

**200mA Plastic-Encapsulate Schottky Barrier Diode - 30V****PRIMARY CHARACTERISTICS**

|             |       |
|-------------|-------|
| $P_D$       | 150mW |
| $V_R$       | 30V   |
| $I_O$       | 200mA |
| $V_F$       | 0.6V  |
| $T_{J,Max}$ | 125°C |

**FEATURES**

- Small surface mounting type
- Low  $I_R$
- High reliability
- Moisture Sensitivity Level 1

**SOD-523****PACKAGE**

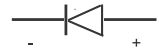
Marking : B \ 5J



or



| Date Code List |          |           |
|----------------|----------|-----------|
| Month          | Odd Year | Even Year |
| Jan            | 1        | E         |
| Feb            | 2        | F         |
| Mar            | 3        | H         |
| Apr            | 4        | J         |
| May            | 5        | K         |
| Jun            | 6        | L         |
| Jul            | 7        | N         |
| Aug            | 8        | P         |
| Sep            | 9        | U         |
| Oct            | T        | X         |
| Nov            | V        | Y         |
| Dec            | C        | Z         |



1.D: Device Code --fixed

2.K: Data Code --Change in Month

**MECHANICAL DATA**

- Case : Molded plastic,SOD-523
- Polarity : Shown above
- Terminals :Plated terminals, solderable per MIL-STD-750,Method 2026
- Epoxy : UL94-V0 rated flame retardant

**Maximum Ratings and Electrical Characteristics, Single Diode @Ta=25°C**

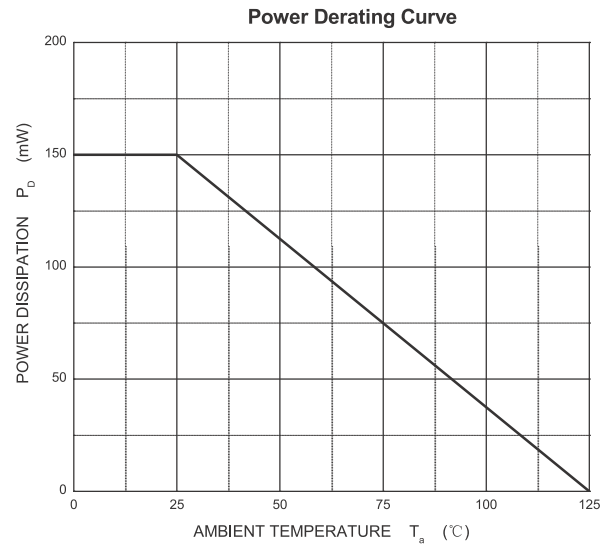
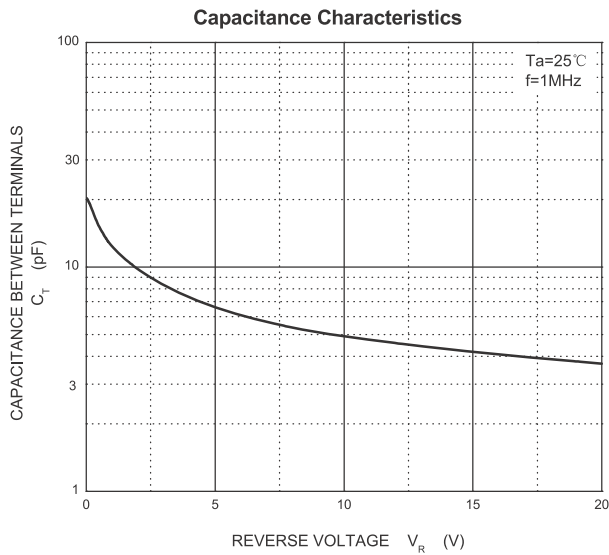
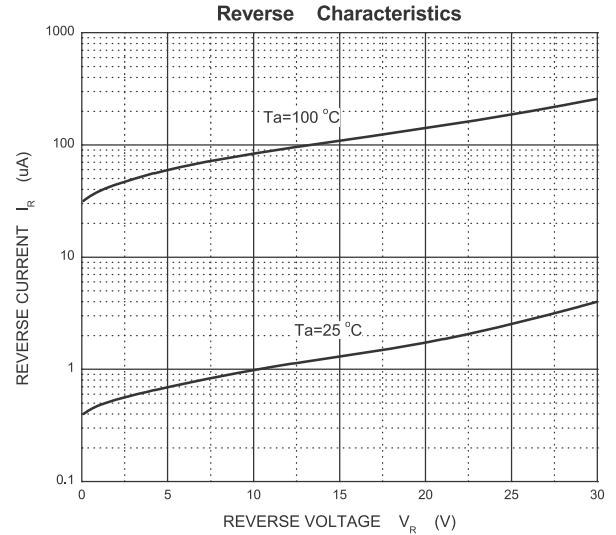
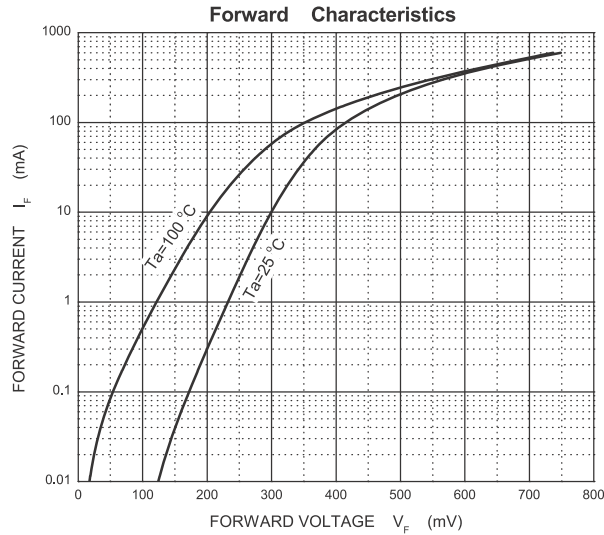
| Parameter                              | Symbol          | Limit    | Unit |
|----------------------------------------|-----------------|----------|------|
| DC reverse voltage                     | $V_R$           | 30       | V    |
| Mean rectifying current                | $I_O$           | 200      | mA   |
| Peak forward surge current             | $I_{FSM}$       | 1        | A    |
| Power dissipation                      | $P_D$           | 150      | mW   |
| Thermal resistance junction to ambient | $R_{\theta JA}$ | 667      | °C/W |
| Operating temperature                  | $T_j$           | -55~+125 | °C   |
| Storage temperature                    | $T_{stg}$       | -55~+150 | °C   |

**Electrical Ratings @Ta=25°C**

| Parameter       | Symbol | Min | Typ | Max | Unit | Conditions  |
|-----------------|--------|-----|-----|-----|------|-------------|
| Forward voltage | $V_F$  |     |     | 0.6 | V    | $I_F=200mA$ |
| Reverse current | $I_R$  |     |     | 1   | μA   | $V_R=10V$   |



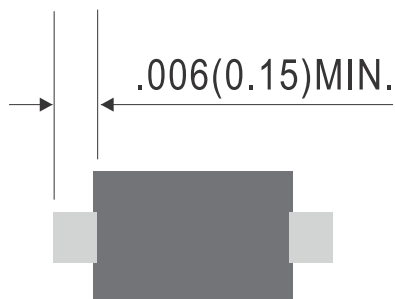
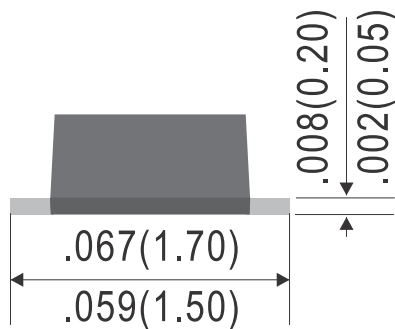
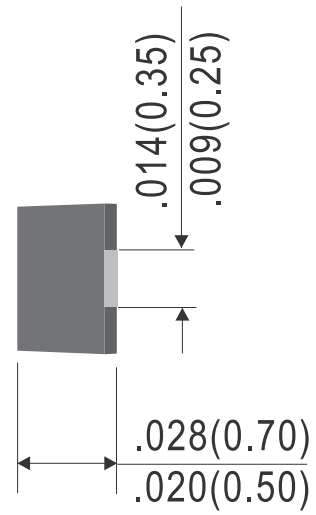
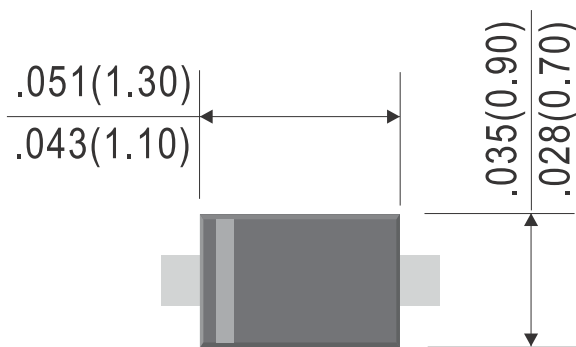
## Typical Characteristics





## Outline Drawing

## SOD-523



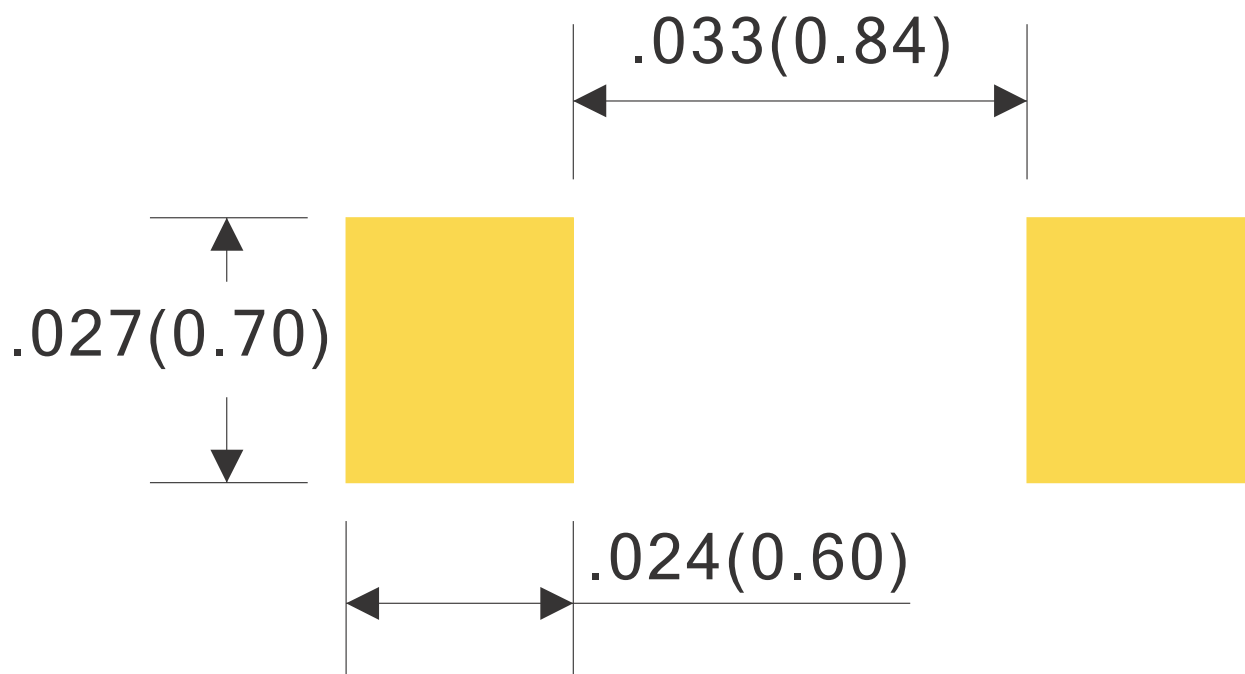
Dimensions in inches and (millimeters)

Rev.C



## Suggested Soldering Pad Layout

SOD-523



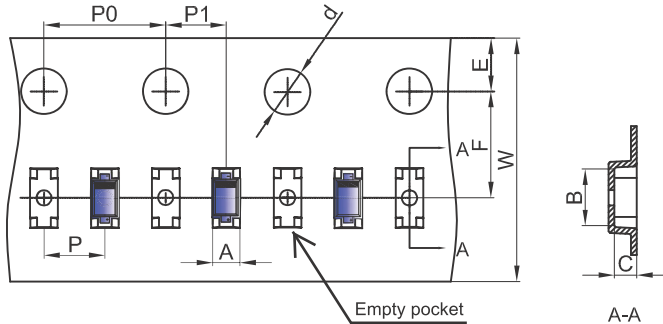
Dimensions in inches and (millimeters)

RevA



## SOD-523 Tape and reel (Packing Code : T(T3) )

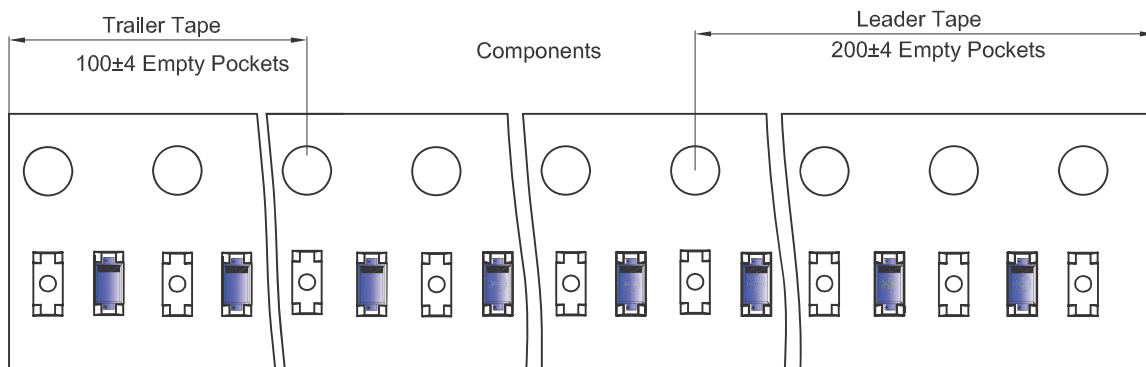
### SOD-523 Embossed Carrier Tape



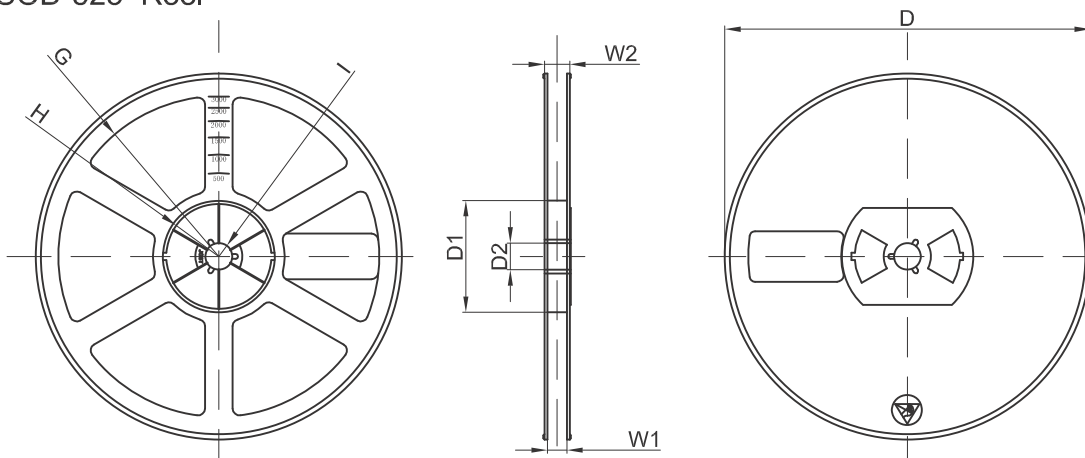
| Packing Code | Reel     | Reel Size |
|--------------|----------|-----------|
| T            | 5,000pcs | 7 inch    |
| T3           | 3,000pcs | 7 inch    |

| Dimensions are in millimeter |         |         |         |        |        |        |        |        |        |           |
|------------------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|-----------|
| Pkg type                     | A       | B       | C       | d      | E      | F      | P0     | P      | P1     | W         |
| SOD-523                      | 0.9     | 1.94    | 0.73    | Ø1.50  | 1.75   | 3.50   | 4.00   | 2.00   | 2.00   | 8.00      |
| (Tolerance)                  | +/-0.05 | +/-0.05 | +/-0.05 | +/-0.1 | +/-0.1 | +/-0.1 | +/-0.1 | +/-0.1 | +/-0.1 | +0.3/-0.1 |

### SOD-523 Tape Leader and Trailer



### SOD-523 Reel

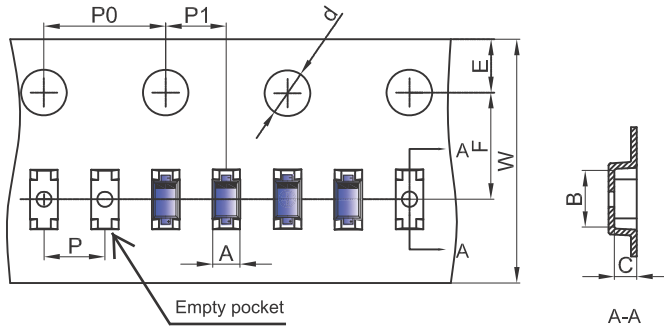


| Dimensions are in millimeter |         |       |       |        |        |       |      |       |
|------------------------------|---------|-------|-------|--------|--------|-------|------|-------|
| Reel Option                  | D       | D1    | D2    | G      | H      | I     | W1   | W2    |
| 7" Dia                       | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |
| Tolerance                    | +/-2    | +/-1  | +/-1  | +/-1   | +/-1   | +/-1  | +/-1 | +/-1  |



## SOD-523 Tape and reel (Packing Code : T2(TZ) )

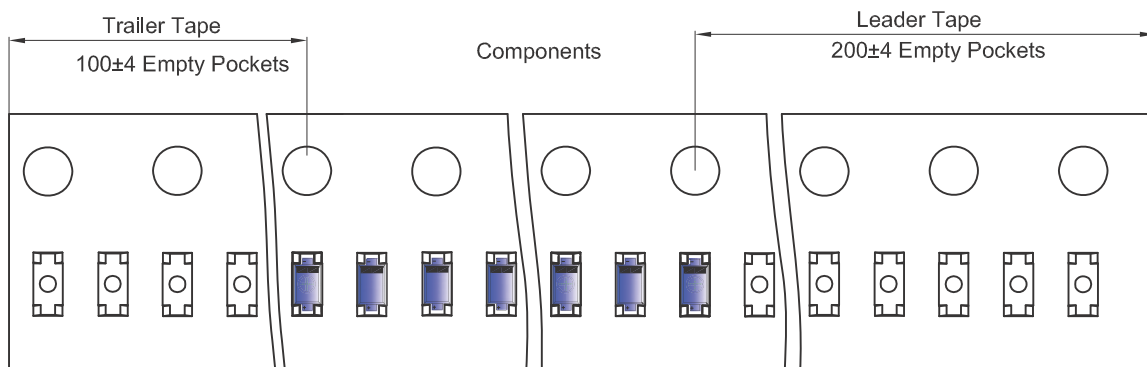
### SOD-523 Embossed Carrier Tape



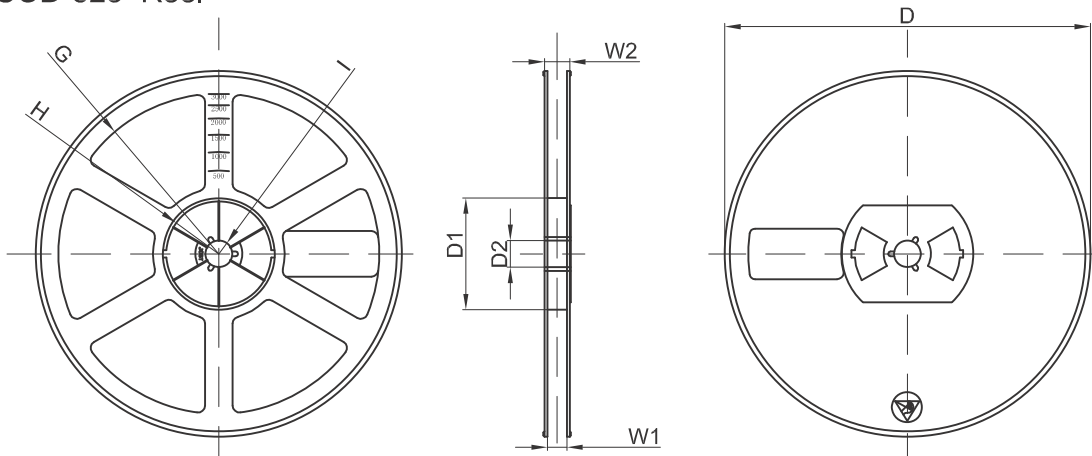
| Packing Code | Reel      | Reel Size |
|--------------|-----------|-----------|
| T2           | 8,000pcs  | 7 inch    |
| TZ           | 10,000pcs | 7 inch    |

| Dimensions are in millimeter |         |         |         |        |        |        |        |        |        |           |
|------------------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|-----------|
| Pkg type                     | A       | B       | C       | d      | E      | F      | P0     | P      | P1     | W         |
| SOD-523                      | 0.9     | 1.94    | 0.73    | Ø1.50  | 1.75   | 3.50   | 4.00   | 2.00   | 2.00   | 8.00      |
| (Tolerance)                  | +/-0.05 | +/-0.05 | +/-0.05 | +/-0.1 | +/-0.1 | +/-0.1 | +/-0.1 | +/-0.1 | +/-0.1 | +0.3/-0.1 |

### SOD-523 Tape Leader and Trailer



### SOD-523 Reel



| Dimensions are in millimeter |         |       |       |        |        |       |      |       |
|------------------------------|---------|-------|-------|--------|--------|-------|------|-------|
| Reel Option                  | D       | D1    | D2    | G      | H      | I     | W1   | W2    |
| 7" Dia                       | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |
| Tolerance                    | +/-2    | +/-1  | +/-1  | +/-1   | +/-1   | +/-1  | +/-1 | +/-1  |

**Ordering Information:**

| Device PN                                                     | Marking <sup>(4)</sup> | Packing                |
|---------------------------------------------------------------|------------------------|------------------------|
| SCS520S-T <sup>(1)</sup> H <sup>(2)</sup> -WS <sup>(3)</sup>  | 5J                     | Tape&Reel: 5 Kpcs/Reel |
| SCS520S-T2 <sup>(1)</sup> H <sup>(2)</sup> -WS <sup>(3)</sup> | B                      | Tape&Reel: 8 Kpcs/Reel |
| SCS520S-T3 <sup>(1)</sup> H <sup>(2)</sup> -WS <sup>(3)</sup> | B                      | Tape&Reel: 3Kpcs/Reel  |
| SCS520S-TZ <sup>(1)</sup> H <sup>(2)</sup> -WS <sup>(3)</sup> | 5J                     | Tape&Reel: 10Kpcs/Reel |

Note: (1) Packing code, Tape & Reel Packing

(2) Packing code Suffix"H" for halogen free product.

All materials and products supplied comply with the U.S. Toxic Substances Control Act statement, PBT Chemicals.

(3) Willas brand abbreviation, Label Type does not display.

(4) There may be additional marking, which relates to the lot trace code information (data code and vendor code), the logo or the environmental category on the device.

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## ◆Mounting and Storage Conditions

Willas has set the following requirements for the heat resistance of components.

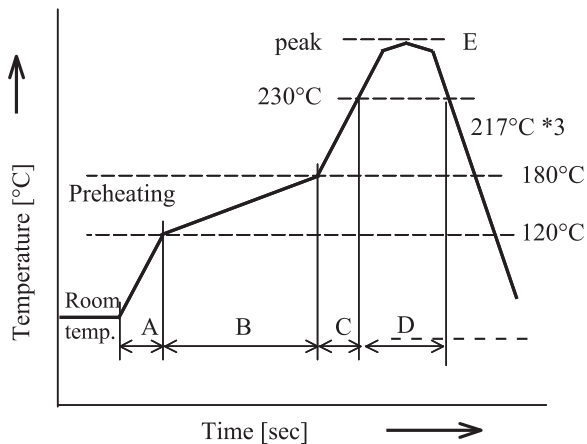
[Assumption] Moisture absorption prior to the reflow/flow soldering of components in dry pack.

With components in dry pack, reflow/flow soldering shall be completed within 168 hours after unpacking

(Storage environment:30°C 70%RH)

### 1.Reflow soldering

Temperature profile



Conditions

|           | Components size *1     | <input type="checkbox"/> 28mm or less | <input type="checkbox"/> Over 28mm | Unit   |
|-----------|------------------------|---------------------------------------|------------------------------------|--------|
| A         | Temp. rise gradient *2 | 1 - 3                                 |                                    | °C/sec |
| B         | Heating time           | 50 - 150                              |                                    | sec    |
|           | Heating temperature    | 120 - 180                             |                                    | °C     |
| C         | Temp. rise gradient *2 | 1 - 3                                 |                                    | °C/sec |
| D         | Time over 230°C        | 90                                    | 70                                 | sec    |
| E         | Peak temperature       | 260                                   | 250                                | °C     |
|           | Peak-temp. hold time   | 1-10                                  | 1-10                               | sec    |
| Soldering |                        | 2                                     |                                    | times  |

\*1.Length or width, whichever is the greater outside dimension (length for a rectangular component)

\*2.Temperatures and time for A through E in the table above shall be measured on the top surface of the components size.

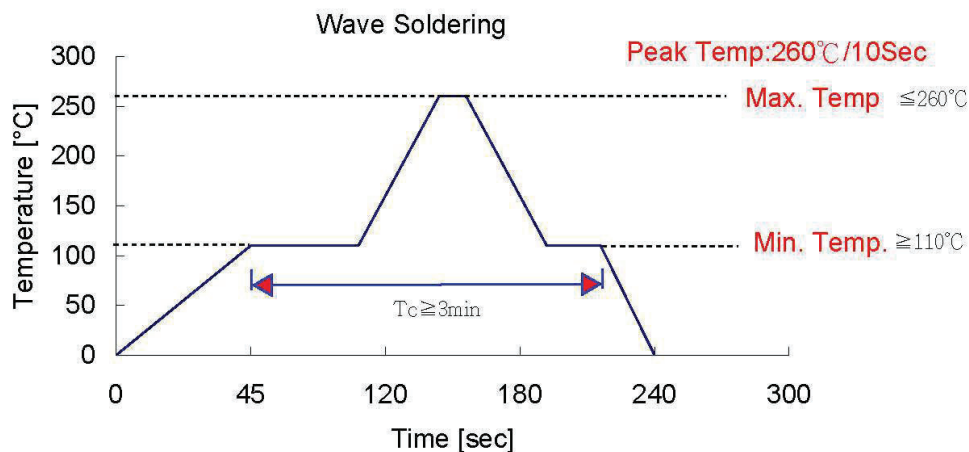
\*3.Time over 217 °C be 90-150 seconds .

### 2.Flow (wave) soldering (solder dipping)

|                  |        |
|------------------|--------|
| Peak temperature | 260°C  |
| Dipping time     | 10 sec |
| Soldering        | 1 time |

SMD : Dipping the entire component

component for Insertion :Dipping to the lead joint of component



### 3. Hand soldering / touchup

|                                |       |
|--------------------------------|-------|
| Soldering iron tip temperature | 380°C |
| Soldering time                 | 3 sec |



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## WILLAS ELECTRONIC CORP

### Moisture Sensitivity Level (MSL)

If devices are not handled correctly, in accordance with their MSL conditions, then they will start to naturally absorb moisture. When heated rapidly during reflow soldering, the moisture turns to steam. If it cannot escape quickly enough the pressure built up may damage the component by cracking the package moulding, an effect known as “Popcorning”.

IPC/JEDEC J-STD-020C also defines device MSLs as part of the specification. MSL Level 1 is used for products supplied without moisture proof packaging. The products of Willas have an MSL Level of 1.

The Table below details the MSL Levels and conditions defined by J-STD-020C

| MSL | Floor Life Time | Floor Conditions                           |
|-----|-----------------|--------------------------------------------|
| 1   | Unlimited       | $\leq 30^{\circ}\text{C}/ 85\% \text{ RH}$ |
| 2   | 1 Year          | $\leq 30^{\circ}\text{C}/ 60\% \text{ RH}$ |
| 2a  | 4 Weeks         | $\leq 30^{\circ}\text{C}/ 60\% \text{ RH}$ |
| 3   | 168 Hours       | $\leq 30^{\circ}\text{C}/ 60\% \text{ RH}$ |
| 4   | 72 Hours        | $\leq 30^{\circ}\text{C}/ 60\% \text{ RH}$ |
| 5   | 48 Hours        | $\leq 30^{\circ}\text{C}/ 60\% \text{ RH}$ |
| 5a  | 24 Hours        | $\leq 30^{\circ}\text{C}/ 60\% \text{ RH}$ |
| 6   | Time on Label   | $\leq 30^{\circ}\text{C}/ 60\% \text{ RH}$ |