

## SERIES TT-SMDC

### FEATURES

- AT CUT CRYSTAL PERFORMANCE
- THERMOPLASTIC PACKAGE SUITED FOR REFLOW SOLDERING
- EXCELLENT FOR HIGH DENSITY CIRCUIT BOARDS



### SPECIFICATIONS

| PARAMETER                            |                | VALUE                                                    |
|--------------------------------------|----------------|----------------------------------------------------------|
| FREQUENCY RANGE                      |                | 3.579545 MHz ~ 70.000 MHz                                |
| MODE OF OSCILLATION                  | FUNDAMENTAL    | 3.579545 MHz ~ 30.000 MHz                                |
|                                      | THIRD OVERTONE | 30.100 MHz ~ 70.000 MHz                                  |
| FREQUENCY TOLERANCE AT 25°C          |                | ±50 ppm max (±30 Available)                              |
| FREQUENCY STABILITY OVER TEMPERATURE |                | ±50 ppm max (±30 Available)                              |
| TEMPERATURE RANGE                    | STANDARD       | -10°C ~ +60°C                                            |
|                                      | EXTENDED       | -40°C ~ +85°C                                            |
| LOAD CAPACITANCE                     |                | 12 pF to 32 pF or Series                                 |
| SHUNT CAPACITANCE                    |                | 7.0 pF max                                               |
| EQUIVALENT SERIES RESISTANCE (ESR)   |                | See Table 1                                              |
| DRIVE LEVEL                          |                | 100 µW max                                               |
| SHOCK RESISTANCE                     |                | ±5 ppm max 75 cm drop test in 3 axes onto a wood surface |
| REFLOW CONDITIONS                    |                | 260°C for 10s max                                        |



**TABLE 1**

| FREQUENCY (MHz) | MODE           | MAX ESR (Ω) |
|-----------------|----------------|-------------|
| 3.50 TO 3.999   | Fundamental    | 200         |
| 4.00 TO 5.999   | Fundamental    | 150         |
| 6.00 TO 9.999   | Fundamental    | 100         |
| 10.00 TO 30.00  | Fundamental    | 50          |
| 30.10 TO 90.000 | Third Overtone | 100         |

### PART NUMBERING SYSTEM

| HOLDER TYPE | - | FREQUENCY | - | LOAD CAPACITANCE                         | - | MODE                                                               | - | TOLERANCE/STABILITY (PPMPPM)                             |
|-------------|---|-----------|---|------------------------------------------|---|--------------------------------------------------------------------|---|----------------------------------------------------------|
| TT-SMDC     | - | In MHz    | - | 10 to 32 pF for Parallel<br>S for Series | - | Blank for < 24.576 MHz<br>F for ≥ 24.576 MHz<br>3OT Third Overtone | - | Blank for Maximum<br>ppm for Other<br>Example 3050, 2050 |

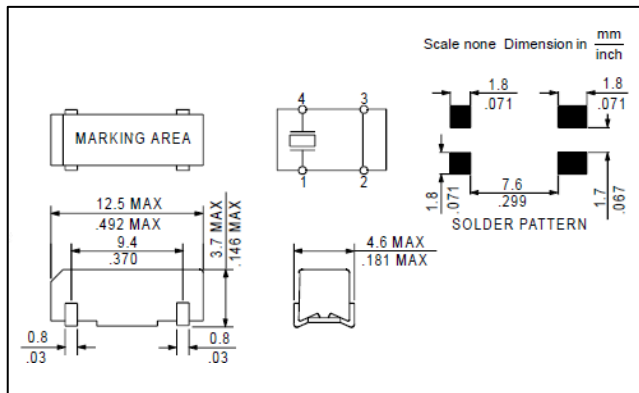
| - | EXTENDED TEMPERATURE                   | - | TAPE & REEL |
|---|----------------------------------------|---|-------------|
| - | Blank for Standard<br>EXT for Extended | - | TR          |

**Example:**

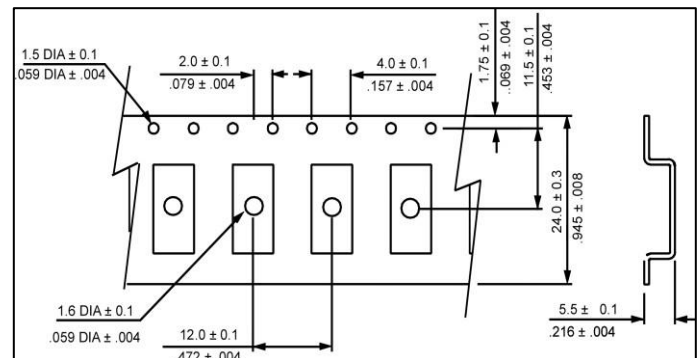
TT-SMDC-12.000-18-3050-EXT-TR

## SERIES TT-SMDC

### ● OUTLINE DRAWINGS



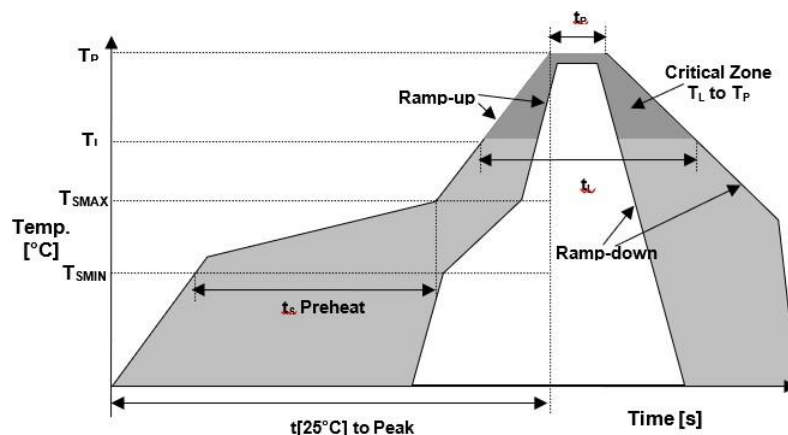
### ● CARRIER TAPE DIMENSIONS



### ● PACKAGING

330 mm REEL DIAMETER, 24 mm TAPE WIDTH,  
QUANTITY 1000 PIECES PER REEL

### ● REFLOW SOLDERING PROFILE



| Reflow profile                              |                                    |            |
|---------------------------------------------|------------------------------------|------------|
| Temperature Min Preheat                     | $T_{SMIN}$                         | 150°C      |
| Temperature Max Preheat                     | $T_{SMAX}$                         | 200°C      |
| Time ( $T_{SMIN}$ to $T_{SMAX}$ )           | $t_S$                              | 60-180 s   |
| Temperature                                 | $T_L$                              | 217°C      |
| Peak Temperature                            | $T_P$                              | 260°C      |
| Ramp-up rate                                | $R_{UP}$                           | 3°C/s max. |
| Ramp-down rate                              | $R_{DOWN}$                         | 6°C/s max. |
| Time within 5°C of Peak Temperature         | $t_P$                              | 10 s       |
| Time $t_{[25^\circ C]}$ to Peak Temperature | $t_{[25^\circ C] \text{ to Peak}}$ | 480 s      |
| Time                                        | $t_L$                              | 60-150 s   |

### ● ENVIRONMENTAL

| PARAMETER                  | VALUE     |
|----------------------------|-----------|
| MOISTURE SENSITIVITY LEVEL | 1         |
| REACH SVHC                 | COMPLIANT |
| RoHS                       | COMPLIANT |

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