

## / Descriptions

BRCL4079ME-4.2

/

BRCL4079ME-4.2

5V

USB

# MOSFET

4.2V

1/10

BRCL4079ME-4.2

BRCL4079ME-4.2

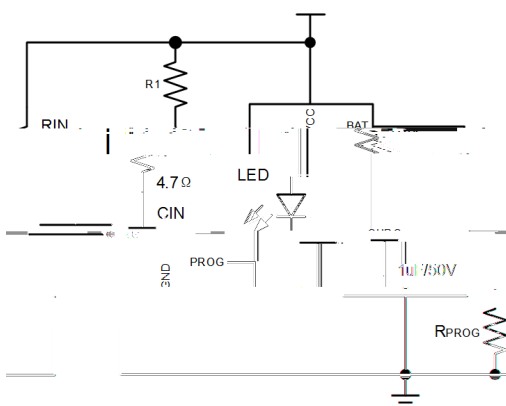
SOT23-5

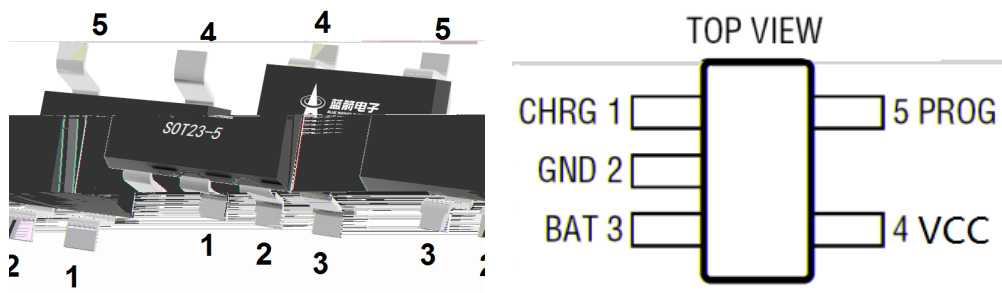
-40±C

+85±C

## / Features

- ◆ 36V 6.1V  
◆ 600mA  
◆ MOSFET  
◆ /  
◆ USB  
◆  
◆ 4.2V 1%  
◆ 2.5V  
◆ C/10  
◆ 550A  
◆  
◆  
◆ SOT23-5  
◆  
◆ SGD P S6  
◆  
◆  
◆  
◆



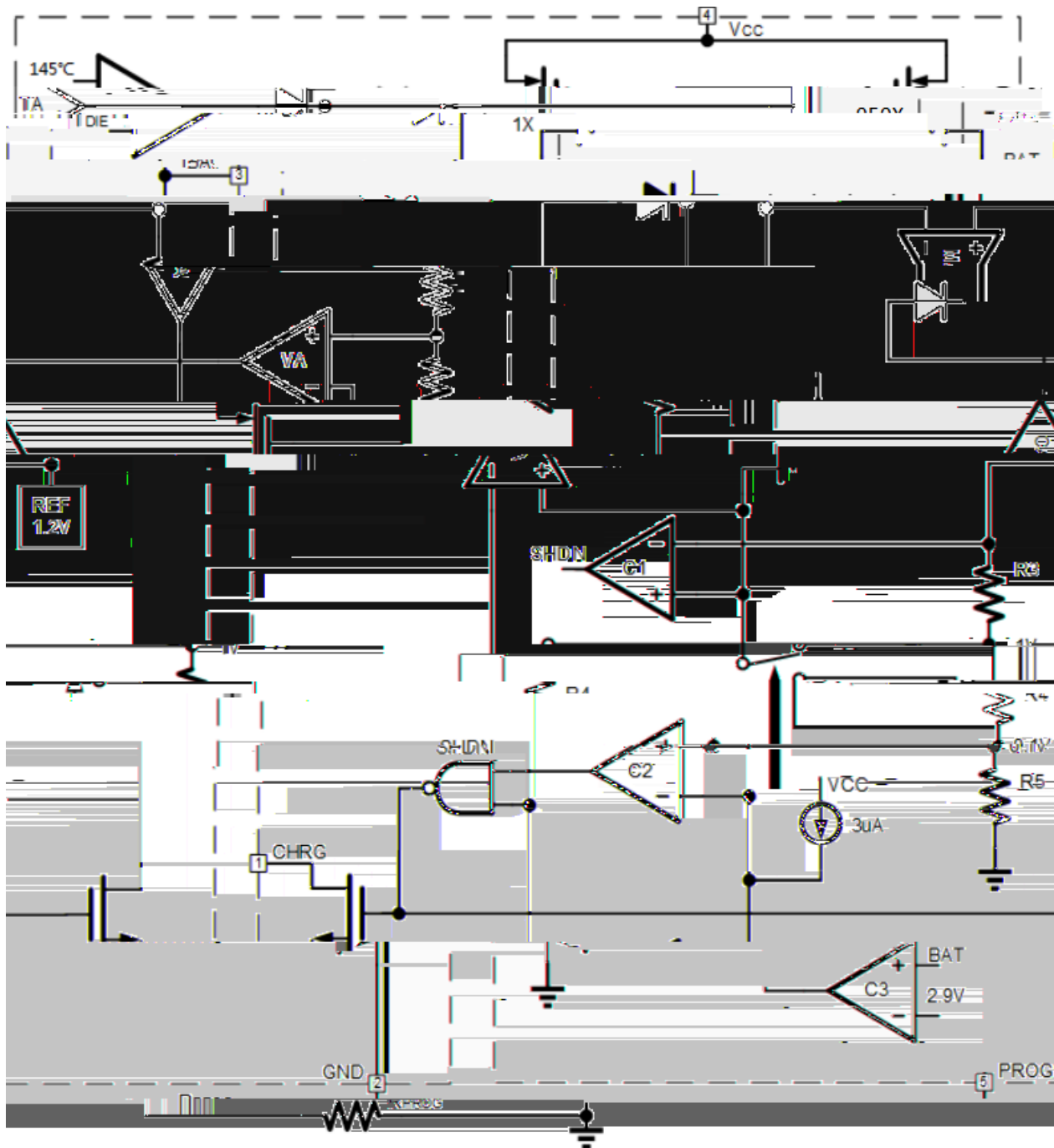


| PIN Num. | Symbol | Function |
|----------|--------|----------|
| 1        | CHRG   |          |
| 2        | GND    |          |
| 3        | BAT    |          |
| 4        | VCC    |          |
| 5        | SUR J  |          |

/ Electrical Characteristics( $V_{IN}=5V$ ,  $V_{BAT}=3.6V$ ,  $T_a=25^\circ C$ , unless otherwise specified)

| PARAMETER                                         | SYMBOL              | CONDITIONS                                                                            | MIN   | TYP     | MAX     | UNITS      |
|---------------------------------------------------|---------------------|---------------------------------------------------------------------------------------|-------|---------|---------|------------|
| Input Voltage Range                               | $V_{CC}$            |                                                                                       | 4.5   | 5       | 36      | V          |
| Quiescent Supply Current                          | $I_Q$               | Charge Mode $R_{PROG}=2.0k$                                                           |       | 240     | 360     | $\mu A$    |
|                                                   |                     | Standby Mode (Charge Terminated)                                                      |       | 220     | 300     | $\mu A$    |
|                                                   |                     | Shutdown Mode ( $R_{PROG}$ Not Connected, $V_{CC} < V_{BAT}$ , or $V_{CC} < V_{UV}$ ) |       | 220     | 300     | $\mu A$    |
|                                                   |                     | OVP state                                                                             |       | 120     | 250     | $\mu A$    |
| Regulated Output (Float)Voltage                   | $V_{FLOAT}$         | $0\% \leq T_A \leq 85\%$ , $R_{PROG} = 2.0k$                                          | 4.158 | 4.200   | 4.242   | V          |
| BAT Pin Current                                   | $I_{BAT}$           | $R_{PROG} = 2.0k$ , Current Mode                                                      | 427.5 | 475     | 522.5   | mA         |
|                                                   |                     | Standby Mode, $V_{BAT} = 4.2V$                                                        | 0     | -2.5    | -6      | $\mu A$    |
|                                                   |                     | Shutdown Mode ( $R_{PROG}$ Not Connected)                                             |       | $\pm 1$ | $\pm 2$ | $\mu A$    |
|                                                   |                     | Sleep Mode, $V_{CC} = 0V$                                                             |       | -1      | -2      | $\mu A$    |
| Trickle Charge Current                            | $I_{TRIKL}$         | $V_{BAT} < V_{TRIKL}$ , $R_{PROG} = 2.0K$                                             | 35    | 47.5    | 60      | mA         |
| Trickle Charge Threshold Voltage                  | $V_{TRIKL}$         | $R_{PROG} = 2.0k$ , $V_{BAT}$ Rising                                                  | 2.3   | 2.5     | 2.7     | V          |
| Trickle Charge Hysteresis Voltage                 | $V_{TRHYS}$         | $R_{PROG} = 2.0k$                                                                     | 120   | 160     | 200     | mV         |
| VCC Undervoltage Lockout Threshold                | $V_{UV}$            | From $V_{CC}$ Low to High                                                             | 3.5   | 3.7     | 3.9     | V          |
| VCC Undervoltage Lockout Hysteresis               | $V_{UVHYS}$         | From $V_{CC}$ High to Low                                                             | 100   | 200     | 300     | mV         |
| VCC-VBAT Lockout Threshold Voltage                | $V_{ASD}$           | $V_{CC}$ from Low to High                                                             | 100   | 125     | 150     | mV         |
|                                                   |                     | $V_{CC}$ from High to Low                                                             | 30    | 65      | 100     | mV         |
| C/10 Termination Current Threshold                | $I_{TERM}$          | $R_{PROG} = 2.0k$                                                                     | 35    | 47.5    | 60      | mA         |
| PROG Pin Voltage                                  | $V_{PROG}$          | $R_{PROG} = 2.0k$ , Current Mode                                                      | 0.9   | 1.0     | 1.1     | V          |
| CHRG Pin Output Low Voltage                       | $V_{CHRG}$          | $I_{CHRG} = 5mA$                                                                      |       | 0.3     | 0.6     | V          |
| Recharge Battery Threshold Voltage                | $\Delta V_{RECHRG}$ | $V_{FLOAT} - V_{RECHRG}$                                                              | 100   | 150     | 200     | mV         |
| Junction Temperature in Constant Temperature Mode | $T_{LIM}$           |                                                                                       |       | 145     |         | $^\circ C$ |
| Soft-Start Time                                   | $t_{SS}$            | $I_{BAT} = 0$ to $I_{BAT} = 950V/R_{PROG}$                                            |       | 20      |         | $\mu s$    |
| Recharge Comparator Filter Time                   | $t_{RECHARGE}$      | $V_{BAT}$ High to Low                                                                 | 0.8   | 1.8     | 4.0     | ms         |
| Termination Comparator Filter Time                | $t_{TERM}$          | $I_{BAT}$ Falling Below $I_{CHG}/10$                                                  | 0.8   | 1.8     | 4.0     | ms         |
| PROG Pin Pull-Up Current                          | $I_{PROG}$          |                                                                                       |       | 1.0     |         | $\mu A$    |

## / Principle block diagram



/ Function description

|                |                |                                         |                        |
|----------------|----------------|-----------------------------------------|------------------------|
| ◆              | BRCL4079ME-4.2 | /                                       | PCB                    |
|                | 600mA          | ± 1% BRCL4079ME-4.2                     | P                      |
|                | MOSFET         |                                         |                        |
|                | BRCL4079ME-4.2 | USB                                     |                        |
| ◆              | VCC            | UVLO                                    | 1% PROG                |
|                |                | BAT                                     | 2.5V                   |
| BRCL4079ME-4.2 | 1/10           |                                         |                        |
| BAT            | 2.5V           |                                         | BAT                    |
|                | 4.2V           | BRCL4079ME-4.2                          |                        |
|                | 1/10           |                                         |                        |
| ◆              | PROG           | PROG                                    | 950                    |
|                |                | $R_{PROG}=950/I_{CHG}$                  | $I_{CHG}=950/R_{PROG}$ |
|                | PROG           | BAT                                     |                        |
|                |                | $I_{BAT}=(V_{PROG}\times 950)/R_{PROG}$ |                        |



/ Function description

◆  
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FKUJ FKUJ FKUJ FKUJ

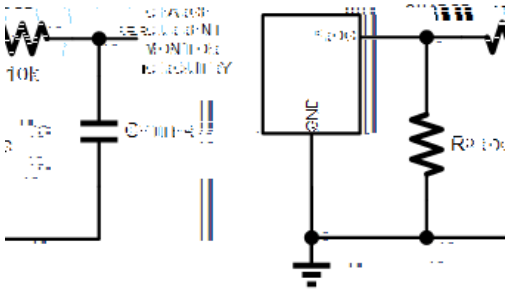
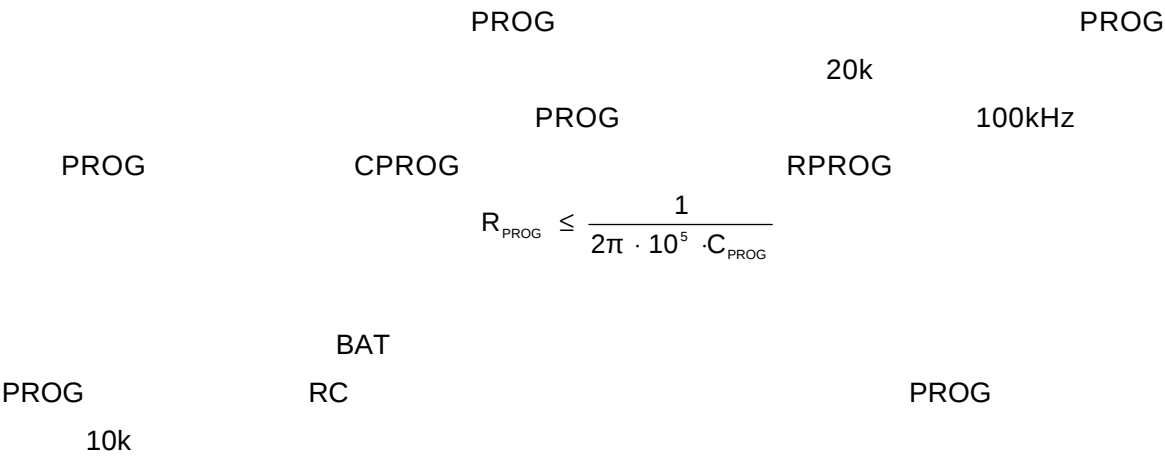
|      |      |     |        |     |
|------|------|-----|--------|-----|
| EDW  | 430I | OHG | OHG    | 407 |
|      |      | LED |        |     |
|      |      |     |        |     |
| UVLO |      |     |        |     |
| BAT  | 100F | LED | T=1-4s |     |

◆  
145±C  
BRCL4079ME-4.2  
BRCL4079ME-4.2

◆  
UVLO  
UVLO 200mV VCC MOSFET VCC  
30mV UVLO  
VCC 100mV UVLO

◆  
BRCL4079ME-4.2 1.8ms tRECHARGE  
BAT 4.05V 80% 90%  
CHRG

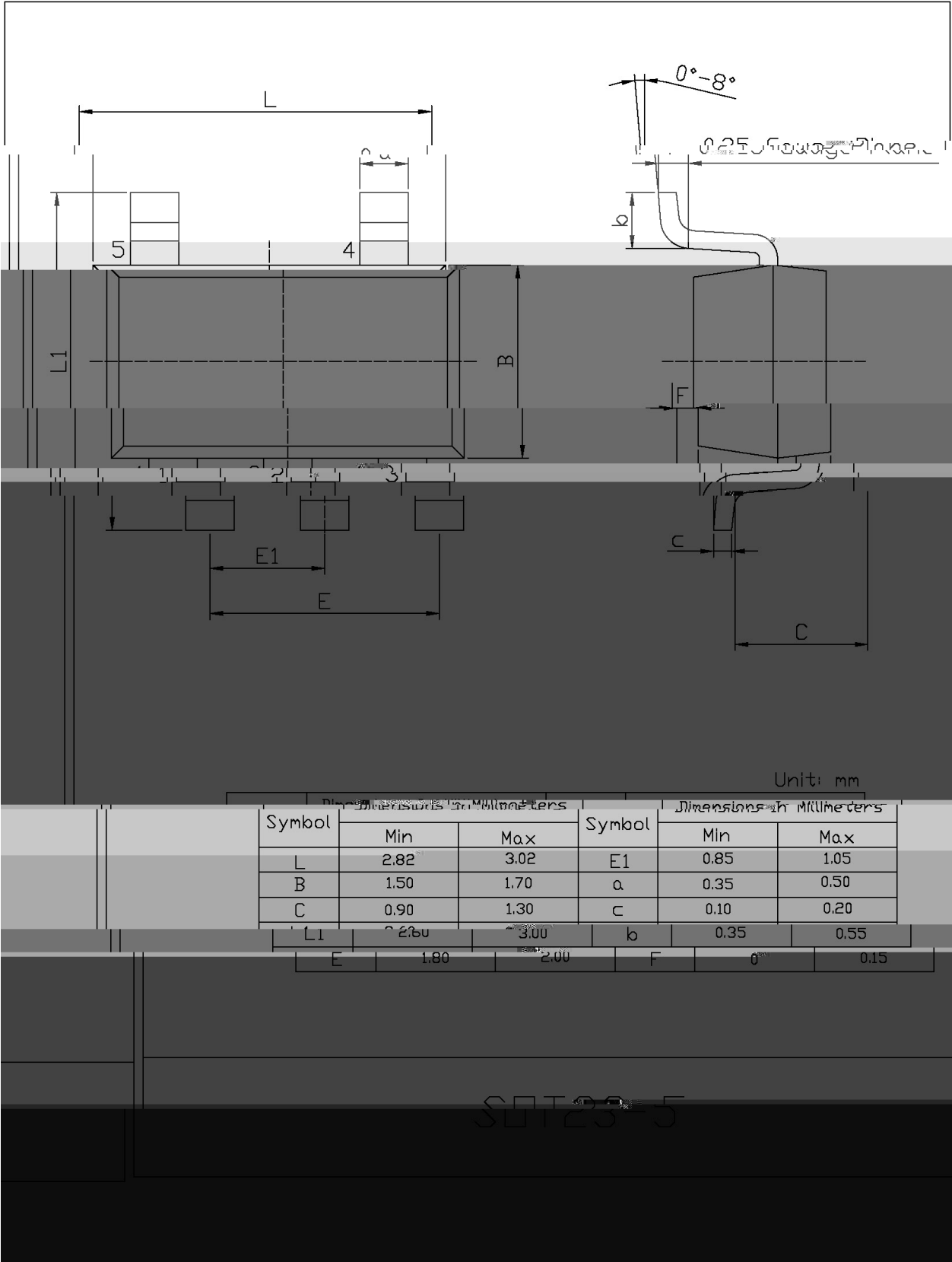
/ Function description



PCB P<sub>D</sub>

$$T_J = P_D \times \theta_{JA} + T_A$$

/ Package Dimensions



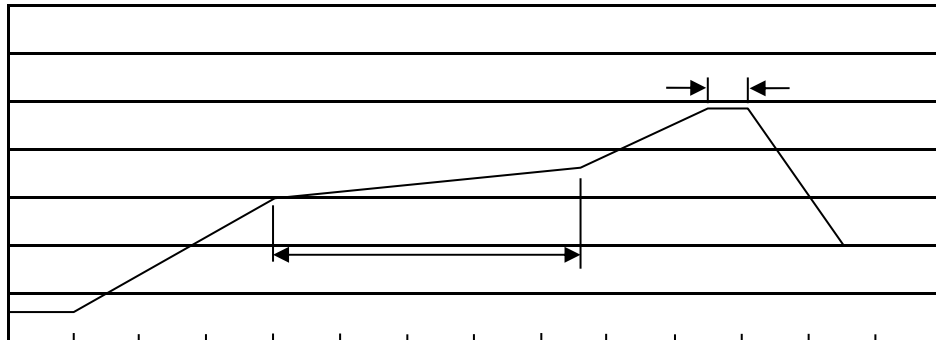
/ Marking Instructions



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## ( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- |   |     |      |          |          |                                             |
|---|-----|------|----------|----------|---------------------------------------------|
| 1 | 150 | 180% | 60       | 90sec;   | 1.Preheating:150~180%, Time:60~90sec.       |
| 2 | 245 | ±5%  | 5        | ±0.5sec; | 2.Peak Temp.:245 ± 5%, Duration:5 ± 0.5sec. |
| 3 |     | 2    | 10%/sec. |          | 3. Cooling Speed: 2~10%/sec.                |

## / Resistance to Soldering Heat Test Conditions

260 ± 5%

10 ± 1 sec.

Temp.:260±5

Time:10±1 sec

## / Packaging SPEC.

/ REEL

| Package Type | Units |    |        |   |         | Dimension (unit mm <sup>3</sup> ) |             |             |
|--------------|-------|----|--------|---|---------|-----------------------------------|-------------|-------------|
|              |       |    |        |   |         |                                   |             |             |
| SOT23-5/6    | 3,000 | 10 | 30,000 | 4 | 120,000 | 7 × 8                             | 210×205×205 | 445×435×230 |

## / Notices

All information provided in this document is subject to legal disclaimers.