

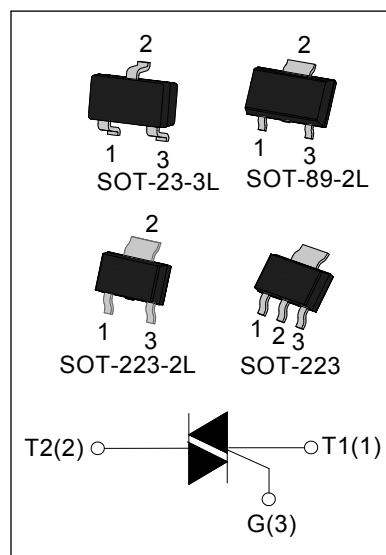


DESCRIPTION:

With low holding and latching current, JST130 series triacs are especially recommended for use on middle and small resistance type power load. All the packages listed above are RoHS compliant. (2011/65/EU)

MAIN FEATURES

| Symbol | Value | Unit |
|--------------|-------|------|
| $I_{T(RMS)}$ | 0.8 | A |
| V_{TM} | 1.5 | V |



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} | 600/800 | V |
| Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$) | | V_{RRM} | 600/800 | V |
| RMS on-state current | SOT-23-3L/ SOT-223/ SOT-223-2L($T_c=75^\circ\text{C}$) | $I_{T(RMS)}$ | 0.8 | A |
| | SOT-89-2L($T_c=60^\circ\text{C}$) | | | |
| Non repetitive surge peak on-state current (full cycle, F=50Hz) | | I_{TSM} | 9 | A |
| I^2t value for fusing ($t_p=10\text{ms}$) | | I^2t | 0.45 | A^2s |
| Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$) | I - II | di/dt | 50 | $\text{A}/\mu\text{s}$ |
| | III-IV | | 10 | |
| Peak gate current | | I_{GM} | 1 | A |
| Average gate power dissipation | | $P_{G(AV)}$ | 0.1 | W |
| Peak gate power | | P_{GM} | 1 | W |

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

| Symbol | Test Condition | Quadrant | Value | | Unit | |
|----------|--|--------------|-------|-----|------|------------------|
| | | | D | T | | |
| I_{GT} | $V_D=12\text{V } R_L=33\Omega$ | I - II - III | MAX | 5 | 5 | mA |
| | | IV | | 10 | 5 | |
| V_{GT} | | ALL | MAX | 1.3 | | V |
| V_{GD} | $V_D=V_{DRM} T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$ | ALL | MIN | 0.2 | | V |
| I_L | $I_G=1.2I_{GT}$ | I - III - IV | MAX | 10 | 5 | mA |
| | | II | | 20 | 15 | |
| I_H | $I_T=100\text{mA}$ | | MAX | 7 | 5 | mA |
| dV/dt | $V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$ | | MIN | 30 | 10 | V/ μs |

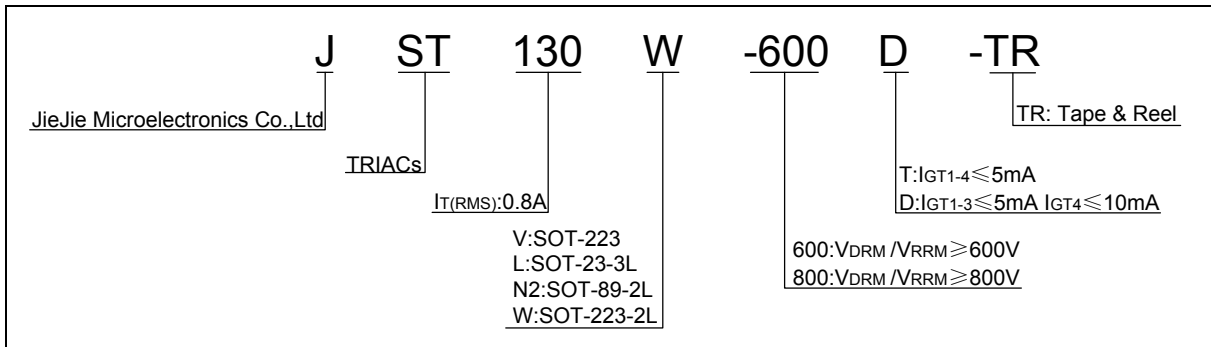
STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX) | Unit |
|-----------|--|---------------------------|------------|---------------|
| V_{TM} | $I_{TM}=1.1\text{A } t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$ | 1.5 | V |
| I_{DRM} | $V_D=V_{DRM} V_R=V_{RRM}$ | $T_j=25^{\circ}\text{C}$ | 5 | μA |
| I_{RRM} | | $T_j=125^{\circ}\text{C}$ | 500 | μA |

THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|---------------|----------------------|--------------------------------------|-------|----------------------|
| $R_{th(j-c)}$ | junction to case(AC) | SOT-223/ SOT-223-2L/ SOT-23-3L | 45 | $^{\circ}\text{C/W}$ |
| | | SOT-89-2L | 60 | |
| $R_{th(j-a)}$ | junction to ambient | SOT-223/ SOT-223-2L | 60 | $^{\circ}\text{C/W}$ |
| | | SOT-23-3L | 125 | |
| | | SOT-89-2L | 90 | |

ORDERING INFORMATION



MARKING

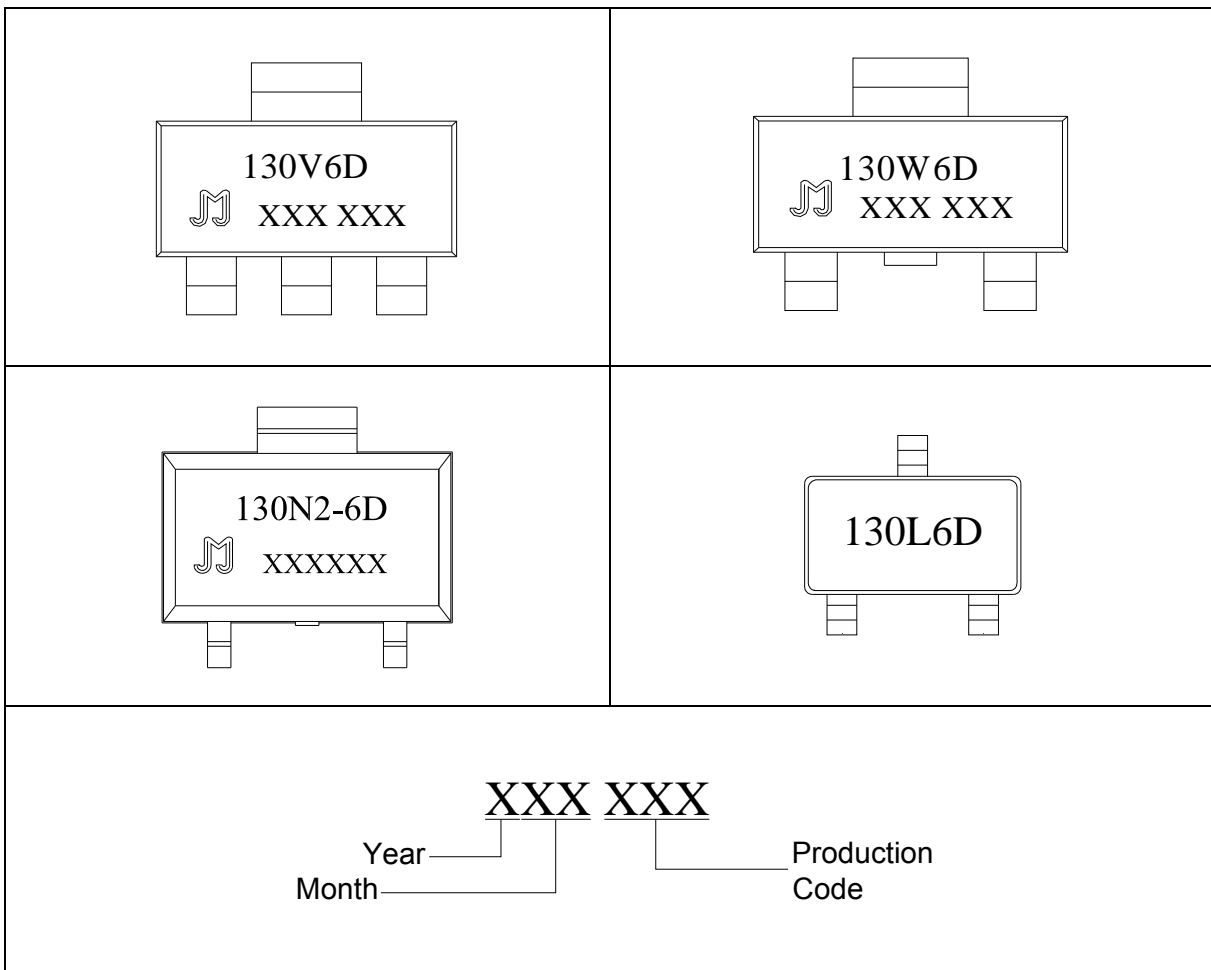


FIG.1: Maximum power dissipation versus RMS on-state current

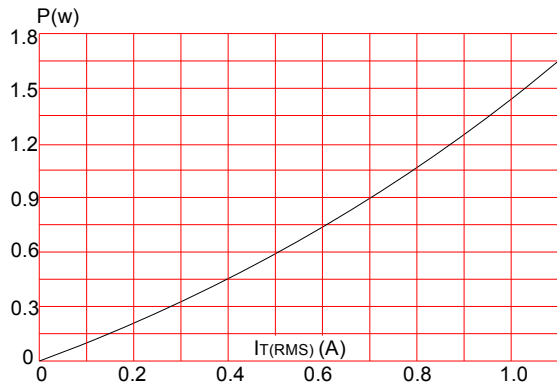


FIG.3: Surge peak on-state current versus number of cycles

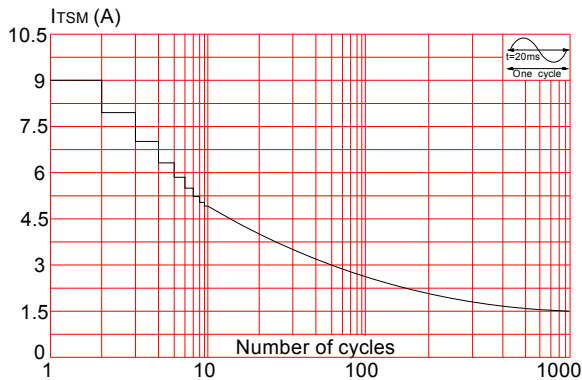


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ ($I - II : di/dt < 50\text{A}/\mu\text{s}$; $III - IV : di/dt < 10\text{A}/\mu\text{s}$)

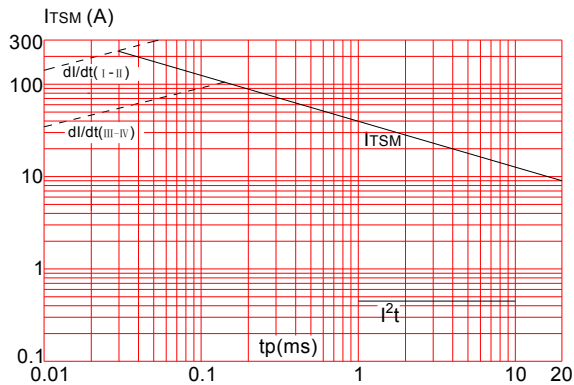


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: $35\mu\text{m}$)(full cycle)

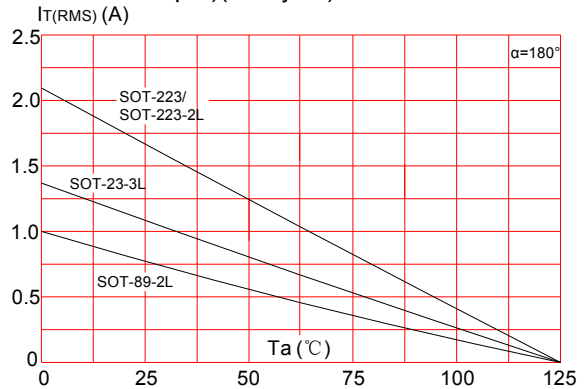


FIG.4: On-state characteristics (maximum values)

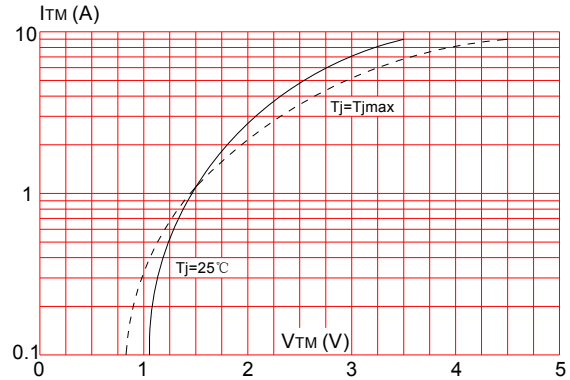
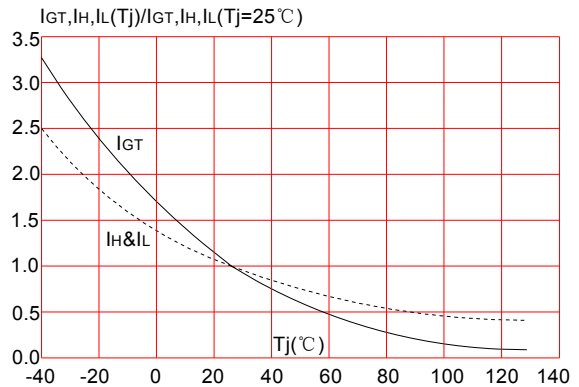
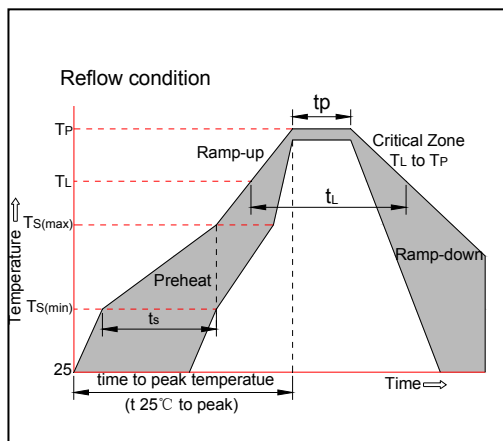


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



SOLDERING PARAMETERS

| | | |
|---|--------------------------------------|---|
| Reflow Condition | | Pb-Free assembly (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 |



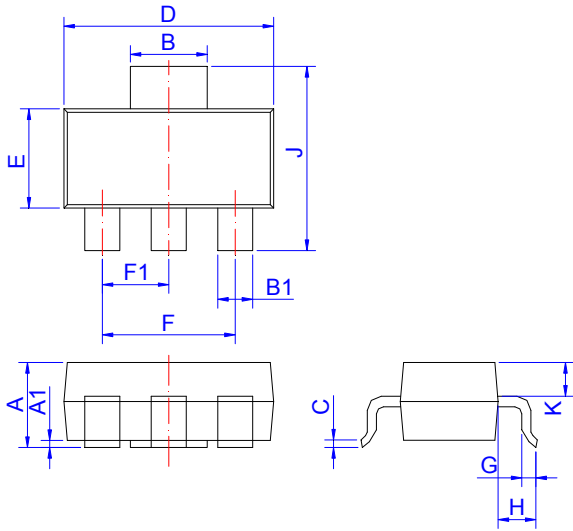
ORDERING INFORMATION

| Order code | Voltage V_{DRM}/V_{RRM} (V) | IGT(mA) | | Package | Base qty. (pcs) | Delivery mode | |
|-------------------|-------------------------------------|------------|----|------------|--------------------|---------------|-------|
| | | I - II-III | IV | | | | |
| JST130V-600/800T | 600/800 | 5 | 5 | SOT-223 | 4,000 | Tape & Reel | |
| JST130V-600/800D | | 5 | 10 | | | | |
| JST130W-600/800T | | 5 | 5 | SOT-223-2L | | | |
| JST130W-600/800D | | 5 | 10 | | | | |
| JST130N2-600/800T | | 5 | 5 | SOT-89-2L | | | |
| JST130N2-600/800D | | 5 | 10 | | | | |
| JST130L-600/800T | | 5 | 5 | SOT-23-3L | | | 3,000 |
| JST130L-600/800D | | 5 | 10 | | | | |

Document Revision History

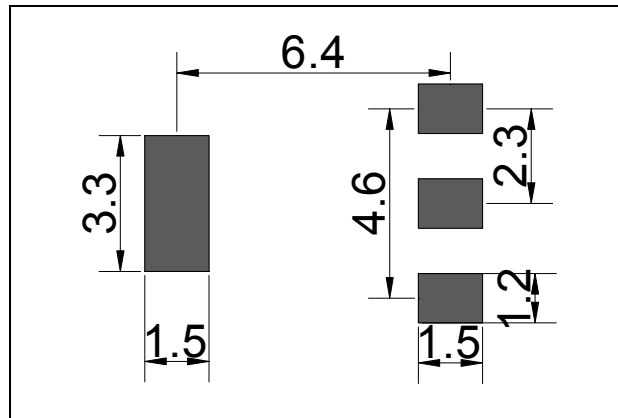
| Date | Revision | Changes |
|-------------|----------|-------------------|
| Apr 6, 2019 | 9 | Last update |
| Sep 8, 2021 | 10 | Renew dl/dt value |

PACKAGE MECHANICAL DATA

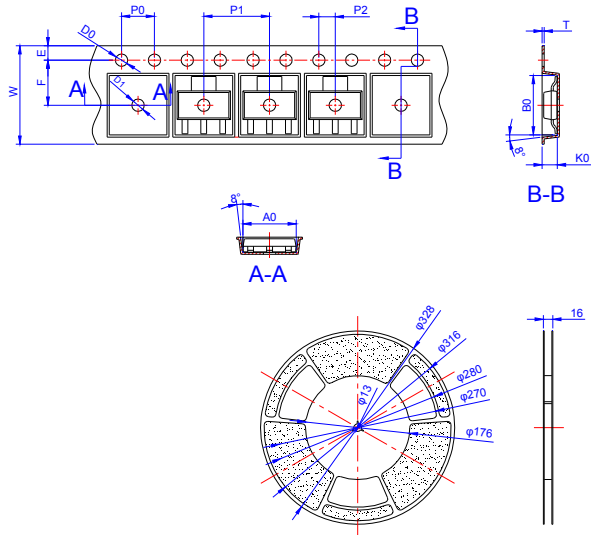


| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 1.5 | 1.6 | 1.8 | 0.059 | 0.063 | 0.071 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| B | 2.9 | 3.0 | 3.1 | 0.114 | 0.118 | 0.122 |
| B1 | 0.6 | 0.7 | 0.8 | 0.024 | 0.028 | 0.031 |
| C | 0.22 | 0.26 | 0.32 | 0.009 | 0.010 | 0.013 |
| D | 6.3 | 6.5 | 6.7 | 0.248 | 0.256 | 0.264 |
| E | 3.3 | 3.5 | 3.7 | 0.130 | 0.138 | 0.146 |
| F | | 4.6 | | | 0.181 | |
| F1 | | 2.3 | | | 0.091 | |
| G | 0.7 | 0.9 | 1.1 | 0.028 | 0.035 | 0.043 |
| H | 1.5 | 1.75 | 2.0 | 0.059 | 0.069 | 0.079 |
| J | 6.7 | 7.0 | 7.3 | 0.264 | 0.276 | 0.287 |
| K | 0.8 | 0.9 | 1.0 | 0.031 | 0.035 | 0.039 |

FOOTPRINT-SOT-223 (dimensions in mm)



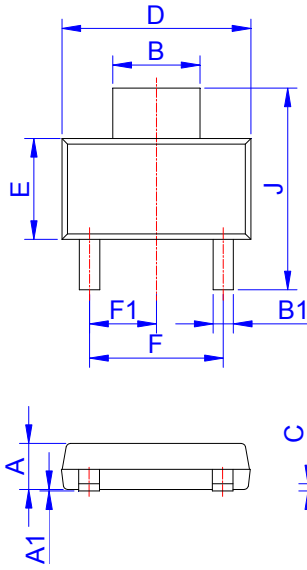
DELIVERY MODE



| Ref. | Dimensions | | | | | |
|------|-------------|-------|-------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| W | - | 12.00 | 12.20 | - | 0.472 | 0.480 |
| 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 | 1.60 | - | 0.059 | 0.063 |
| D1 | - | 1.55 | 1.80 | - | 0.061 | 0.071 |
| 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 | 6.73 | 6.83 | 6.93 | 0.265 | 0.269 | 0.273 |
| B0 | 7.30 | 7.40 | 7.50 | 0.287 | 0.291 | 0.295 |
| K0 | 1.78 | 1.88 | 1.98 | 0.070 | 0.074 | 0.078 |
| T | 0.25 | 0.30 | 0.35 | 0.010 | 0.012 | 0.014 |

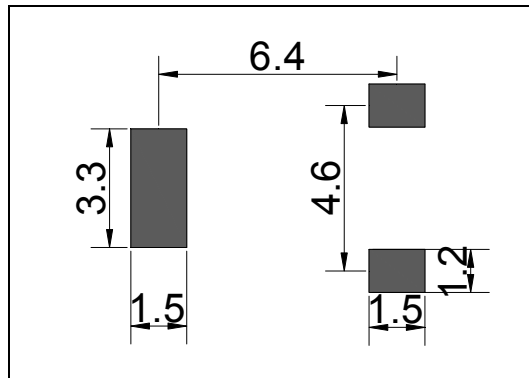
| PACKAGE | OUTLINE | REEL (PCS) | PER CARTON (PCS) | TAPE & REEL |
|---------|---------|------------|------------------|-------------|
| SOT-223 | TAPING | 4,000 | 40,000 | 13 inch |

PACKAGE MECHANICAL DATA

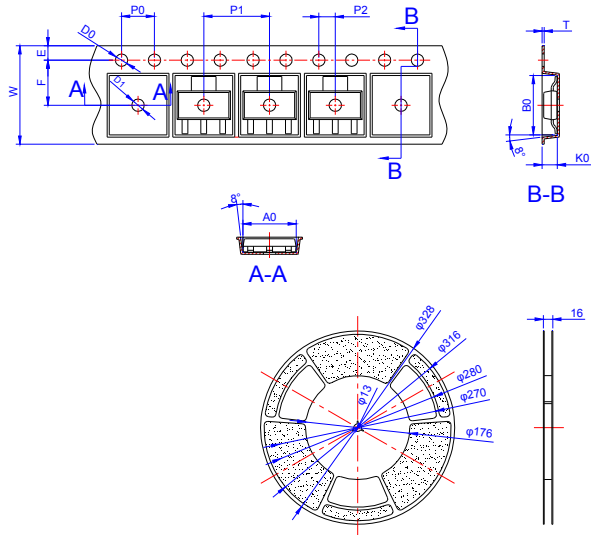


| Ref. | Dimensions | | | | | |
|------|-------------|-------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 1.50 | 1.60 | 1.80 | 0.059 | 0.063 | 0.071 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| B | 2.90 | 3.00 | 3.10 | 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 | | 4.60 | | | 0.181 | |
| F1 | | 2.30 | | | 0.091 | |
| G | 0.70 | 0.90 | 1.10 | 0.028 | 0.035 | 0.043 |
| H | 1.50 | 1.75 | 2.00 | 0.059 | 0.069 | 0.079 |
| J | 6.70 | 7.00 | 7.30 | 0.264 | 0.276 | 0.287 |
| K | | 0.90 | | | 0.035 | |

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



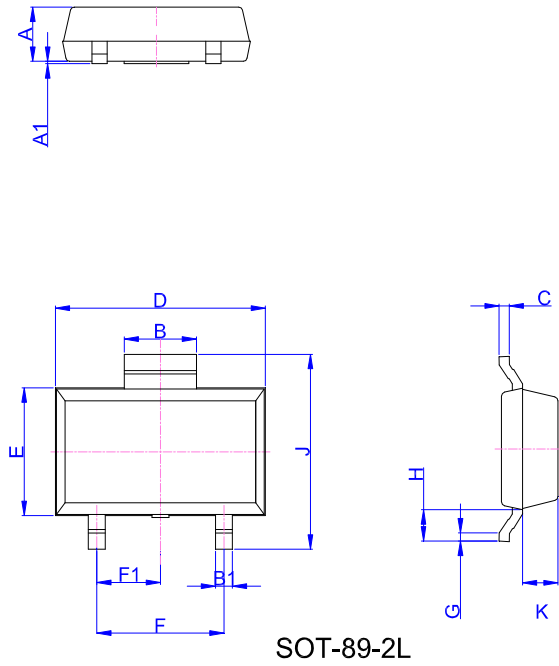
DELIVERY MODE



| Ref. | Dimensions | | | | | |
|------|-------------|-------|-------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| W | - | 12.00 | 12.20 | - | 0.472 | 0.480 |
| 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 | 1.60 | - | 0.059 | 0.063 |
| D1 | - | 1.55 | 1.80 | - | 0.061 | 0.071 |
| 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 | 6.73 | 6.83 | 6.93 | 0.265 | 0.269 | 0.273 |
| B0 | 7.30 | 7.40 | 7.50 | 0.287 | 0.291 | 0.295 |
| K0 | 1.78 | 1.88 | 1.98 | 0.070 | 0.074 | 0.078 |
| T | 0.25 | 0.30 | 0.35 | 0.010 | 0.012 | 0.014 |

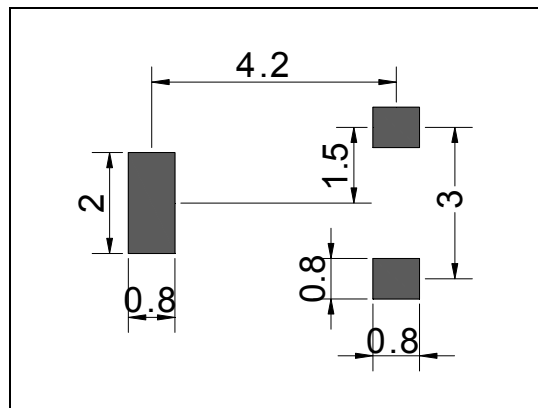
| PACKAGE | OUTLINE | REEL (PCS) | PER CARTON (PCS) | TAPE & REEL |
|------------|---------|------------|------------------|-------------|
| SOT-223-2L | TAPING | 4,000 | 40,000 | 13 inch |

PACKAGE MECHANICAL DATA

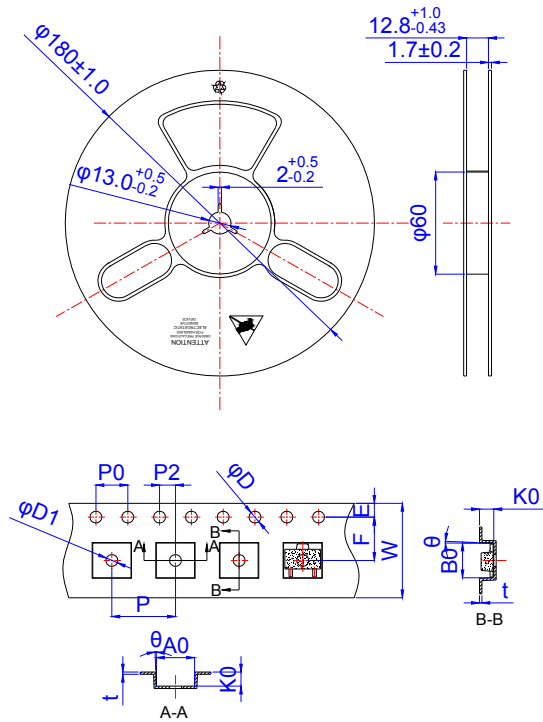


| Ref. | Dimensions | | | | | |
|------|-------------|-------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 1.3 | 1.4 | 1.5 | 0.051 | 0.055 | 0.059 |
| A1 | 0.01 | 0.06 | 0.10 | 0.001 | 0.002 | 0.004 |
| B | 1.6 | 1.7 | 1.8 | 0.063 | 0.067 | 0.071 |
| B1 | 0.3 | 0.4 | 0.5 | 0.012 | 0.016 | 0.020 |
| C | 0.22 | 0.254 | 0.32 | 0.009 | 0.010 | 0.013 |
| D | 4.75 | 4.95 | 5.15 | 0.187 | 0.195 | 0.203 |
| E | 2.75 | 2.95 | 3.15 | 0.108 | 0.116 | 0.124 |
| F | | 3.0 | | | 0.118 | |
| F1 | | 1.5 | | | 0.059 | |
| G | 0.2 | 0.3 | 0.4 | 0.008 | 0.012 | 0.016 |
| H | 0.58 | 0.78 | 0.98 | 0.023 | 0.031 | 0.039 |
| J | 4.3 | 4.5 | 4.7 | 0.169 | 0.177 | 0.185 |
| K | | 0.88 | | | 0.035 | |

FOOTPRINT-SOT-89-2L (dimensions in mm)



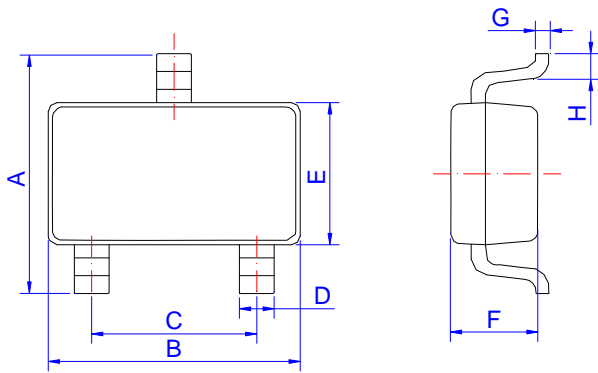
DELIVERY MODE



| Ref. | Dimensions | | | | | |
|----------|-------------|-------|-------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| 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 |
| P2 | 1.95 | 2.00 | 2.05 | 0.077 | 0.079 | 0.081 |
| D | - | 1.50 | 1.60 | - | 0.059 | 0.063 |
| D1 | 1.40 | 1.50 | 1.60 | 0.055 | 0.059 | 0.063 |
| P0 | 3.90 | 4.00 | 4.10 | 0.154 | 0.157 | 0.161 |
| 10P0 | 39.80 | 40.00 | 40.20 | 1.567 | 1.575 | 1.583 |
| W | 11.90 | 12.00 | 12.10 | 0.469 | 0.472 | 0.476 |
| P | 7.90 | 8.00 | 8.10 | 0.311 | 0.315 | 0.319 |
| A0 | 4.70 | 4.80 | 4.90 | 0.185 | 0.189 | 0.193 |
| B0 | 4.30 | 4.40 | 4.50 | 0.169 | 0.173 | 0.177 |
| K0 | 1.70 | 1.80 | 1.90 | 0.067 | 0.071 | 0.075 |
| t | 0.25 | 0.30 | 0.35 | 0.010 | 0.012 | 0.014 |
| θ | 3° | | 5° | 3° | | 5° |

| PACKAGE | OUTLINE | REEL (PCS) | PER CARTON (PCS) | TAPE & REEL |
|-----------|---------|------------|------------------|-------------|
| SOT-89-2L | TAPING | 4,000 | 40,000 | 13 inch |

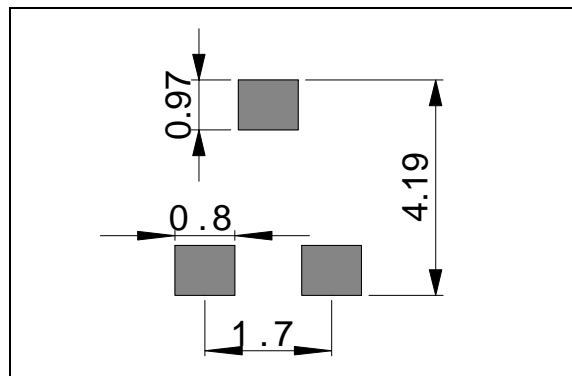
PACKAGE MECHANICAL DATA



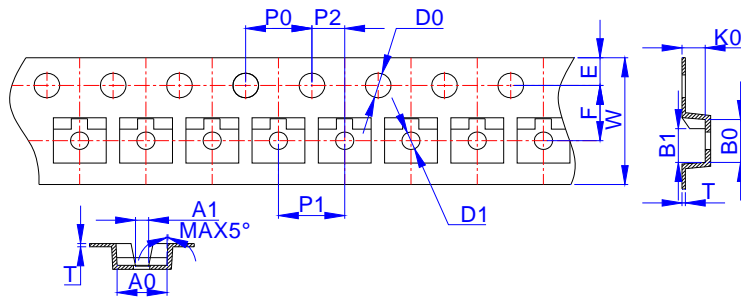
SOT-23-3L

| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.65 | 2.80 | 2.95 | 0.104 | 0.110 | 0.116 |
| B | 2.82 | 2.92 | 3.02 | 0.111 | 0.115 | 0.119 |
| C | 1.80 | 1.90 | 2.00 | 0.071 | 0.075 | 0.079 |
| D | 0.30 | 0.35 | 0.50 | 0.012 | 0.014 | 0.020 |
| E | 1.50 | 1.60 | 1.70 | 0.059 | 0.063 | 0.067 |
| F | 1.07 | 1.17 | 1.27 | 0.042 | 0.046 | 0.050 |
| G | 0.05 | 0.15 | 0.25 | 0.002 | 0.006 | 0.010 |
| H | 0.25 | 0.40 | 0.55 | 0.010 | 0.016 | 0.022 |

FOOTPRINT-SOT-23-3L (dimensions in mm)



DELIVERY MODE



| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A0 | 3.10 | 3.20 | 3.30 | 0.122 | 0.126 | 0.130 |
| A1 | 1.02 | 1.04 | 1.06 | 0.040 | 0.041 | 0.042 |
| B0 | 3.18 | 3.28 | 3.38 | 0.125 | 0.129 | 0.133 |
| B1 | 2.39 | 2.49 | 2.59 | 0.094 | 0.098 | 0.102 |
| K0 | 1.22 | 1.32 | 1.42 | 0.048 | 0.052 | 0.056 |
| P0 | 3.90 | 4.00 | 4.10 | 0.154 | 0.157 | 0.161 |
| P1 | 3.90 | 4.00 | 4.10 | 0.154 | 0.157 | 0.161 |
| P2 | 1.95 | 2.00 | 2.05 | 0.077 | 0.079 | 0.081 |
| T | 0.15 | 0.20 | 0.25 | 0.006 | 0.008 | 0.010 |
| E | 1.65 | 1.75 | 1.85 | 0.065 | 0.069 | 0.073 |
| F | 3.45 | 3.50 | 3.55 | 0.136 | 0.138 | 0.140 |
| D0 | 1.50 | 1.55 | 1.60 | 0.059 | 0.061 | 0.063 |
| D1 | 1.00 | 1.10 | 1.20 | 0.039 | 0.043 | 0.047 |
| W | 7.90 | 8.00 | 8.20 | 0.311 | 0.315 | 0.323 |

| PACKAGE | OUTLINE | REEL (PCS) | PER CARTON (PCS) | TAPE & REEL |
|-----------|---------|------------|------------------|-------------|
| SOT-23-3L | TAPING | 3,000 | 120,000 | 7 inch |



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