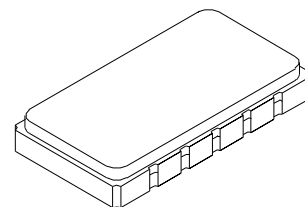


- **High Performance SAW Filter**
- **Excellent Size-to-Performance Ratio**
- **Balanced or Single-ended Operation**
- **Hermetic 13.3x6.5 mm Surface-mount Case**
- **Complies with Directive 2002/95/EC (RoHS)**
- **Tape and Reel Standard per ANSI/EIA-481**
- **Moisture Sensitivity Level: 1**

SF1097A-1

**71 MHz
SAW Filter**



Absolute Maximum Ratings

Rating	Value	Units
Maximum Incident Power in Passband	+10	dBm
Maximum DC Voltage on any Non-ground Terminal	10	VDC
Storage Temperature Range	-40 to +85	°C
Solder Reflow Temperature, 5 Cycles Maximum	260 °C for 10 s	

Characteristic	Sym	Notes	Min	Typ	Max	Units
Nominal Center Frequency	f_C			71.000		MHz
Insertion Loss at f_C	IL			6.0	8.0	dB
1 dB Bandwidth	BW_1		250	324		kHz
Amplitude Ripple, $f_C \pm 125$ kHz				0.7	2.0	dB _{P-P}
Group Delay at f_C			1.90	2.31	2.40	μ s
Group Delay Variation over $f_C \pm 125$ kHz	GDV			450	1500	ns _{P-P}
Rejection Referenced to IL:						dB
$f_C - 500$ to $f_C - 300$ kHz and $f_C + 300$ to $f_C + 500$ kHz			15	18		
$f_C - 700$ to $f_C - 500$ kHz and $f_C + 500$ to $f_C + 700$ kHz			30	33		
$f_C - 3000$ to $f_C - 700$ kHz and $f_C + 700$ to $f_C + 3000$ kHz			35	39		
$f_C - 800$ and $f_C + 800$ kHz			41	43		
$f_C - 3.0$ to $f_C - 35.0$ MHz and $f_C + 3.0$ to $f_C + 35.0$ MHz			43	60		
Operating Temperature Range	T_A		-40		+85	°C

Case Style	13.3 x 6.5 mm Nominal Footprint
Lid Symbolization (YY = year, WW = week, S = shift, ## = sequence code)	RFM, SF1097A-1, <u>YYWWS##</u>

Balanced Electrical Connections

Connection	Terminals
Port 1	1, 10
Port 2	5, 6
Case Ground	All others



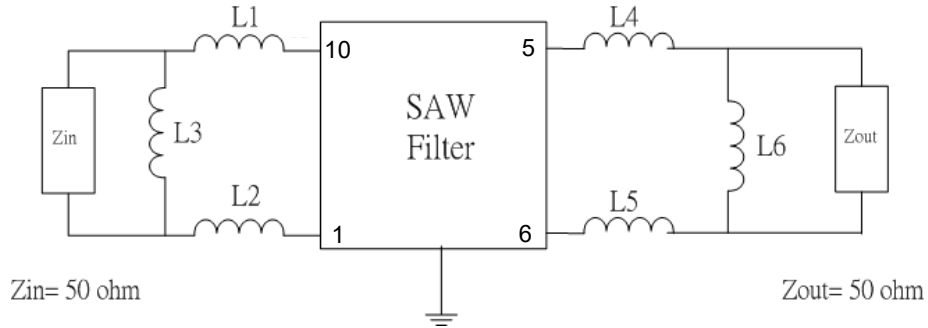
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

NOTES:

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

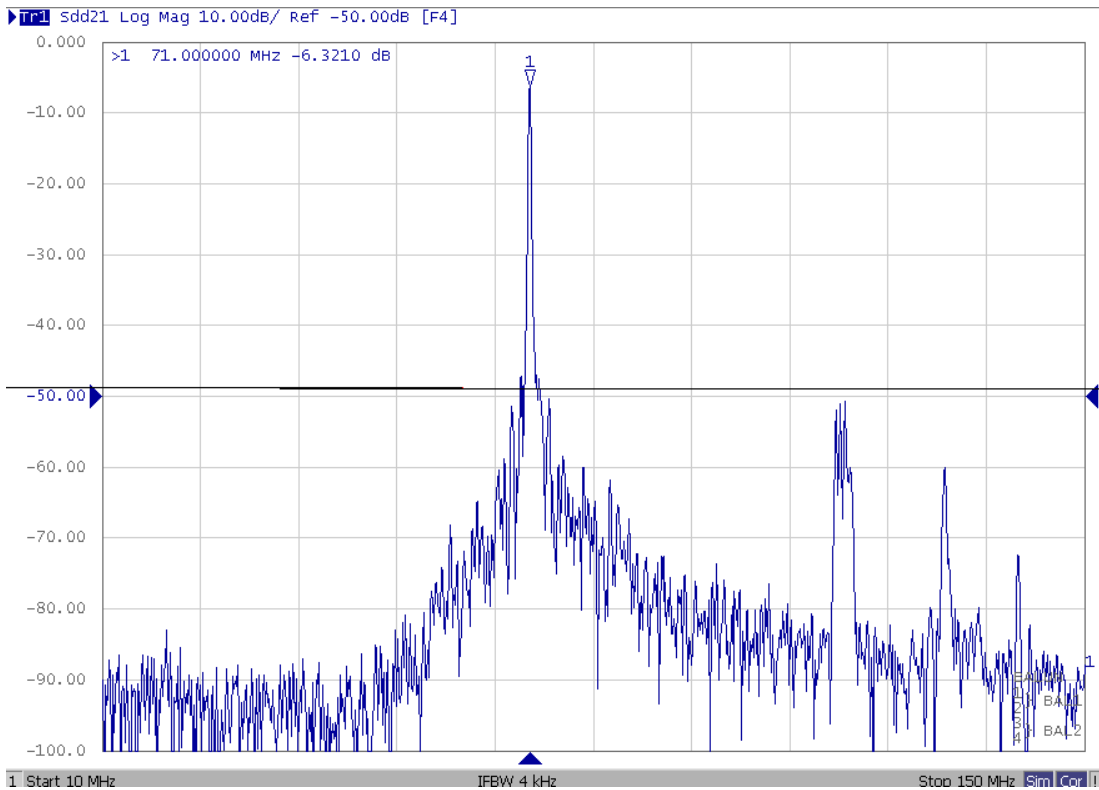
Typical Balanced Matching Network

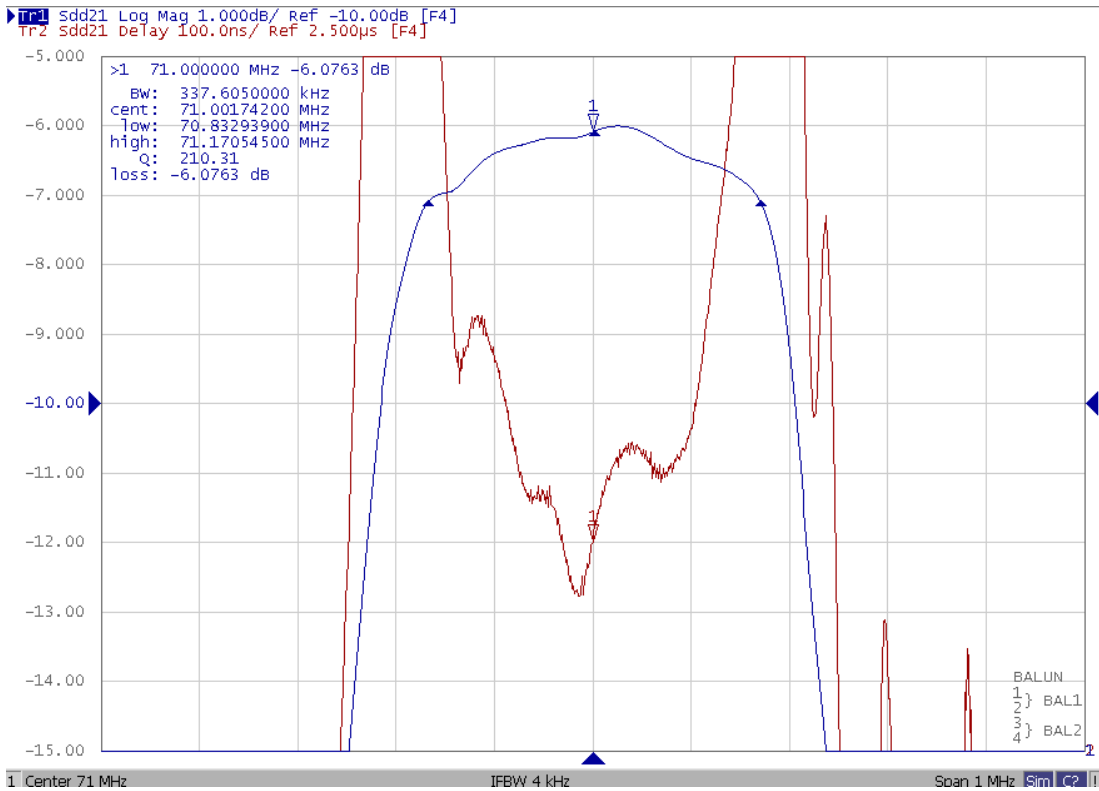
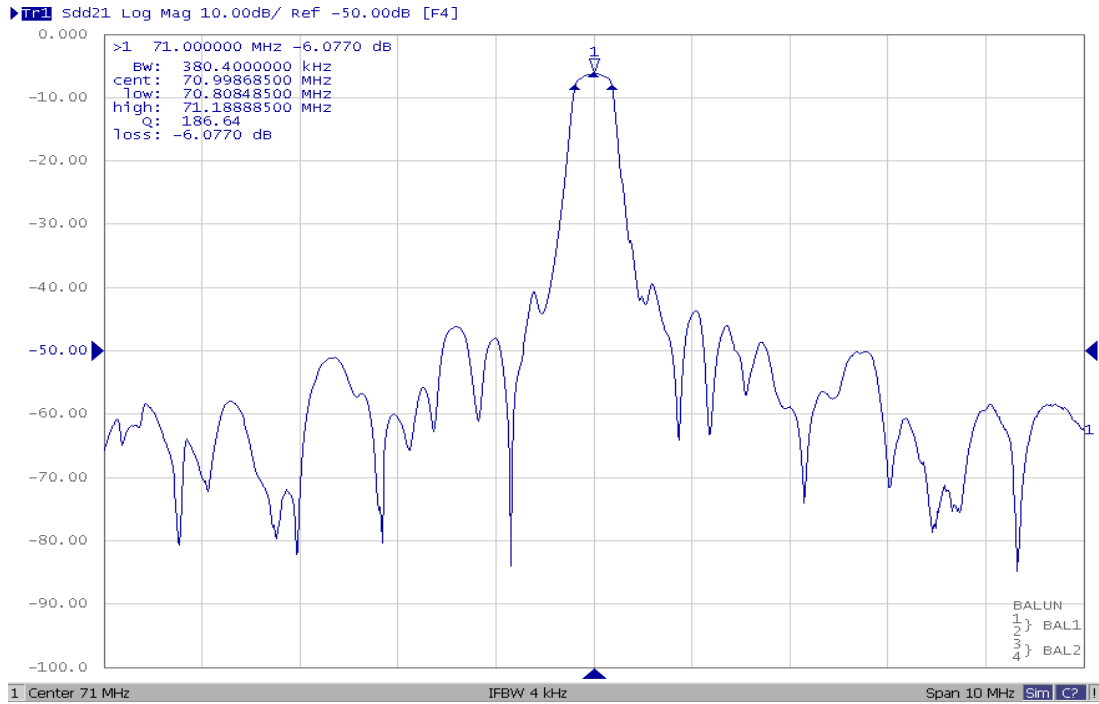
Pin out and reference matching network. Optimal values may be different on customer PCB.



$$L1=L2=165\text{nH} \quad L3=68\text{pF} \quad L4=L5=165\text{nH} \quad L6=82\text{pF}$$

Filter Response Plots, Balanced Operation

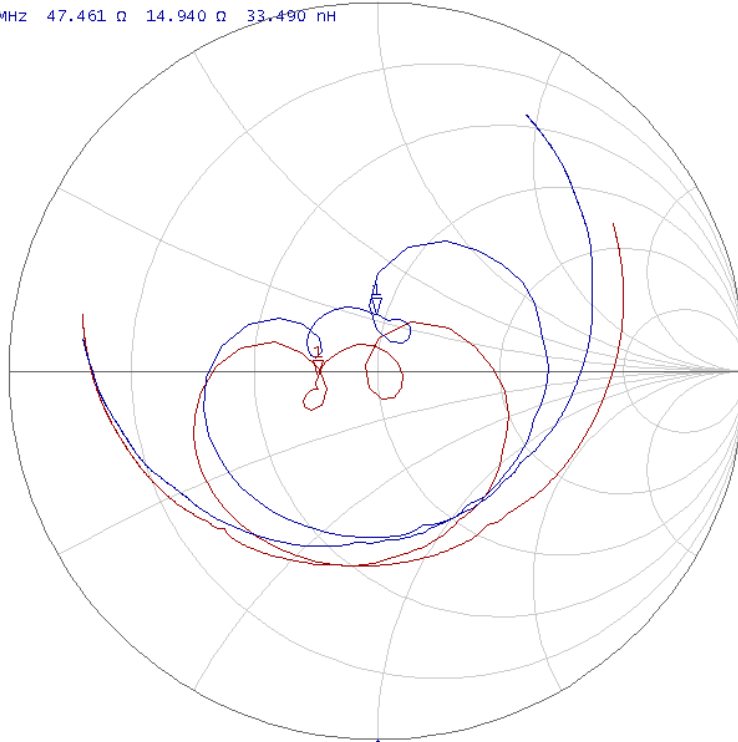




Impedance Plots (matched), Balanced Operation

Tr1 Sdd11 Smith (R+jX) Scale 1.000U [F4]
Tr2 Sdd22 Smith (R+jX) Scale 1.000U [F4]

>1 71.000000 MHz 47.461 Ω 14.940 Ω 33.490 nH



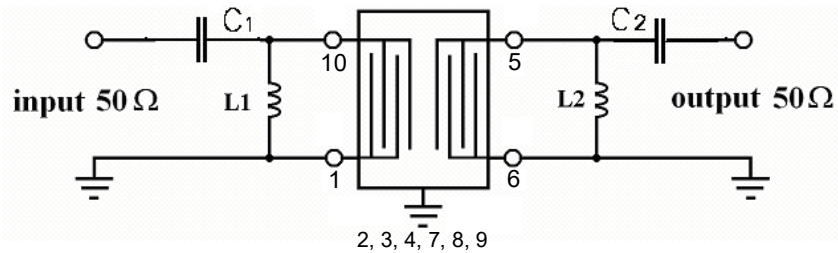
BALUN
1 } BAL1
2 } BAL2
3 } BAL2
4 }

Center 71 MHz

IFBW 4 kHz

Span 10 MHz Sim ?

Typical Single-ended Matching Network

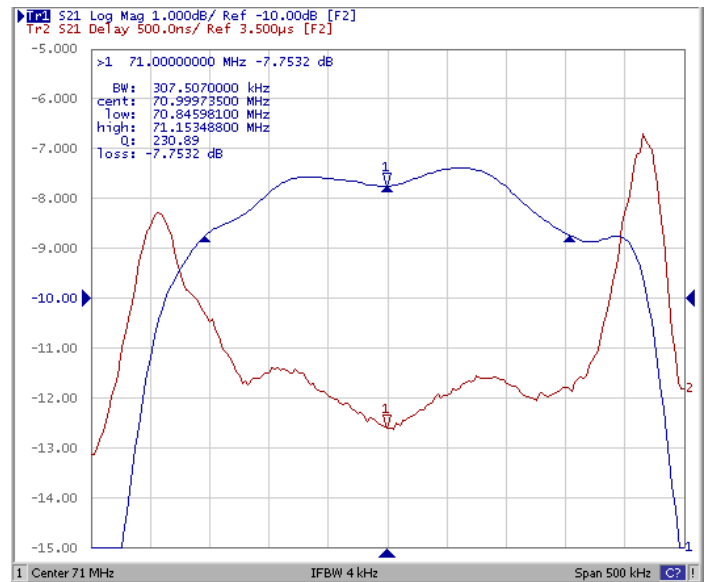
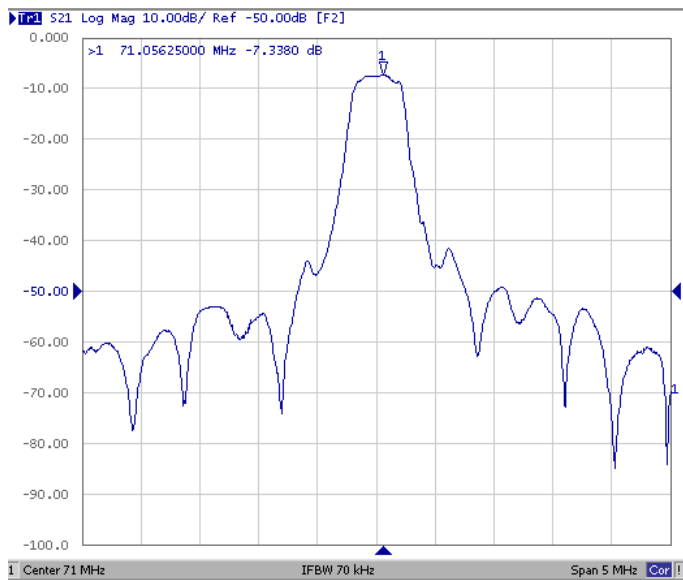


L1 = 220 nH C1 = 9 pF L2 = 220 nH C2 = 9 pF

Single-ended Electrical Connections

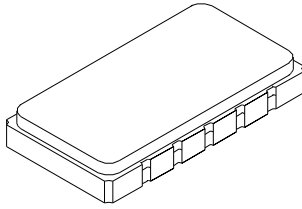
Connection	Terminals
Port 1	10
Port 2	5
Case Ground	All others

Filter Response Plots, Single-ended Operation

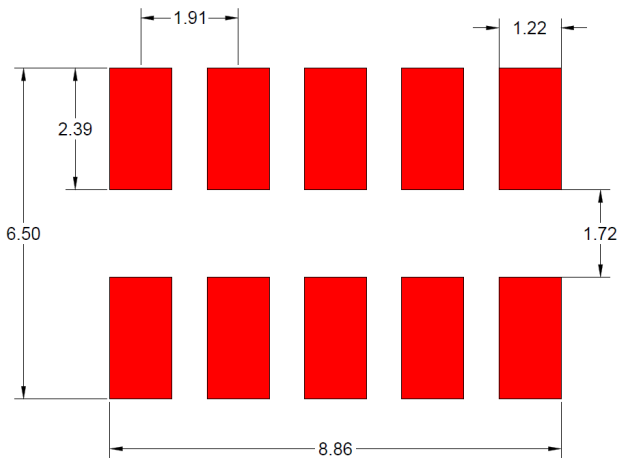


10-terminal Ceramic Surface-mount Case

13.3 x 6.5 mm Nominal Footprint



Typical PCB Land Pattern

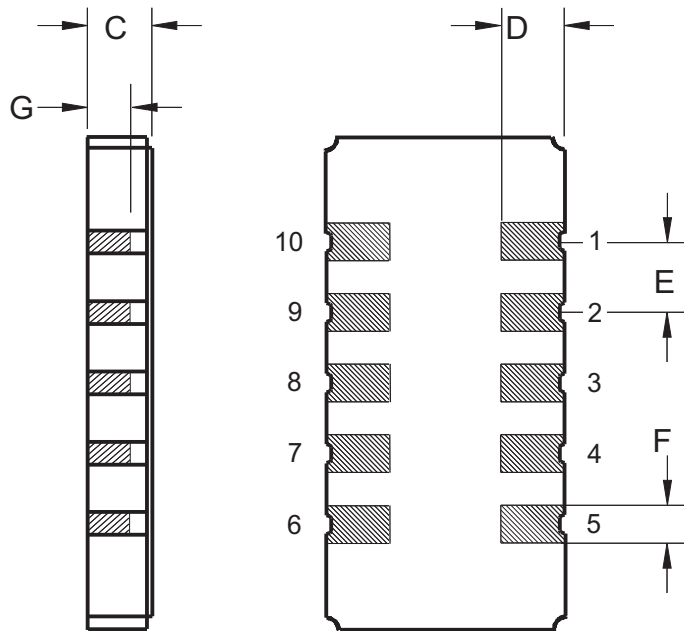
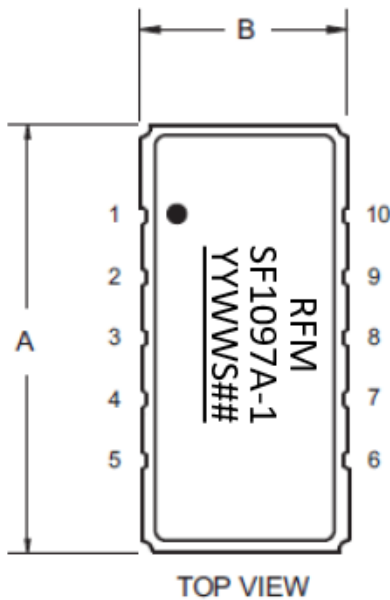


Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	13.2	13.3	13.5	.520	.524	.531
B	6.4	6.5	6.7	.251	.256	.264
C			2.00			.078
D	1.74	1.83	1.90	.069	.072	.075
E		1.91			.075	
F		1.02			.040	
G		0.76			.030	

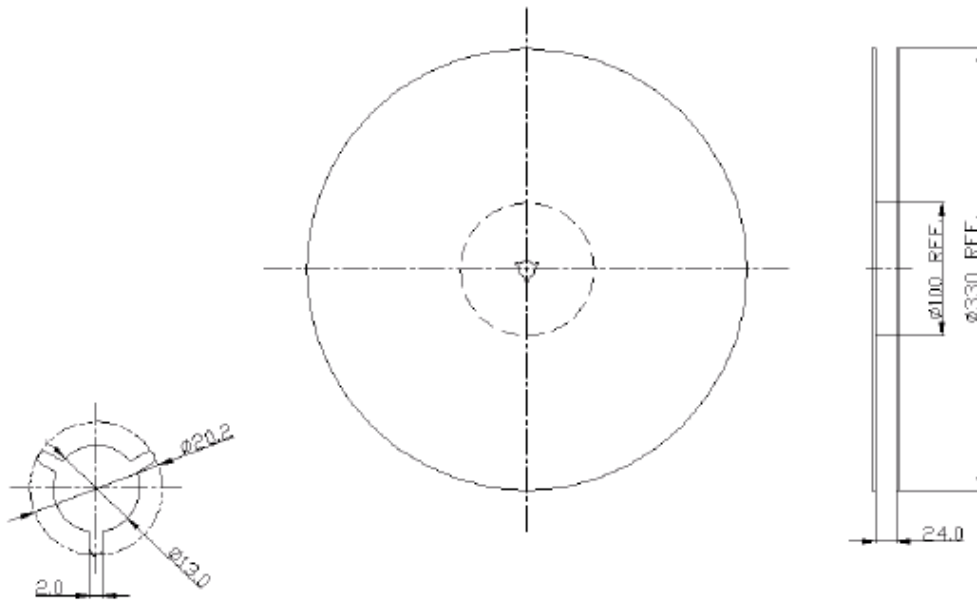
Electrical Connections

Connection	Terminals
Port 1 Hot or Return/Gnd	1
Port 1 Return/Gnd or Hot	10
Port 2 Hot or Return/Gnd	6
Port 2 Return/Gnd or Hot	5
Case Ground	All others
Single Ended Operation	Return is ground
Differential Operation	Return is hot



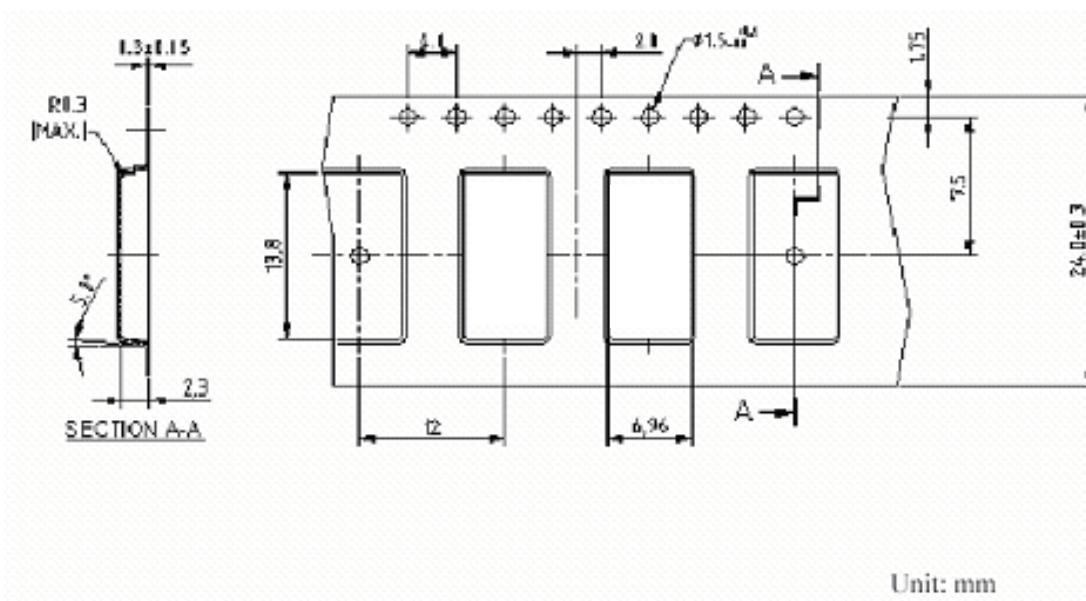
YY = Year, WW = Week, S = Shift, ## = Sequence Code

Tape Dimensions



Unit: mm

Reel Dimensions



Unit: mm

Recommended Pb Free Reflow Profile

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds at 260° +0/-5° peak (10 seconds).
4. Time: 5 times maximum.

