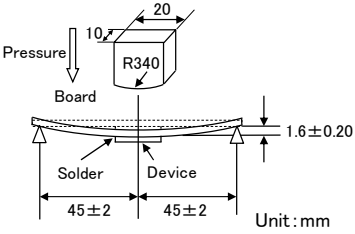


FBAR/SAW Devices for Communications for General Electronic Equipment for Consumer

RELIABILITY DATA

1. Terminal strength	
Specified Value	No damage to be found.
Test Methods and Remarks	Bend width 4mm, hold for 5 ± 1 sec. 
2. Mechanical shock	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	Apply 14700m/s^2 for 0.5ms 5 times for each of 6 directions.
3. Vibration	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	With 1.5 mm of whole amplitude at 10 to 55 Hz of frequency, and 98m/s^2 of acceleration at 55 to 500Hz, apply a vibration for 2 hours for each of 3 directions, period is 15 minutes(10 to 500 to 10Hz)
4. Drop 1	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	Drop 3 times onto concrete floor from the height of 1.0m.
5. Drop 2	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	Drop with 150g weight 3 times in each 6 direction onto concrete floor from the height of 1.8m.
6. Temperature cycling	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	Temp. range -40 to $+100^\circ\text{C}$. 500cycle.
7. Static humidity	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	SAW : $+85^\circ\text{C}$, 90% to 95%RH, apply DC5V, 1000hours. FBAR : $+85^\circ\text{C}$, 90% to 95%RH, apply DC0V, 1000hours.
8. High temperature storage life	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	$+100^\circ\text{C}$, 1000hours.
9. Low temperature storage life	
Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	-40°C , 1000hours.

► This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our specification. For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our Web site (<http://www.ty-top.com/>).

10. High Temperature Bias

Specified Value	After testing, meet the specified characteristics at a room temperature.
Test Methods and Remarks	Please refer to individual specifications in detail.

11. Solderability

Specified Value	More than 90% of area of terminals to be covered with the solder. A change of the remarkable appearance do not have it.
Test Methods and Remarks	Lead-free Solder paste, Reflow; Peak temperature 245°C

12. Solder heat resistance

Specified Value	After testing, meet the specified characteristics at a room temperature. A change of the remarkable appearance do not have it.
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Test Methods and Remarks	<p>◆ Recommended temperature profile of reflow soldering</p> <p>Figure shows recommended temperature profile of reflow soldering in the case of lead-free solder alloy Sn3.0Ag0.5Cu. Suitable condition for solder heating is differed depending on composition and manufacturing method. Please contact to solder manufacturer for the details.</p> <p>Temperature (°C)</p> <p>Ambient temperature rise slope : 1~4°C/sec.</p> <p>Pre-Heating 150~180°C</p> <p>50~110sec.</p> <p>30~50sec.</p> <p>Temperature in heat condition : 230°Cmin. 50sec. max.</p> <p>Temperature of upper surface of package and PCB surface. : 260°Cmax. 10sec. max.</p> <p>Ambient temperature cool slope : 1~4°C/sec.</p> <p>10sec.</p>
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※ According to JIS(IEC) standard.