

Version Number Q/AZK.DS.A080312.3A-0

Surface Acoustic Wave Components Approval Specification

Approval Specification

Complies with Directive 2002/95/EC (RoHS)TO:Part No.:DSR222.15A02-SD06Customer's Part No.:ApplicationOne-port SAW Resonator for VCR RF-ModulatorPlease return this copy as a certification of your approval

Checked & Approval by: Date:



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Old Version	Revision Date	Revision Record	Revisor

Prepared by:

Checked by:

Approved by:



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1. Package Dimension

(SF-712)

Unit: mm





Pin No.	Function	
Pin 1	Input	
Pin 3	Output	
Pin 2.4	Ground	

2. Marking

DR1 222.15

- 1. Black Ink Marking
 - 2. D: Manufacture's logo
 - 3. R1: One-port SAW Resonator
 - 4. 222.15: Center Frequency

3. Equivalent LC Model





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4. Performance

4.1 Maximum Rating

Item	Value		
DC Voltage V _{DC}	10V		
AC Voltage V _{PP}	10V (50Hz/60Hz)		
Operation Temperature	-40℃ to +85℃		
Storage Temperature	-45℃ to +85℃		
RF Power Dissipation	0dBm		

4.2 Electronic Characteristics

Test Temperature: $22^{\circ}C$ +/- $2^{\circ}C$ Terminating source impedance: 50Ω

Terminating load impedance: 50Ω

Item	Unit	Minimum	Typical	Maximum
Center Frequency (fo)	MHz	222.050	222.150	222.250
Insertion Loss	dB	_	1.7	3.0
Quality Factor	_	_	_	_
Unloaded Q	_	<u> </u>	15,000	—
50Ω Loaded Q	_	_	6,900	—
Temperature Stability	_	_	_	_
Turnover Temperature	°C	10	25	40
Frequency Temperature Coefficient	ppm/℃ ²	—	0.037	—
Frequency Aging	ppm/yr	_	<±10	
DC Insulation Resistance	MΩ	1.0		_
RF Equivalent RLC Model	_	_	_	
Motional Resistance R ₁	Ω	—	35	49
Motional Inductance L ₁	μH	_	225	_
Motional Capacitance C ₁	fF	—	2.2	—
Shunt Static Capacitance C ₀	pF	2.1	2.4	2.7





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4.3 Test Circuit



Note: Reference temperature shall be $25\pm2^{\circ}$ C. However, the measurement may be carried out at 5° C to 35° C unless there is a dispute.

5. Reliability

5.1 Resistance to Soldering heat:

5.1.1 The components shall remain within the electrical specifications after it soldered on the 1mm-thickness PCB board and dipped in the solder at $260^{\circ}C \pm 5^{\circ}C$ for 10 ± 1 seconds.

5.1.2 The components shall remain within the electrical specifications after it soldered by electric iron, solder at $350^{\circ}C \pm 10^{\circ}C$ for 3~4 seconds, recovery time : 2h±0.5h.

5.2 Thermal Shock:

The components shall remain within the electrical specifications after being kept at the condition of heat cycle conditions: TA=-40 $^{\circ}$ C ±3 $^{\circ}$ C, TB=85 $^{\circ}$ C ±2 $^{\circ}$ C, t1=t2=30min, switch time≤3min & cycle time : 100 times, recovery time : 2h±0.5h.

5.3 The Temperature Storage:

5.3.1 High Temperature Storage: The components shall remain within the electrical specifications after being kept at the $85^{\circ}C \pm 2^{\circ}C$ for 500 hours, recovery time : $2h\pm 0.5h$.

5.3.2 Low Temperature Storage: The components shall remain within the electrical specifications after being kept at the $-40^{\circ}C \pm 3^{\circ}C$ for 500 hours, recovery time : $2h\pm 0.5h$.

5.4 Humidity test:

The components shall remain within the electrical specifications after being kept at the condition of ambient temperature $60^{\circ}C \pm 2^{\circ}C$, and $90 \sim 95\%$ RH for 500 hours.

5.5 Drop test:

The components shall remain within the electrical specifications after random free drops 10 times from height of 1.0 meter onto concrete floor, and the specimens shall meet the electrical specifications in table 5, external visual inspection.



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5.6 Solderability test:

at the condition of temperature $245^{\circ}C \pm 5^{\circ}C$ Depth: DIP 2/3 , SMD 1/5, time: 3.0s-5.0s, 80% or more of the immersed surface shall be covered with solder and well-proportioned.

5.7 Vibration Fatigue:

The components shall remain within the electrical specifications after loaded vibration at 10~55Hz, amplitude 1.5mm, X, Y, Z, direction, for 2 hours.

5.8Terminal strength:

The force 10±1 seconds of 19.6N is applied to each terminal, and 45° in the same direction 2 times with 2N bending force (Exception: SMD)

5.9 Mechanical Shock:

The components shall remain within the electrical specifications after 1000 shocks, acceleration 392 m/s^2 , duration 6ms.

Note: As a result of the particularity of inner structure of SAW products, it easy to be breakdown by electrostatic, so we should pay attention to ESD protect in the test.

6. Remarks

6.1 Static voltage

Static voltage between signal load & ground may cause deterioration & destruction of the component. Please avoid static voltage.

6.2 Ultrasonic cleaning

Ultrasonic vibration may cause deterioration & destruction of the component. Please avoid ultrasonic cleaning.

6.3 Soldering

Only leads of component may be soldered. Please avoid soldering another part of component.