规格书编号

SPEC NO :

产品规格书
SPECIFICATION

CUSTOMER 客 户：

PRODUCT 产 品：SAW FILTER

MODEL NO 型 号：HDBF44A12F 1.8mm

PREPARED 编 制： CHECKED 审 核：

APPROVED 批 准： D A T E 日 期：2012-8-2

客户确认 CUSTOMER RECEIVED:		
审核 CHECKED	批准 APPROVED	日期 DATE

无锡市好达电子股份有限公司

Shoulder Electronics Limited

更改历史记录
History Record

更改日期 Date	规格书编号 Spec. No.	产品型号 Part No.	客户产品型号 Customer No.	更改内容描述 Modify Content	备注 Remark

1. SCOPE

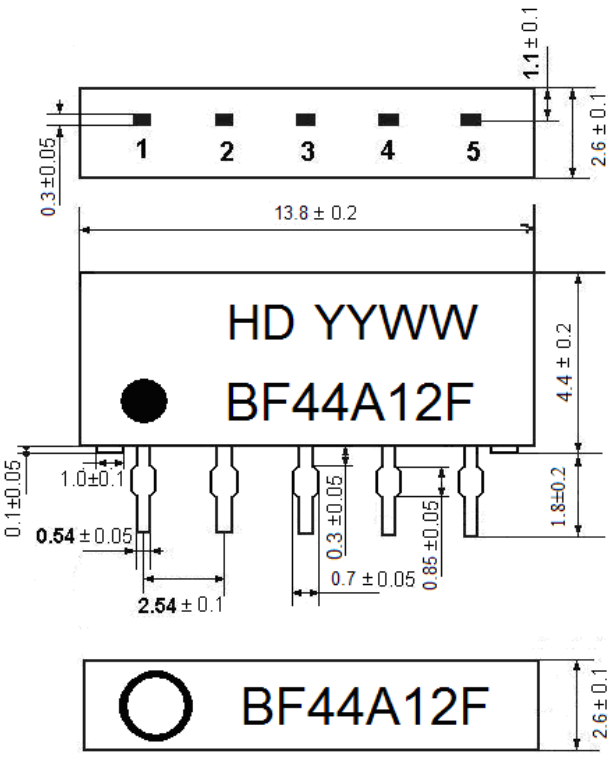
SHOULDER's SAW filter series have broad line up products meeting all broadcast standard including NTSC, PAL and SECAM systems. These filters are composed of two interdigital transducers on a single-crystal. piezoelectrical chip. They are used in electronic equipments such as TV and so on.

2. Construction

2.1 Dimension and materials

Manufacturer's name: SHOULDERELECTRONICS LTD

Type: BF44A12F

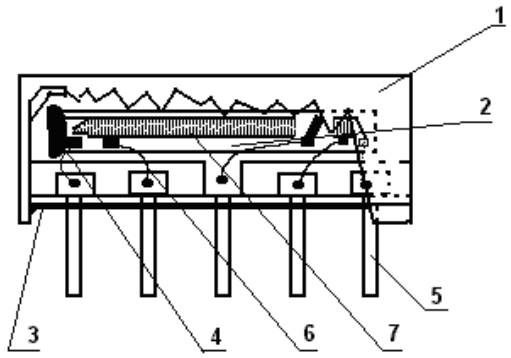


Unit : mm

1 Input
2 Input ground
3 Chip carrier - ground
4 Output
5 Output

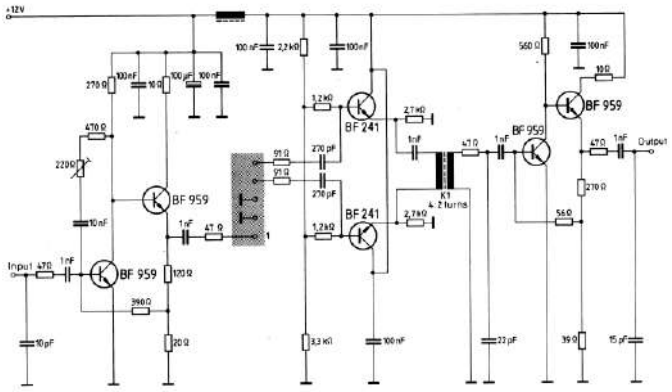
YY: year

WW: week



Components	Materials
1.Outer casing	PPS
2.Substrate	Lithium niobate
3.Base	Epoxy resin
4.Absorber	Epoxy resin
5.Lead	Cu alloy+ Ni plate+ Sn enameled
6.Bonding wire	AlSi alloy
7.Electrode	Al

2.2. Circuit construction, measurement circuit



Test circuit for SIP-5 filter
Input impedance of the symmetrical post-amplifier: 2 kΩ in parallel with 3 pF

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. -20℃ ~ +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	**VDC**	**12**	**V**	**Between any terminals**
AC voltage	**Vpp**	**10**	**V**	**Between any terminals**

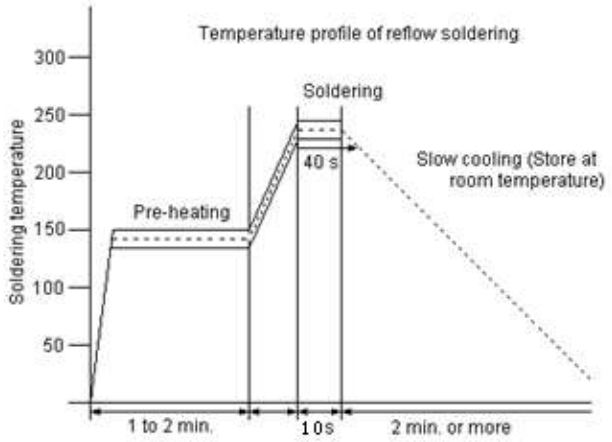
3.2 Electrical Characteristics

Source impedance Zs= 50Ω

Load impedance Z_L= 2kΩ //3pF T_A=25℃

Center frequency	Fo	-	44.00	-	MHz
Insertion attenuation Reference level	44.06MHz	14.0	15.5	17.0	dB
Pass bandwidth	B3dB	-	5.5	-	MHz
Relative attenuation	39.81MHz	30.0	42.0	-	dB
	41.06MHz	-	9.5	-	dB
	41.37MHz	1.3	2.3	3.3	dB
	46.75MHz	1.4	2.4	3.4	dB
	47.06MHz	-	9.5	-	dB
	47.31MHz	17.0	23.0	-	dB
Sidelobe	35.06~37.06MHz	35.0	42.0	-	dB
	37.06~39.41MHz	30.0	42.0	-	dB
	47.71~50.06MHz	24.0	30.0	-	dB
	50.06~55.06MHz	32.0	40.0	-	dB
Amplitude ripple(41.66~46.46MHz)-		-	0.8	-	dB
Group delay ripple(41.37~46.75MHz)		-	60.0	-	ns
Reflected wave signal suppression 1.2 us ... 6.0 us after main pulse (test pulse 250 ns, carrier frequency 44.06 MHz)		-	50.0	-	dB
Temperature coefficient of frequency		-	-72	-	ppm/k

3.3 Environmental Performance Characteristics

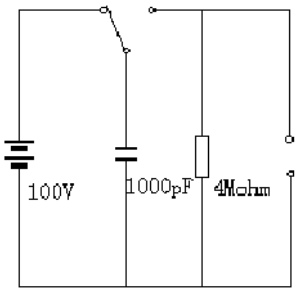
<table>
<tr><th>Item</th><th>Condition</th><th>Specifications</th></tr>
<tr><td>High temperature</td><td>The specimen shall be store at a temperature of 80±2℃ for 96±4h. Then it shall be subjected to standard atmospheric conditions for 1h, after which measurement shall be made within 1h.</td><td rowspan="4">Mechanical characteristics and specifications in electrical characteristics shall be satisfied. There shall be no excessive change in appearance.</td></tr>
<tr><td>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></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><th></th><th>Temperature</th><th>Duration</th></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.
 
</td></tr>
</table>

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

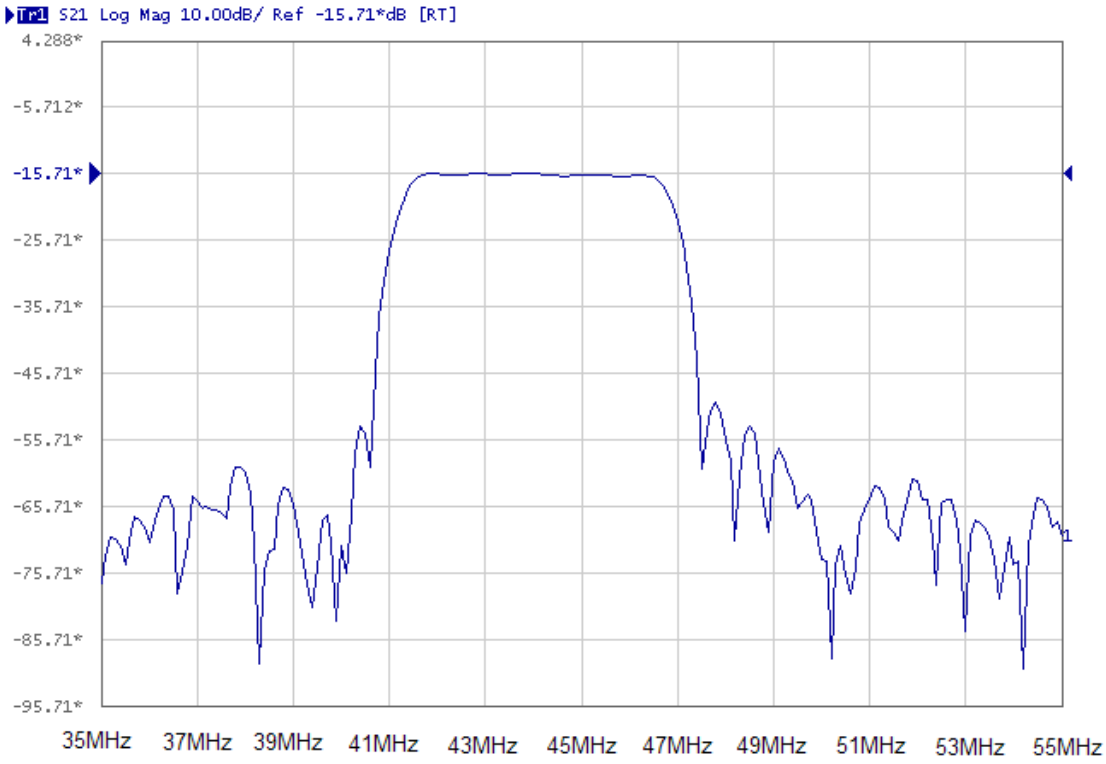
3.4 Mechanical Test

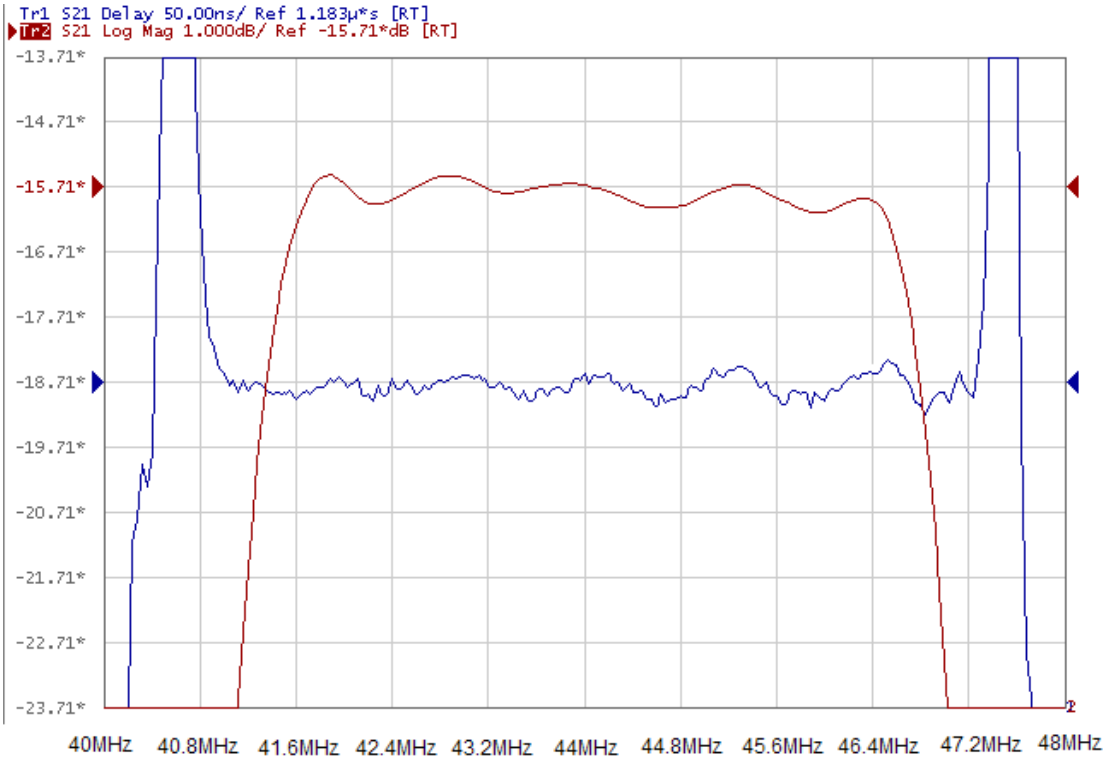
Items	Conditions	Specifications
Vibration	600-3300rpm amplitude 1.5mm 3 directions 2 H each	There shall be no damage.
Drop	On maple plate from 1 m high 3 times	
Lead pull	Pull with 1 kg force for 30 seconds	
Lead bend	90^{o} bending with 500g weigh 2 times	

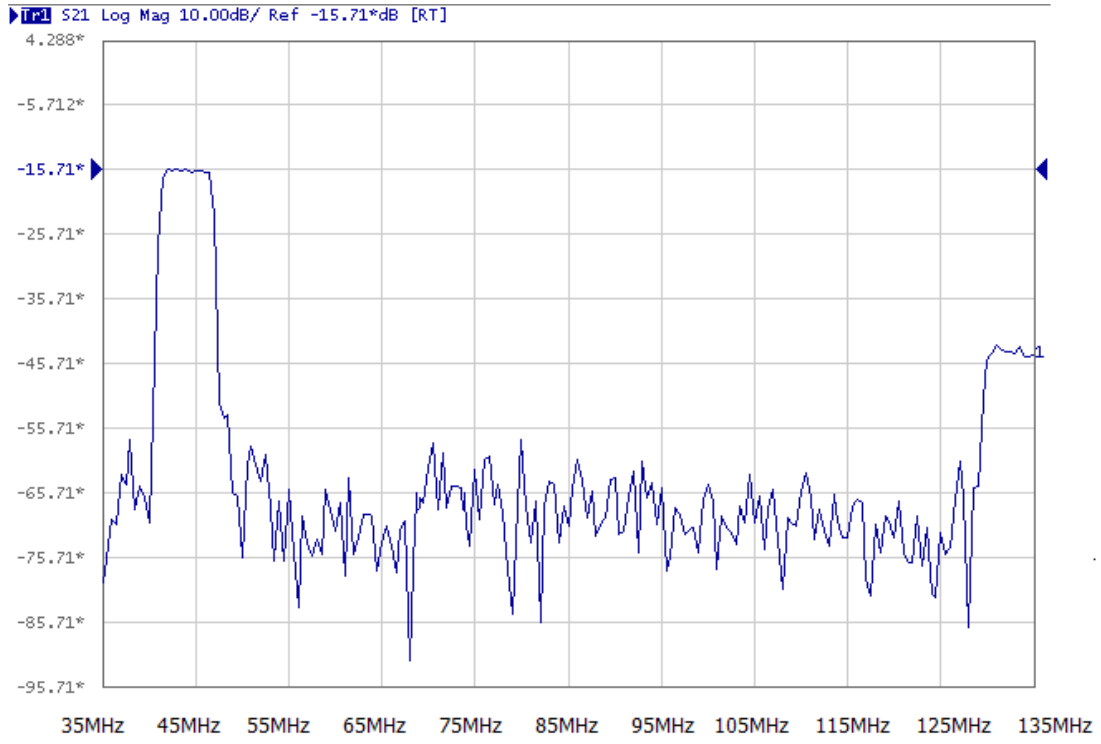
3.5 Voltage Discharge Test

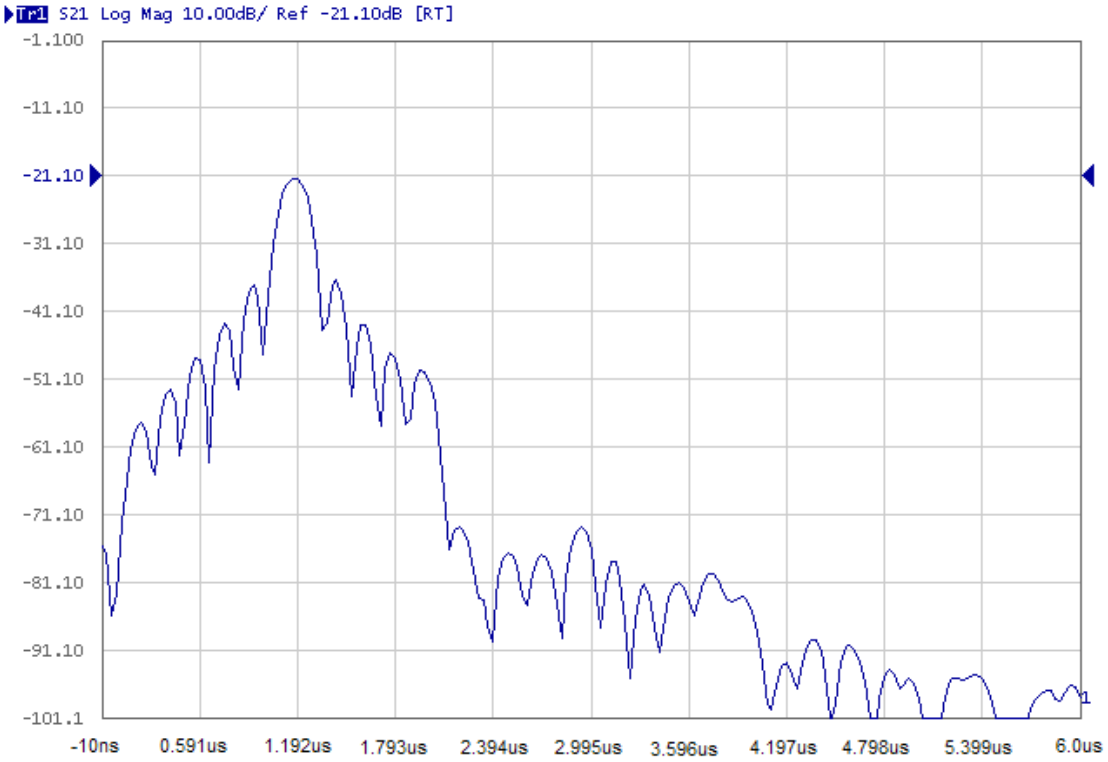
Item	Condition	Specifications
Surge	Between any two electrode 	There shall be no damage

3.6 Frequency response






Tr1 S21 Log Mag 10.00dB/ Ref -15.71*dB [RT]
4.288*
-5.712*
-15.71*
-25.71*
-35.71*
-45.71*
-55.71*
-65.71*
-75.71*
-85.71*
-95.71*
35MHz
45MHz
55MHz
65MHz
75MHz
85MHz
95MHz
105MHz
115MHz
125MHz
135MHz

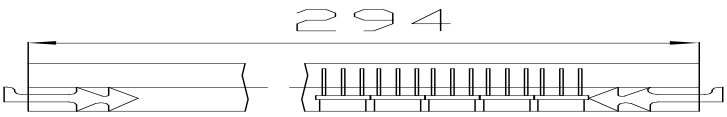

Tr1 S21 Log Mag 10.00dB/ Ref -21.10dB [RT]
-1.100
-11.10
-21.10
-31.10
-41.10
-51.10
-61.10
-71.10
-81.10
-91.10
-101.1
-10ns
0.591us
1.192us
1.793us
2.394us
2.995us
3.596us
4.197us
4.798us
5.399us
6.0us

3.7package

Unit: mm

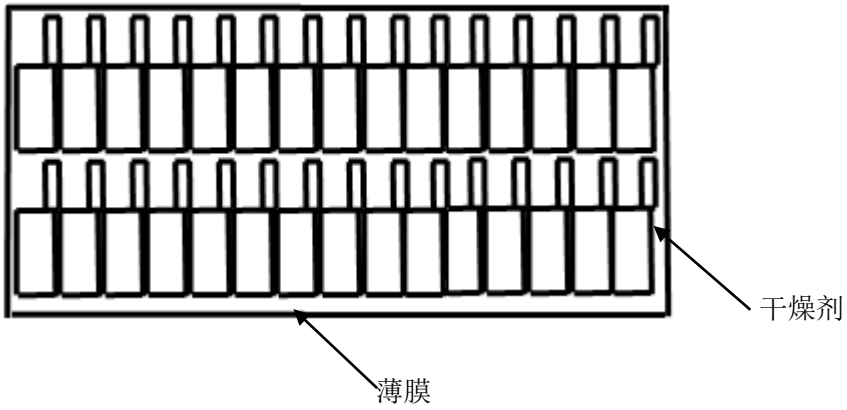
Pipe

20PCS /pipe



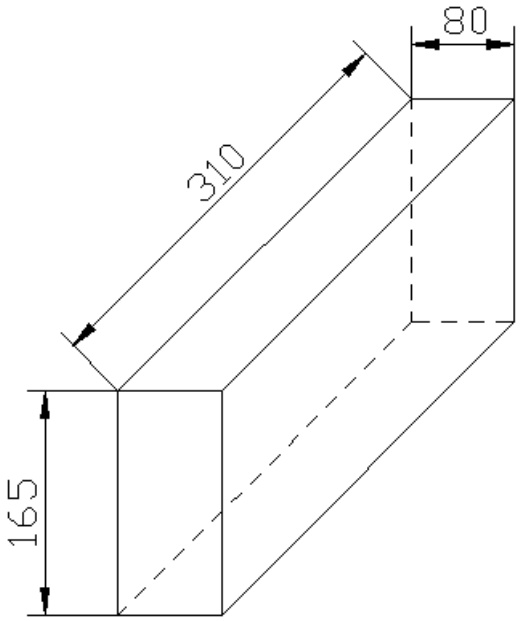
Pipes

20×30PCS



Inside Box

600×5PCS



Outside Box

3000×5PCS