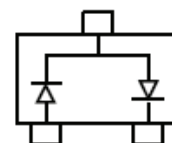
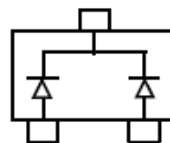
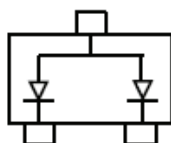
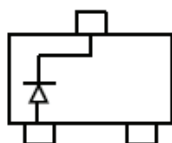
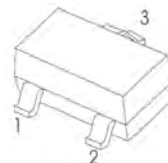




SCHOTTKY BARRIER DIODE FEATURES

- Extremely Fast Switching Speed
- **Pb-Free package is available**
RoHS product for packing code suffix "G"
Halogen free product for packing code suffix "H"
- **Moisture Sensitivity Level 1**

SOT-23



BAT54 MARKING: KL1/L4/L4PJV3 BAT54A MARKING: KL2/L42/B6 BAT54C MARKING: KL3/L43/5C BAT54S MARKING: KL4/L44/LD3

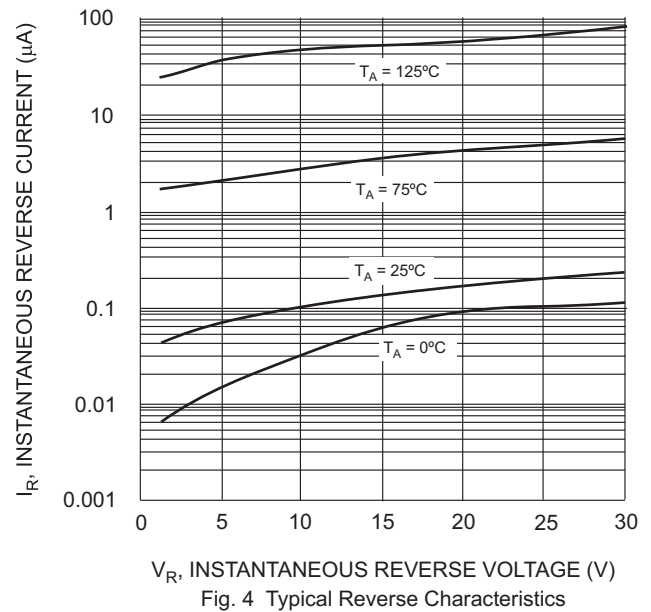
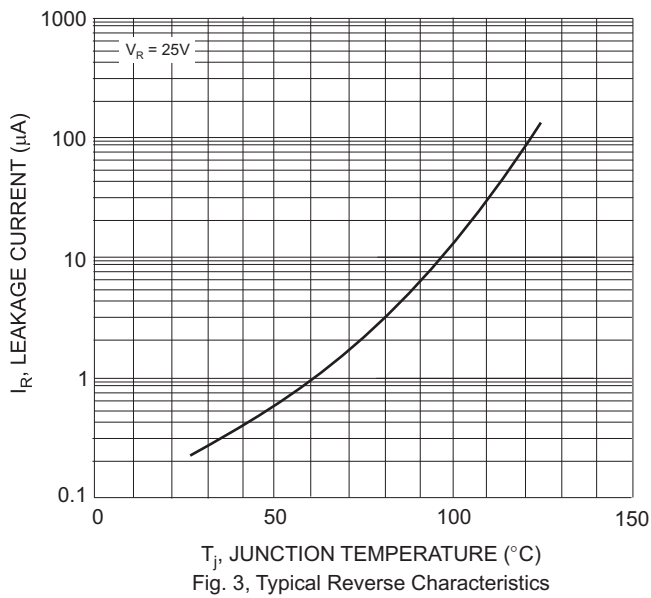
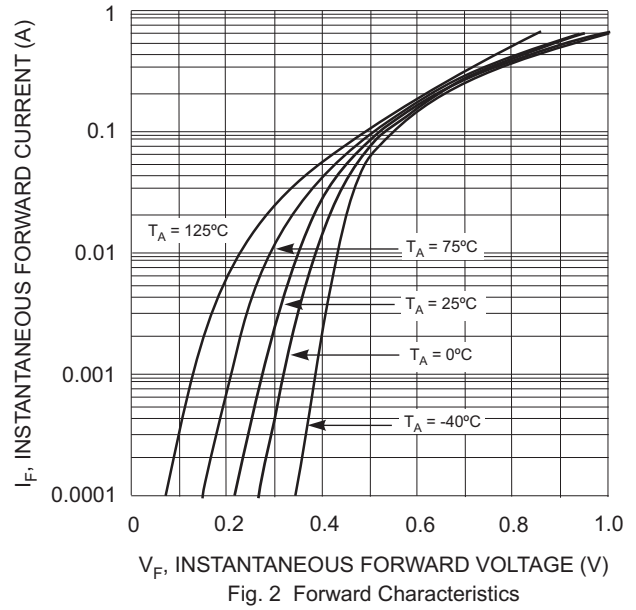
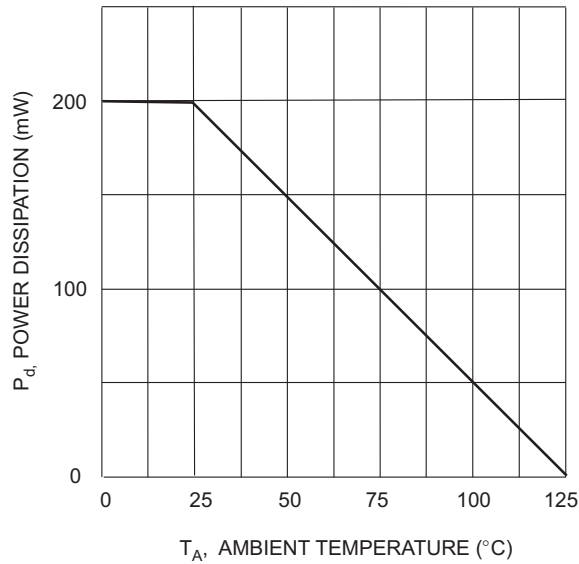
Maximum Ratings @Ta=25°C

Parameter	Symbol	Limit	Unit
Peak Repetitive Peak Reverse Voltage	V_{RRM}	30	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_R		
Forward Continuous Current	I_{FM}	200	mA
Power Dissipation	P_D	200	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	500	°C/W
Operating temperature	T_j	-55~+125	°C
Storage Temperature	T_{STG}	-55~+150	°C

Electrical Characteristics @Ta=25°C

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Reverse breakdown voltage	$V_{(BR)}$	30			V	$I_R=100\mu A$
Forward voltage	V_{F1}			0.24	V	$I_F=0.1mA$
	V_{F2}			0.32	V	$I_F=1mA$
	V_{F3}			0.40	V	$I_F=10mA$
	V_{F4}			0.50	V	$I_F=30mA$
	V_{F5}			1	V	$I_F=100mA$
Reverse current	I_R			2	μA	$V_R=25V$
Diode capacitance	C_D			10	pF	$V_R=1V, f=1MHz$
Reverse recovery time	t_{rr}			5	ns	$I_F=I_R=10mA$ $I_{rr}=0.1 \times I_R, R_L=100\Omega$

Typical Characteristics





WILLAS

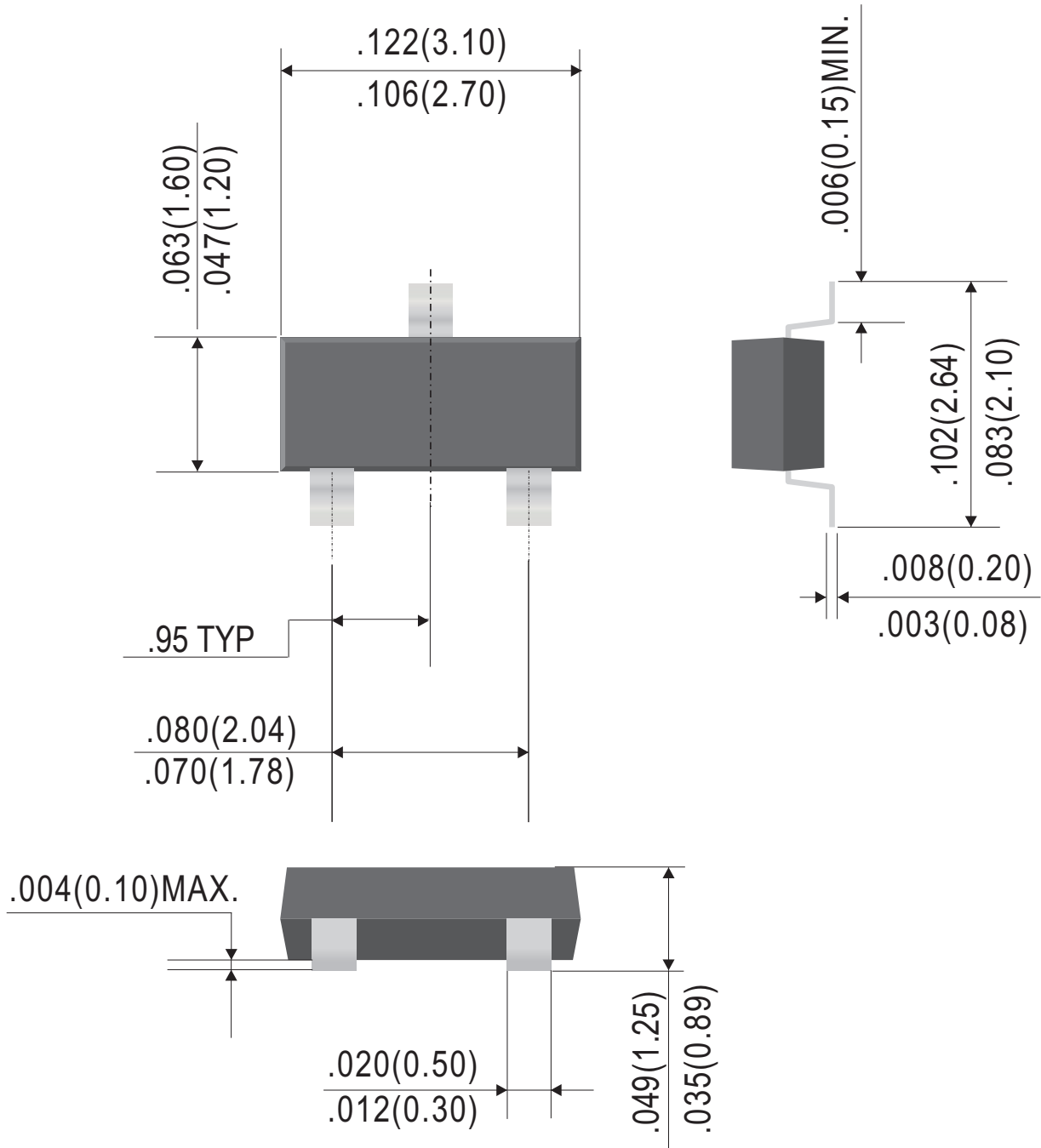


SOT-23 Plastic-Encapsulate Diodes

BAT54x

Outline Drawing

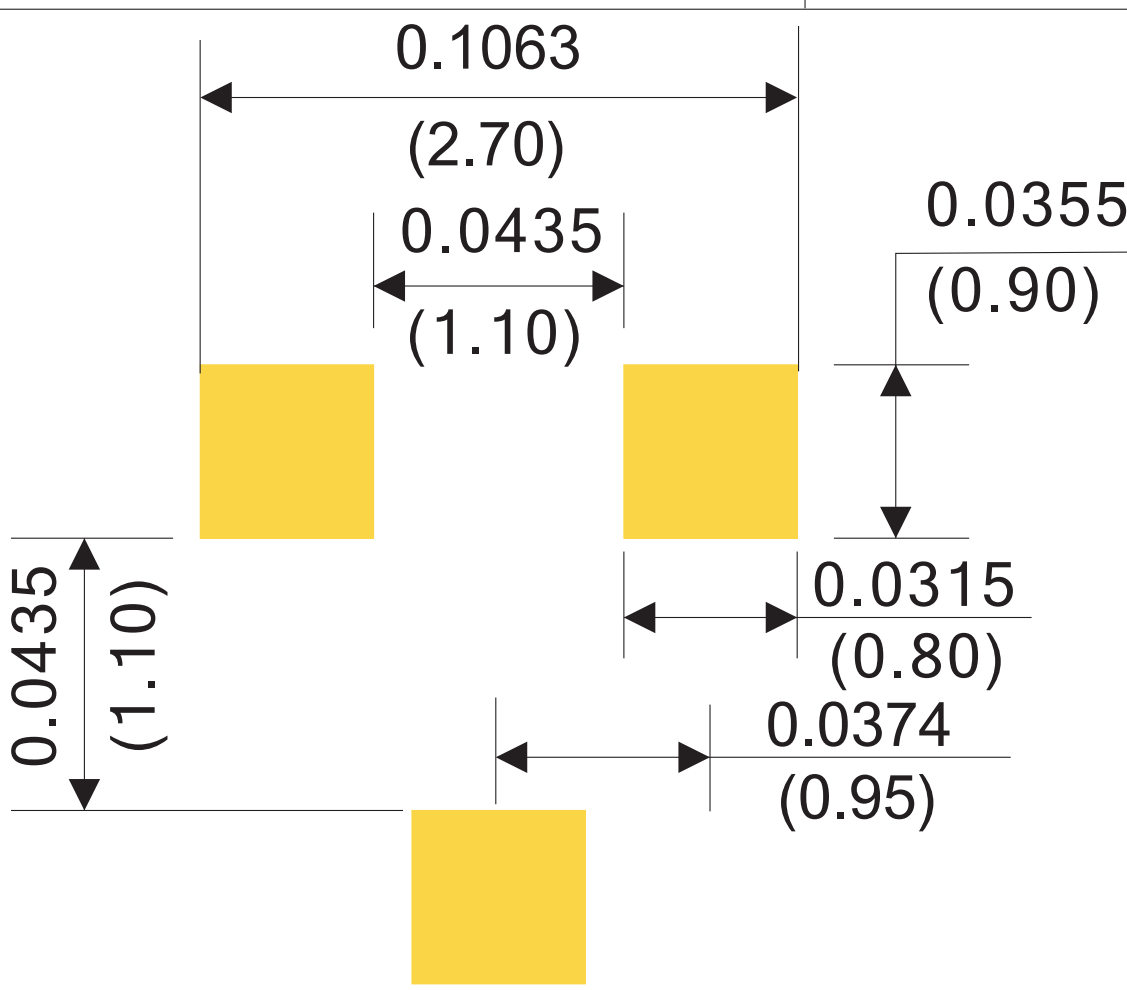
SOT-23



Dimensions in inches and (millimeters)

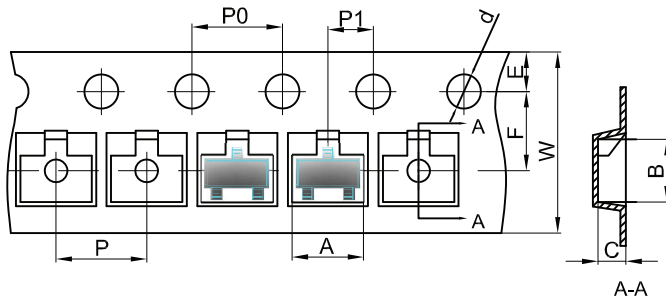
Rev.E



Suggested Soldering Pad Layout	SOT-23																														
 The diagram illustrates the suggested soldering pad layout for an SOT-23 package. It features three yellow rectangular pads. The top-left pad has a width of 0.1063 inches (2.70 mm) and a height of 0.0435 inches (1.10 mm). The top-right pad has a width of 0.0435 inches (1.10 mm) and a height of 0.0355 inches (0.90 mm). The bottom pad has a width of 0.0315 inches (0.80 mm) and a height of 0.0374 inches (0.95 mm). The distance between the top-left and top-right pads is 0.0315 inches (0.80 mm). The distance between the top-right pad and the bottom pad is 0.0374 inches (0.95 mm). The distance between the top-left pad and the bottom pad is 0.0435 inches (1.10 mm). <table><tr><th>Dimension</th><th>Value (inches)</th><th>Value (millimeters)</th></tr><tr><td>Top-left pad width</td><td>0.1063</td><td>2.70</td></tr><tr><td>Top-left pad height</td><td>0.0435</td><td>1.10</td></tr><tr><td>Top-right pad width</td><td>0.0435</td><td>1.10</td></tr><tr><td>Top-right pad height</td><td>0.0355</td><td>0.90</td></tr><tr><td>Bottom pad width</td><td>0.0315</td><td>0.80</td></tr><tr><td>Bottom pad height</td><td>0.0374</td><td>0.95</td></tr><tr><td>Distance between top-left and top-right pads</td><td>0.0315</td><td>0.80</td></tr><tr><td>Distance between top-right pad and bottom pad</td><td>0.0374</td><td>0.95</td></tr><tr><td>Distance between top-left pad and bottom pad</td><td>0.0435</td><td>1.10</td></tr></table>		Dimension	Value (inches)	Value (millimeters)	Top-left pad width	0.1063	2.70	Top-left pad height	0.0435	1.10	Top-right pad width	0.0435	1.10	Top-right pad height	0.0355	0.90	Bottom pad width	0.0315	0.80	Bottom pad height	0.0374	0.95	Distance between top-left and top-right pads	0.0315	0.80	Distance between top-right pad and bottom pad	0.0374	0.95	Distance between top-left pad and bottom pad	0.0435	1.10
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Dimensions in inches and (millimeters)																															
RevB																															

SOT-23 Plastic-Encapsulate Diodes

SOT-23 Embossed Carrier Tape

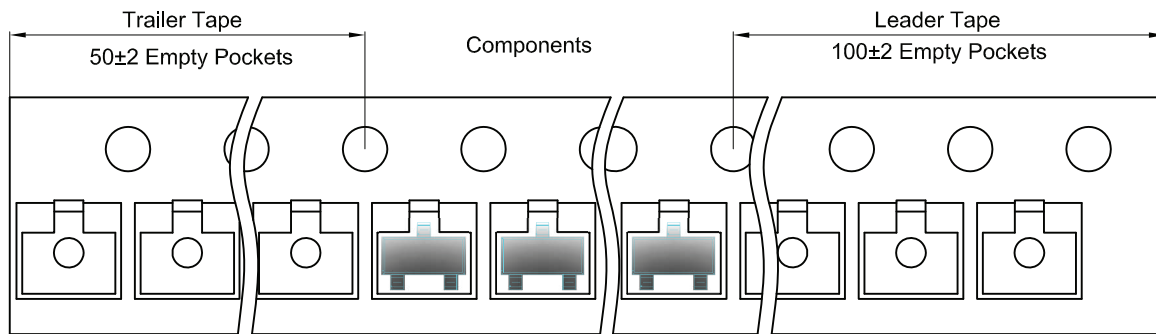


Packaging Description:

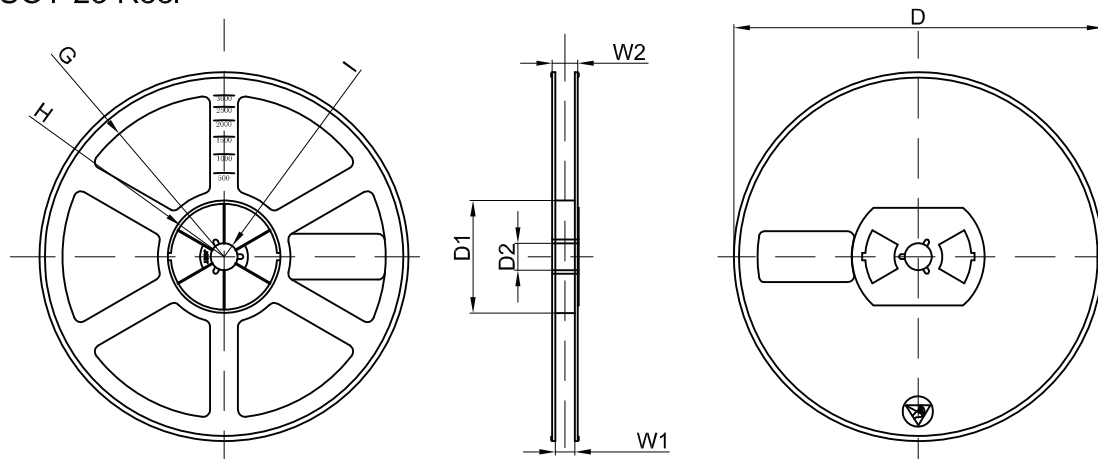
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



SOT-23 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

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

SOT-23 Plastic-Encapsulate Diodes

Ordering Information:

Device PN	Marking ⁽⁴⁾	Packing
BAT54-T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	KL1/L4/L4P/JV3	Tape&Reel: 3 Kpcs/Reel
BAT54A-T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	KL2/L42/B6	Tape&Reel: 3 Kpcs/Reel
BAT54C-T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	KL3/L43/5C	Tape&Reel: 3 Kpcs/Reel
BAT54S-T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	KL4/L44/LD3	Tape&Reel: 3 Kpcs/Reel

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

(2) Packing code suffix "G" for RoHS product : 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.

Disclaimer

WILLAS reserves the right to make changes without notice to any product specification herein, to make corrections, modifications, enhancements or other changes. WILLAS or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies. Data sheet specifications and its information contained are intended to provide a product description only. "Typical" parameters which may be included on WILLAS data sheets and/ or specifications can and do vary in different applications and actual performance may vary over time. WILLAS does not assume any liability arising out of the application or use of any product or circuit.

This is the preliminary specification. WILLAS products are not designed, intended or authorized for use in medical, life-saving implant or other applications intended for life-sustaining or other related applications where a failure or malfunction of component or circuitry may directly or indirectly cause injury or threaten a life without expressed written approval of WILLAS. Customers using or selling WILLAS components for use in such applications do so at their own risk and shall agree to fully indemnify WILLAS Inc and its subsidiaries harmless against all claims, damages and expenditures.

◆Mounting and Storage Conditions

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

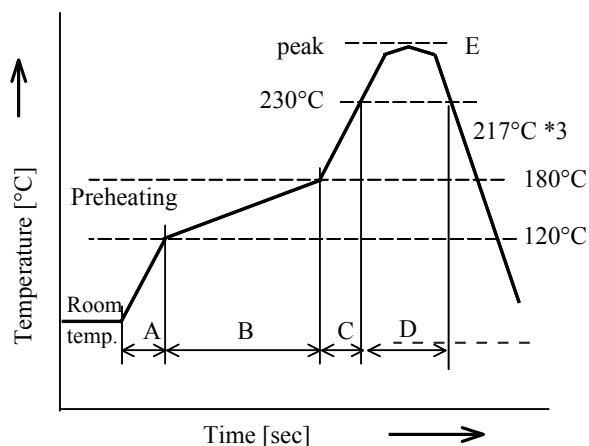
[Assumption] Moisture absorption prior to the reflow/flow soldering of components in dry pack.

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}	☐ 28mm or less	☐ 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
	Peak temperature	260	250	°C
E	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.

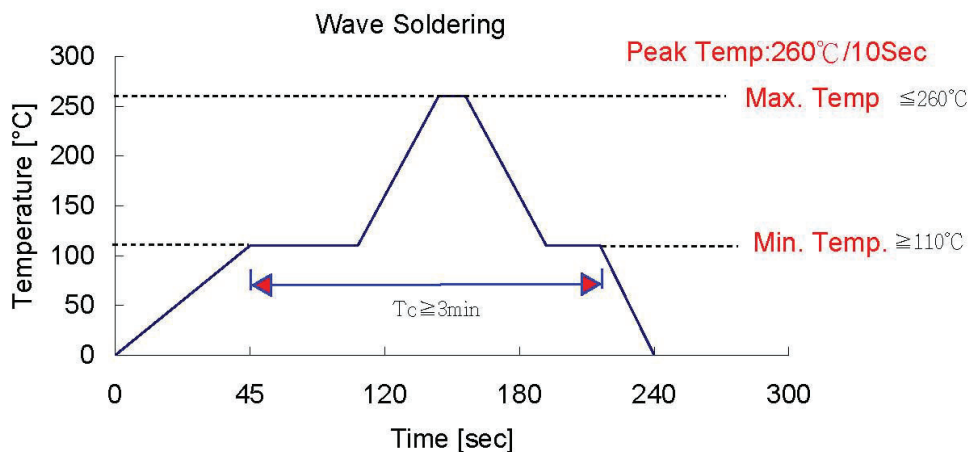
*3.Time over 217 °C be 90-150 seconds .

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



威倫電子股份有限公司

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	$\leq 30^{\circ}\text{C}/ 60\% \text{ RH}$