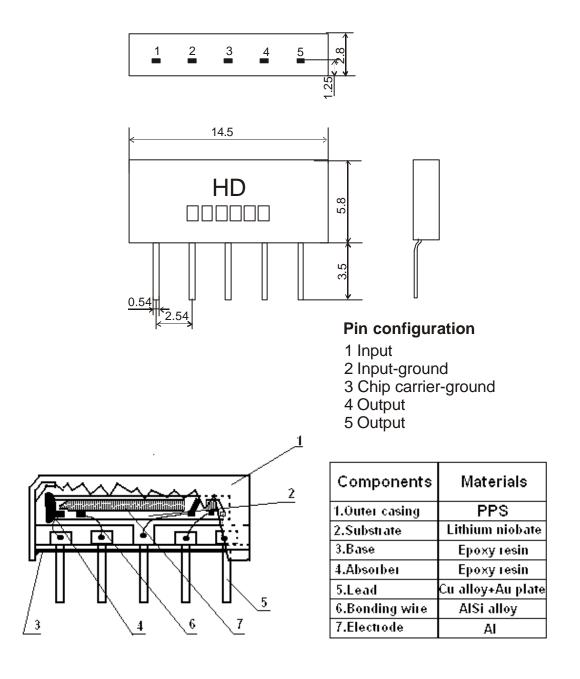
# **1.SCOPE**

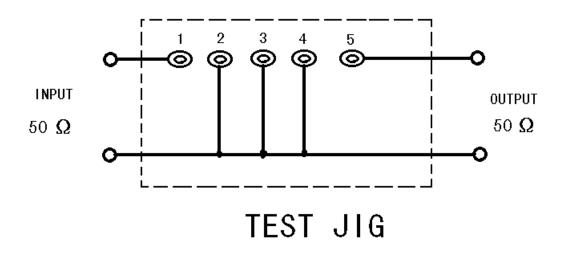
SHOULDER'S SAW filter series have broad line up products meeting all broadcast standard including NTSC,PAL and SECAM systems. These filters are composed of two interdigital transducers on a single-crystal. piezoelectrical chip. they are used in electronic equipments such as TV and so on.

## **2.**Construction

2.1 Dimension and materials

Manufacturer's name : SHOULDER ELECTRONICS Co. LTD(CHINA) Type : HDF115.24A





### 2.2. Circuit construction, measurement circuit

### **3.**Characteristics

#### 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

#### **Operating temperature rang**

Operating temperature rang is the rang of ambient temperatures in which the filter can be

operated continuously.  $-10 \sim +60$ 

#### 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.  $-40 \sim +70$ 

#### **<u>Reference temperature</u>** +25

#### 3.1 Maximum Rating

DC voltage	VDC	12	V	Between any terminals
AC voltage	Vpp	10	V	Between any terminals

Source impedance	Zs	=50				
Load impedance	ZL	=50		TA	$T_A=25$	
Item	Freq	min	typ	max		
Center frequency	Fo	-	115.24	-	MHz	
Insertion attenuation Reference level	115.24MHz	21.0	22.5	24.0	dB	
Amplitude(p-p)	114.0~116.5 MHz		0.6		dB	
	B <sub>1.5dB</sub>	-	2.9	-	MHz	
Pass bandwidth	B <sub>15dB</sub>	-	3.9	-	MHz	
	B <sub>30dB</sub>	-	4.4	-	MHz	
Relative attenuation	105.0~111.0 MHz	40.0	45.0	-	dB	
	111.0~112.5 MHz	35.0	45.0	-	dB	
Relative attenuation	118.0~119.5 MHz	36	46.0	-	dB	
	119.5~125.0 MHz	40	45	-	dB	
Reflected wave signal suppression $1.5 \ \mu \ s \dots 6.0 \ \mu \ s$ after main pulse		20.0	40.0		dB	
(Test pulse 250 $\mu$ s, carrier frequency 115.24MHz)		38.0	48.0	-		
Group delay ripple(p-p) 113,79~116.69			70		ns	
Impedance at 36.00MHz Input: Zin =Rin //Cin Output: Zout=Rout//Cout			0.2//16.0 0.1//23.4		K //pF K //pF	
Temperature coefficient			- ]	8	ppm/k	

### **3.2 Electrical Characteristics**

### **3.3 Environmental Performance Characteristics**

Item Test condition	Allowable change of absolute Level at center frequency(dB)
High temperature test 70 1000H	< 1.0
Low temperature test -40 1000H	< 1.0
Humidity test 40 90-95% 1000H	< 1.0
Thermal shock -20 ==25 ==80 20 cycle 30M 10M 30M	< 1.0
Solder temperature test Sold temp.260 for 10 sec.	< 1.0

## SHOULDER ELECTRONICS LIMITED

Soldering	More then 95% of total
Immerse the pins melt solder	area of the pins should
at 260 +5/-0 for 5 sec.	be covered with solder

## **3.4 Mechanical Test**

Item	Allowable change of absolute
Test condition	Level at center frequency(dB)
Vibration test	
600-3300rpm amplitude 1.5mm	<1.0
3 directions 2 H each	
Drop test	<1.0
On maple plate from 1 m high 3 times	<1.0
Lead pull test	<1.0
Pull with 1 kg force for 30 seconds	<1.0
Lead bend test	<1.0
90° bending with 500g weigh 2 times	<1.0

## **3.5 Voltage Discharge Test**

Item Allowable change of absolute			
Test condition	Level at center frequency(dB)		
Surge test			
Between any two electrode			
	<1.0		

### **3.6 Frequency response**

hip	T	1	1		T	24 dB	1111.		O MH:
		1		[	1				1
MARKE	RZ								
11	1 MHz			-					
				17	$\square$				
		-		1			1.0		1
	1		1	1	1		1	1	1
					1-	1	1		
m	harr	tan	ZA		1	MAA	6	-	
-4	W.~	₩-V	La A		<u> </u>	# VIA	Allow	Mart	prv
	ļ	ľ	ļ	ļ	ļ	11			ļ
	}	1	}	}	}	1	1	}	1