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Approved by:
Checked by:
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SPECIFICATION

PRODUCT: SAW Duplexer

MODEL: HDD27/37 (W1)

SHOULDER ELECTRONICS LIMITED

1.SCOPE

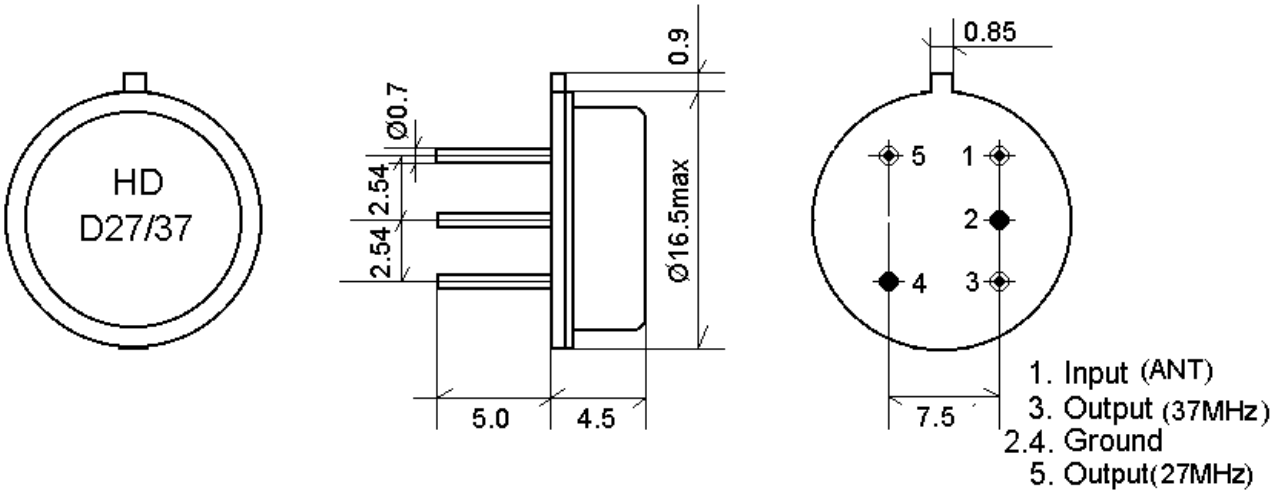
This specification shall cover the characteristics of SAW Duplexer used for the cordlessphone.

2.Construction

2.1 Dimension and materials

Manufacturer's name : SHOULDER ELECTRONICS Co. LTD(CHINA)

Type : D27/37



3.Characteristics

Items	Conditions	Specifications
Standard atmospheric conditions	Unless otherwise specified , the standard rang of atmospheric conditions for making measurements and tests is as follows; Ambient temperature : 15℃ to 35℃ Relative humidity : 25% to 85% Air pressure : 86kPa to 106kPa	There shall be no damage.
Operating temperature rang	Operating temperature rang is the rang of ambient temperatures in which the filter can be operated continuously. -10℃ ~ +60℃	
Storage temperature rang	Storage temperature rang is the rang of ambient temperatures at which the filter can be stored without damage. Conditions are as specified elsewhere in these specifications. -40℃ ~ +70℃	
Reference temperature	+25℃	

3.1 Maximum Rating

DC voltage	**V_{DC}**	**0**	**V**	
Source power	**Ps**	**15**	**dBm**	

3.2 Electrical Characteristics

Characteristics of channel 45:

Source impedance Zs=50Ω

Load impedance Z_L=50Ω T_A=25℃

Item		Freq	min	typ	max	
Nominal frequency		f_N	-	27.6825	-	MHz
Insertion attenuation 27.55~27.825MHz				6.5	.8.5	dB
attenuation	20.00~25MHz		30.0	35.0		dB
	37.00~37.275MHz		40.0	47.0		dB
	41.00~80.00MHz		30.0	35.0		dB
Temperature coefficient			-72			ppm/k

Characteristics of channel 48:

Source impedance Zs=50Ω

Load impedance Z_L=50Ω T_A=25℃

Item		Freq	min	typ	max	
Nominal frequency		f_N	-	37.1375	-	MHz
Insertion attenuation 37.00~37.275MHz				4.5	6.0	dB
attenuation	20.000~27.55MHz		30.0	35.0		dB
	27.550~27.725MHz		40.0	47.0		dB
	41.000~80.00MHz		30.0	35.0		dB
Temperature coefficient			-72			ppm/k

Isolation between 27 and 37:

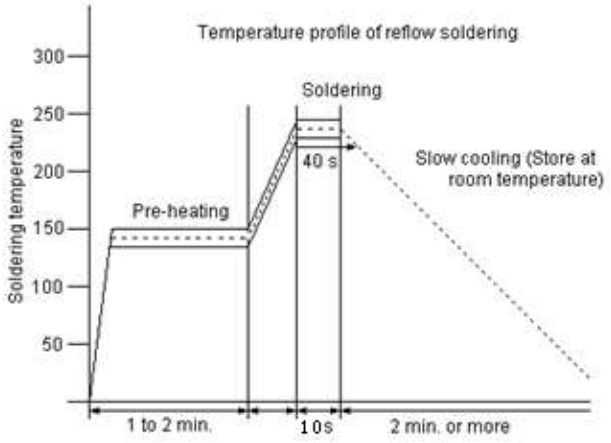
Source impedance Zs=50Ω

Load impedance Z_L=50Ω T_A=25℃

Item	Freq	min	typ	max	
attenuation	27.550~27.825MHz	40.0	48.0		dB
	37.000~37.275MHz	38.0	44.0		dB

3.3 Environmental Performance Characteristics

Item	Condition	Specifications
High temperature	The specimen shall be store at a temperature of 80±2℃ for 96±4h. Then it shall be subjected to standard atmospheric conditions for 1h, after which measurement shall be made within 1h.	

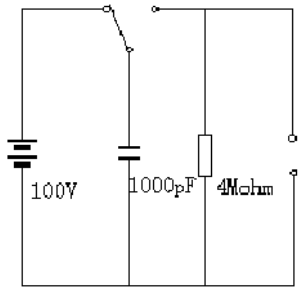
<table>
<tr><td>Low temperature</td><td>The specimen shall be store at a temperature of -20±3℃ for 96±4h. Then it shall be subjected to standard atmospheric conditions for 1h, after which measurement shall be made within 1h.</td><td rowspan="4">Mechanical characteristics and specifications in electrical characteristics shall be satisfied. There shall be no excessive change in appearance.</td></tr>
<tr><td>Humidity</td><td>The specimen shall be store at a temperature of 40±2℃ with relative humidity of 90% to 96% for 96±4h. Then it shall be subjected to standard atmospheric conditions for 1h, after which measurement shall be made within 1h.</td></tr>
<tr><td>Thermal shock</td><td>The specimen shall be subjected to 8 continuous cycles each as shown below. Then it shall be subjected to standard atmospheric conditions for 1h, after which measurement shall be made within 1h.
<table>
<tr><td></td><td>Temperature</td><td>Duration</td></tr>
<tr><td>1</td><td>+25 ℃=>−40 ℃</td><td>0.5h</td></tr>
<tr><td>2</td><td>-40 ℃</td><td>4h</td></tr>
<tr><td>3</td><td>-40 ℃=>+85 ℃</td><td>2h</td></tr>
<tr><td>4</td><td>+85 ℃</td><td>4h</td></tr>
<tr><td>5</td><td>+85 ℃=>+25 ℃</td><td>0.5h</td></tr>
<tr><td>6</td><td>+25 ℃</td><td>1h</td></tr>
</table></td></tr>
<tr><td>Resistance to Soldering heat</td><td>Reflow soldering method
Peak: 255 ±5 ℃, 220 ±5 ℃, 40s
At electrode temperature of the specimen.
 

The specimen shall be passed through the reflow furnace with the condition shown in the above profile for 1 time.
The specimen shall be stored at standard atmospheric conditions for 1h, after which the measurement shall be made. Test board shall be 1.6 mm thick. Base material shall be glass fabric base epoxy resin.</td></tr>
<tr><td>Solder ability</td><td>Immerse the pins melt solder at 260℃+5/-0℃ for 5 sec.</td><td>More then 95% of total area of the pins should be covered with solder</td></tr>
</table>

3.4 Mechanical Test

Items	Conditions	Specifications
Vibration	600-3300rpm amplitude 1.5mm 3 directions 2 H each	There shall be no damage.
Drop	On maple plate from 1 m high 3 times	
Lead pull	Pull with 1 kg force for 30 seconds	
Lead bend	90^{o} bending with 500g weigh 2 times	

3.5 Voltage Discharge Test

Item	Condition	Specifications
Surge	Between any two electrode 	There shall be no damage