | 3.125   | $\text{A}^2\text{s}$   |
| Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ , $f=100\text{Hz}$ , $T_j=125^\circ\text{C}$ ) | I - II - III | $di/dt$      | 80      | $\text{A}/\mu\text{s}$ |
|  | IV           |              | 40      |                        |
| Peak gate current ( $t_p=20\mu\text{s}$ , $T_j=125^\circ\text{C}$ )  |              | $I_{GM}$     | 2       | A                      |
| Average gate power dissipation ( $T_j=125^\circ\text{C}$ )   |              | $P_{G(AV)}$  | 0.5     | W                      |
| Peak gate power  |              | $P_{GM}$     | 5       | W                      |
| Peak pulse voltage ( $T_j=25^\circ\text{C}$ ; non-repetitive, off-state; FIG.8)                                  |              | $V_{pp}$     | 3.5     | kV                     |

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

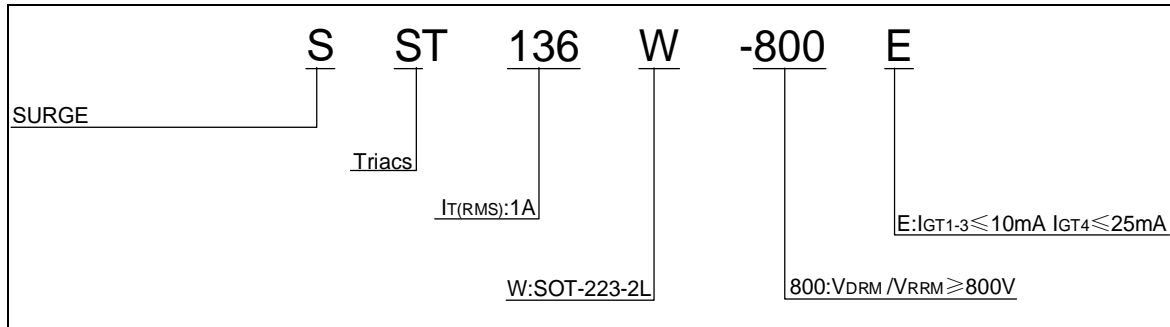
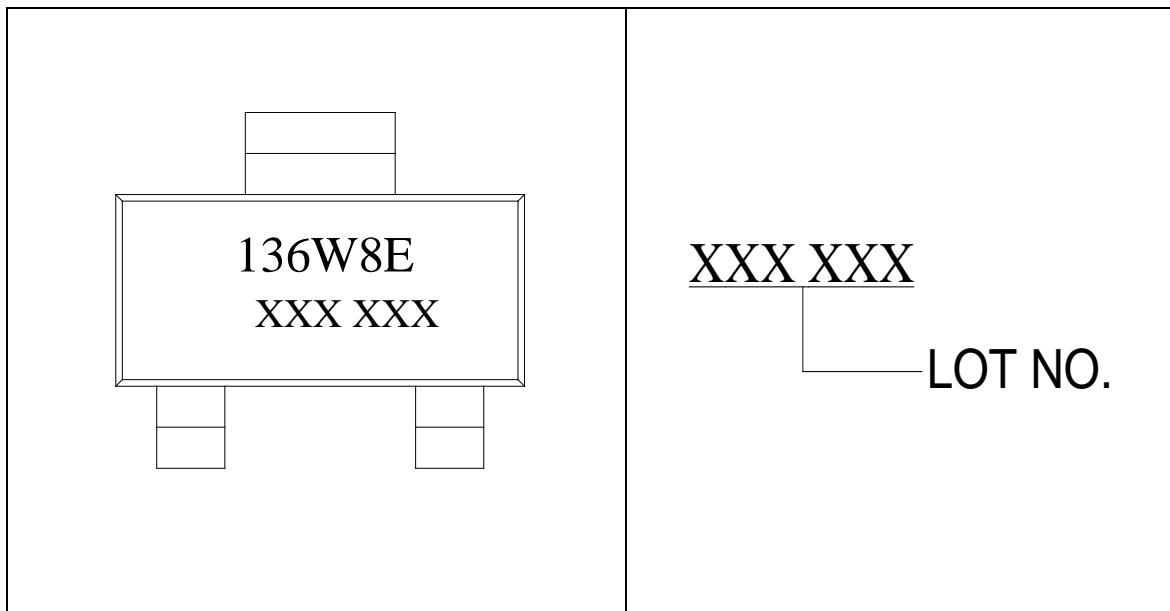
| Symbol               | Test Condition   | Quadrant     | Value |     | Unit             |
|----------------------|--|--------------|-------|-----|------------------|
| $I_{GT}$             | $V_D=12\text{V } R_L=33\Omega$   | I - II - III | MAX.  | 10  | mA               |
|                      |  | IV           |       | 25  |                  |
| $V_{GT}$             |  | ALL          | MAX.  | 1.3 | V                |
| $V_{GD}$             | $V_D=V_{DRM} T_j=125^\circ\text{C}$<br>$R_L=3.3\text{k}\Omega$                 | ALL          | MIN.  | 0.2 | V                |
| $I_L$                | $I_G=1.2I_{GT}$  | I - III      | MAX.  | 20  | mA               |
|                      |  | II - IV      |       | 30  |                  |
| $I_H$                | $I_T=100\text{mA}$   |              | MAX.  | 15  | mA               |
| dV/dt                | $V_D=540\text{V}$ Gate Open $T_j=110^\circ\text{C}$                            |              | MIN.  | 250 | V/ $\mu\text{s}$ |
| (dV/dt) <sub>c</sub> | (dI/dt) <sub>c</sub> =1.8A/ms, $T_j=110^\circ\text{C}$                         |              | MIN.  | 6   | V/ $\mu\text{s}$ |
| $t_{on}$             | $I_G=40\text{mA } I_A=200\text{mA } I_R=20\text{mA}$<br>$T_j=25^\circ\text{C}$ |              | TYP.  | 1.5 | $\mu\text{s}$    |
| $t_{off}$            |  |              |       | 15  |                  |

**STATIC CHARACTERISTICS**

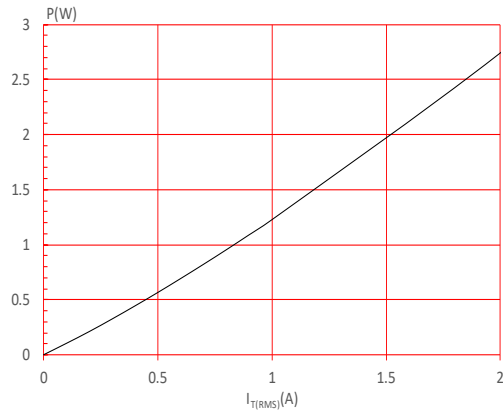
| Symbol    | Parameter                              |                         | Value(MAX.) | Unit          |
|-----------|--|-------------------------|-------------|---------------|
| $V_{TM}$  | $I_{TM}=5\text{A } t_p=380\mu\text{s}$ | $T_j=25^\circ\text{C}$  | 1.7         | V             |
| $V_{TO}$  | Threshold voltage                      | $T_j=125^\circ\text{C}$ | 0.94        | V             |
| $R_D$     | Dynamic resistance                     | $T_j=125^\circ\text{C}$ | 124         | m $\Omega$    |
| $I_{DRM}$ | $V_D=V_{DRM} V_R=V_{RRM}$              | $T_j=25^\circ\text{C}$  | 5           | $\mu\text{A}$ |
| $I_{RRM}$ |  | $T_j=125^\circ\text{C}$ | 0.4         | mA            |

**THERMAL RESISTANCES**

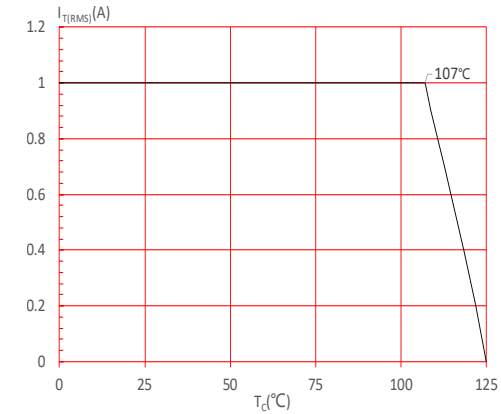
| Symbol        | Parameter                | Value | Unit               |
|---------------|--------------------------|-------|--------------------|
| $R_{th(j-c)}$ | junction to case (AC)    | 15    | $^\circ\text{C/W}$ |
| $R_{th(j-a)}$ | junction to ambient (AC) | 150   | $^\circ\text{C/W}$ |

**ORDERING INFORMATION**

**MARKING**


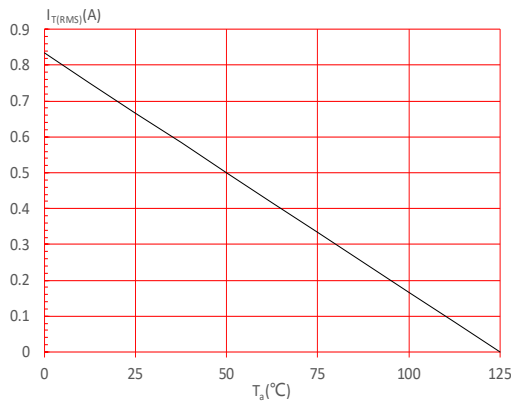
**FIG.1:** Maximum power dissipation versus RMS on-state current



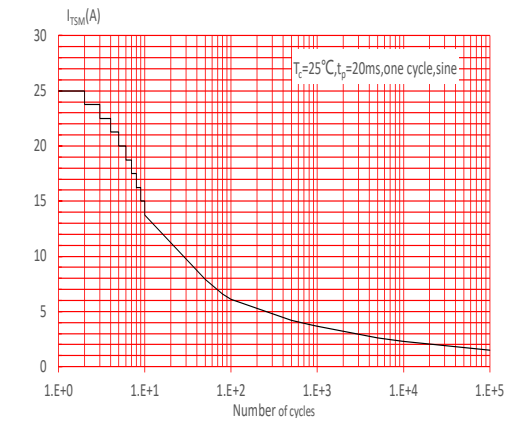
**FIG.2:** RMS on-state current versus case temperature



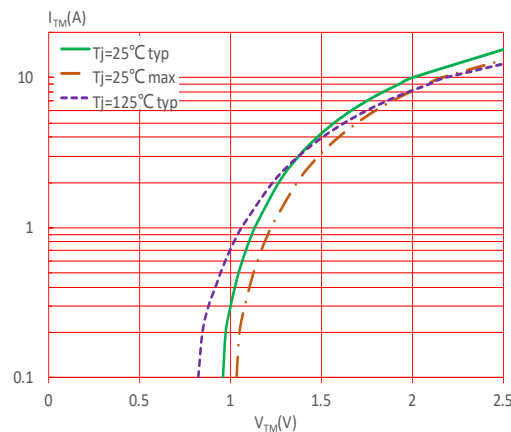
**FIG.3:** RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35µm) (full cycle)



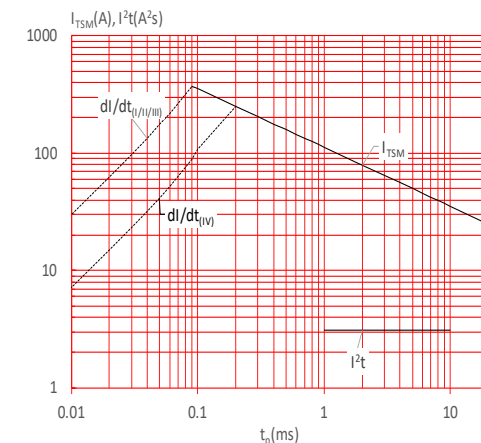
**FIG.4:** Surge peak on-state current versus number of cycles



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



**FIG.6:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( I - II -III:  $di/dt < 80\text{A}/\mu\text{s}$ ; IV:  $di/dt < 40\text{A}/\mu\text{s}$ )



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

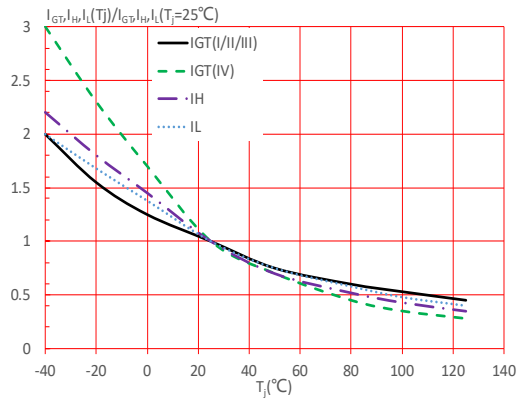
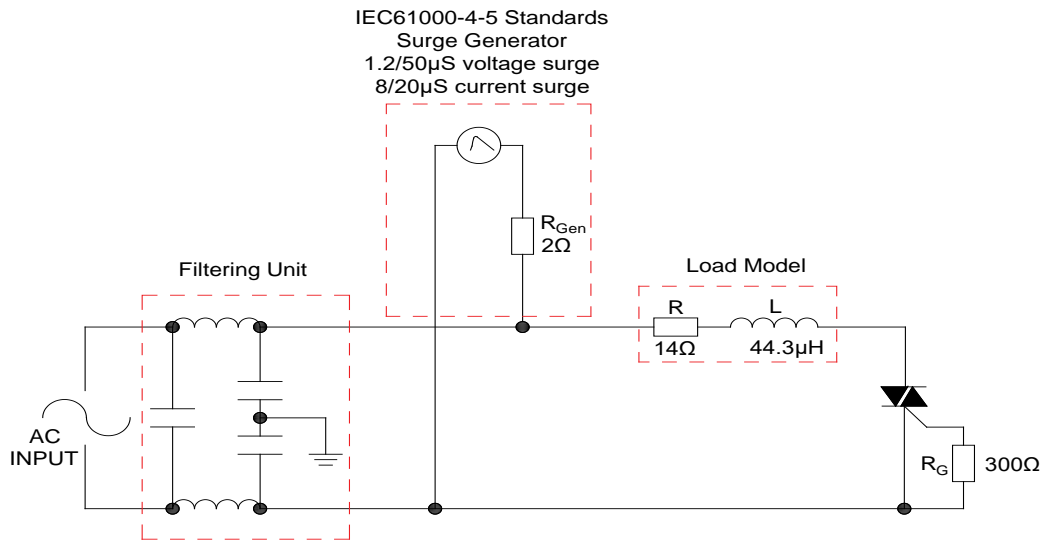
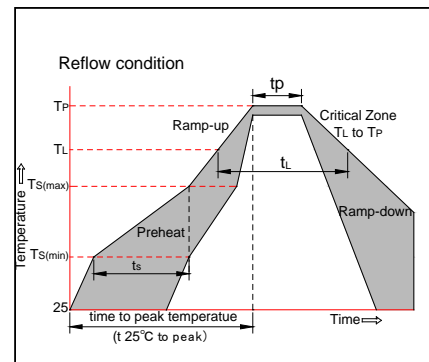


FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



## SOLDERING PARAMETERS

| Reflow Condition  |                                      | Pb-Free assembly<br>(see figure at right) |
|---|--------------------------------------|---|
| Pre Heat  | -Temperature Min<br>( $T_{s(min)}$ ) | +150°C                                    |
|   | -Temperature<br>Max( $T_{s(max)}$ )  | +200°C                                    |
|   | -Time (Min to Max) (ts)              | 60-180 secs.                              |
| Average ramp up rate<br>(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( $T_L$ )<br>(Liquidus)  | +217°C                                    |
|   | -Temperature( $t_L$ )                | 60-150 secs.                              |
| Peak Temp ( $T_p$ )                                       |                                      | +260(+0/-5)°C                             |
| Time within 5°C of actual<br>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                                    |



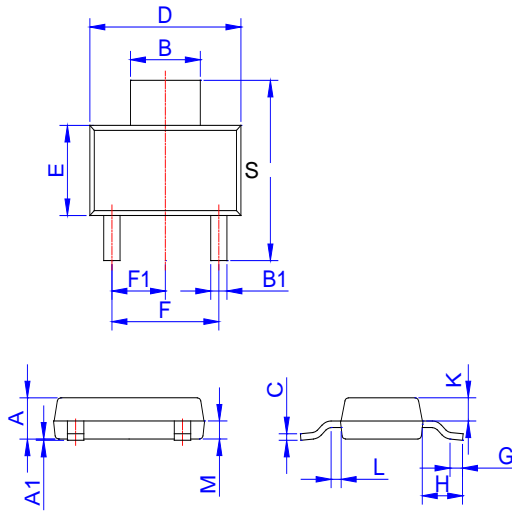
**ORDERING INFORMATION**

| Order code   | Voltage<br>$V_{DRM}/V_{RRM}$ (V) | IGT(mA)      |    | Package    | Base qty.<br>(pcs) | Delivery<br>mode |
|--------------|----------------------------------|--------------|----|------------|--------------------|------------------|
|              |                                  | I - II - III | IV |            |                    |                  |
| SST136W-800E | 800                              | 10           | 25 | SOT-223-2L | 4,000              | Tape & Reel      |

**Document Revision History**

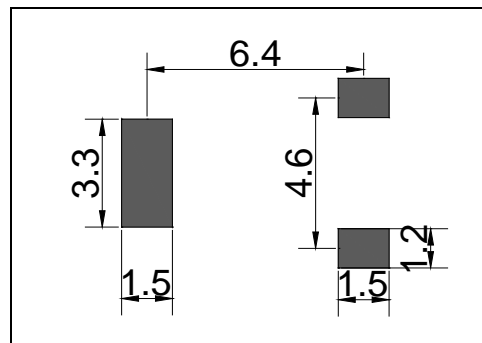
| Date         | Revision | Changes                        |
|--------------|----------|--------------------------------|
| Apr.14, 2023 | A.1.0    | Last updated                   |
| Oct.24, 2025 | A.1.1    | Revise PACKAGE MECHANICAL DATA |

## PACKAGE MECHANICAL DATA

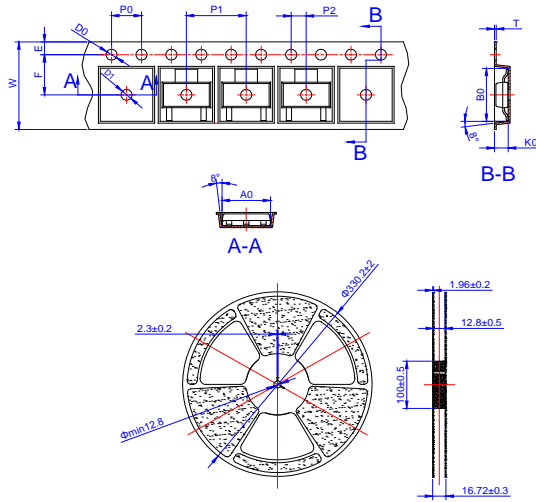


| Ref. | Dimensions  |       |      |        |       |       |
|------|-------------|-------|------|--------|-------|-------|
|      | Millimeters |       |      | Inches |       |       |
|      | Min.        | Typ.  | Max. | Min.   | Typ.  | Max.  |
| A    | 1.50        | 1.60  | 1.80 | 0.059  | 0.063 | 0.071 |
| A1   | 0.01        | 0.06  | 0.10 | 0.001  | 0.002 | 0.004 |
| B    | 2.90        | 3.00  | 3.10 | 0.114  | 0.118 | 0.122 |
| B1   | 0.60        | 0.70  | 0.80 | 0.024  | 0.028 | 0.031 |
| C    | 0.22        | 0.254 | 0.32 | 0.009  | 0.010 | 0.013 |
| D    | 6.30        | 6.50  | 6.70 | 0.248  | 0.256 | 0.264 |
| E    | 3.30        | 3.50  | 3.70 | 0.130  | 0.138 | 0.146 |
| F    | 4.40        |       | 4.80 | 0.173  |       | 0.189 |
| F1   | 2.20        |       | 2.40 | 0.087  |       | 0.094 |
| G    | 0.50        |       | 1.00 | 0.020  |       | 0.039 |
| H    | 1.50        | 1.75  | 2.00 | 0.059  | 0.069 | 0.079 |
| s    | 6.70        | 7.00  | 7.30 | 0.264  | 0.276 | 0.287 |
| K    | 0.80        |       | 1.00 | 0.031  |       | 0.039 |
| L    | 0.40        |       | 0.80 | 0.016  |       | 0.031 |
| M    | 0.75        |       | 0.95 | 0.030  |       | 0.037 |

## FOOTPRINT-SOT-223-2L (dimensions in mm)



## DELIVERY MODE



| Ref. | Dimensions  |       |       |        |       |       |
|------|-------------|-------|-------|--------|-------|-------|
|      | Millimeters |       |       | Inches |       |       |
|      | Min.        | Typ.  | Max.  | Min.   | Typ.  | Max.  |
| W    | -           | -     | 12.30 | -      | -     | 0.482 |
| E    | 1.65        | 1.75  | 1.85  | 0.065  | 0.069 | 0.073 |
| F    | 5.45        | 5.50  | 5.55  | 0.215  | 0.217 | 0.219 |
| D0   | 1.50        | 1.55  | 1.60  | 0.059  | 0.061 | 0.063 |
| D1   | 1.50        | -     | -     | 0.059  | -     | -     |
| P0   | 3.90        | 4.00  | 4.10  | 0.154  | 0.157 | 0.161 |
| P1   | 7.90        | 8.00  | 8.10  | 0.311  | 0.315 | 0.319 |
| P2   | 1.95        | 2.00  | 2.05  | 0.077  | 0.079 | 0.081 |
| 10P0 | 39.80       | 40.00 | 40.20 | 1.567  | 1.575 | 1.583 |
| A0   | 6.85        | 6.95  | 7.05  | 0.269  | 0.273 | 0.276 |
| B0   | 7.15        | 7.25  | 7.35  | 0.280  | 0.284 | 0.288 |
| K0   | 1.95        | 2.05  | 2.15  | 0.076  | 0.080 | 0.084 |
| T    | 0.20        | 0.25  | 0.30  | 0.008  | 0.010 | 0.012 |

| PACKAGE    | OUTLINE | REEL (PCS) | PER CARTON (PCS) | TAPE & REEL |
|------------|---------|------------|------------------|-------------|
| SOT-223-2L | TAPING  | 4,000      | 40,000           | 13 inch     |

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