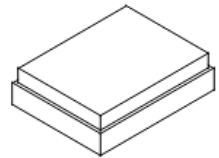


SF2603NA

718/773 MHz Filter Duplexer



SM1814

MAXIMUM RATING:

- Input power : 29dBm (Ta=+50deg C,50000h,CW)
- Maximum DC Voltage: +/-5 V
- Operating temperature range: -40 °C to +90 °C
- Storage temperature range: -55 °C to +125 °C
- Moisture Sensitivity Level: Level 1 (MSL 1)
- ESD 100V(MM) 200V(HBM)
- AEC-Q200 Compliant

ELECTRICAL CHARACTERISTICS:

Terminating impedance(Tx Port): 50//12nH Ω (Single-ended)

Terminating impedance(Rx Port): 50 Ω (Single-ended)

Terminating impedance(Ant Port): 50//8.2nH Ω (Single-ended)

Specifications for -40°C to +85°C range

Tx to ANT

Parameters Description		Unit	Minimum	Typical	Maximum	Note
Center Frequency		MHz		718		
Insertion Loss	703 ~ 733 MHz	dB(*1)	-	2.3	3.0	
	703.25 ~ 732.75 MHz			2.2	2.9	
Ripple		dB	-	1.3	2.4	
VSWR	Tx	-	-	2.0	2.2	
	ANT	-	-	1.9	2.1	
Attenuation:						
10 ~ 694 MHz		dB	18	30	-	-
694 ~ 698 MHz		dB	3.0	11	-	-
758 ~ 788 MHz		dB	47	54	-	Rx
1406 ~ 1466 MHz		dB	23	29	-	2fo
1565 ~ 1606 MHz		dB	20	24		GPS
2109 ~ 2199 MHz		dB	30	34		3fo
2400 ~ 2500 MHz		dB	35	40		ISM

ANT to Rx

Parameters Description			Unit	Minimum	Typical	Maximum	Note
Center Frequency			MHz		773		
Insertion Loss		758 ~ 788 MHz	dB(*1)	-	2.0	2.9	
		758.25 ~ 787.75 MHz			1.9	2.6	
Ripple)		758 ~ 788 MHz	dB	-	0.9	2.0	
VSWR	ANT	758 ~ 788 MHz	-	-	1.8	2.0	
	Rx		-	-	1.8	2.0	
Attenuation:							
703 ~ 733 MHz			dB	50	64	-	Tx-
2400 ~ 2500 MHz			dB	30	68	-	ISM

Tx to Rx

Isolation	703 ~ 733 MHz	dB	60	63	-	Tx
	758 ~ 788 MHz	dB	55	58	-	Rx

(*1) De-embedded test fixture.



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.

Specifications for -20°C to +90°C range

Characteristics TX – ANT							
Parameters Description			Unit	min.	typ.	max.	Note
Center Frequency			MHz	-	718	-	-
Insertion Loss	703 ~ 733	MHz	dB _{INT}	-	2.3	3.2	-
	703.24 ~ 732.76	MHz	dB _{INT}		2.2	3	-
Amplitude Ripple	703.24 ~ 732.76	MHz	dB p-p	-	1.3	2.2	-
VSWR	TX 703 ~ 733	MHz	-	-	2	2.3	-
	ANT 703 ~ 733	MHz	-	-	1.9	2.3	-
Absolute Attenuation	10 ~ 670	MHz	dB	30	37	-	-
	670 ~ 694	MHz	dB	30	32	-	-
	694 ~ 695	MHz	dB	20	24	-	-
	695 ~ 698	MHz	dB	4.5	13	-	+15°C~+70°C
	695 ~ 698	MHz	dB	3	13	-	-
	758.24 ~ 787.76	MHz	dB	43	49	-	-
	788 ~ 803	MHz	dB	30	41	-	-
	859 ~ 894	MHz	dB	30	37	-	-
	1225 ~ 1250	MHz	dB	35	37	-	-
	1406 ~ 1466	MHz	dB	25	29	-	-
	1559 ~ 1563	MHz	dB	22	25	-	-
	1565.42 ~ 1573.374	MHz	dB	22	26	-	-
	1573.374 ~ 1577.466	MHz	dB	22	25	-	-
	1577.466 ~ 1585.42	MHz	dB	22	25	-	-
	1597.55 ~ 1605.89	MHz	dB	22	25	-	-
	1805 ~ 1880	MHz	dB	22	27	-	-
	1930 ~ 1995	MHz	dB	25	30	-	-
	2010 ~ 2025	MHz	dB	30	33	-	-
	2109 ~ 2199	MHz	dB	30	33	-	-
	2400 ~ 2484	MHz	dB	28	41	-	-
	2570 ~ 2620	MHz	dB	28	38	-	-
	2812 ~ 2932	MHz	dB	15	34	-	-
	4900 ~ 5950	MHz	dB	15	31	-	-

Specifications for -20°C to +90°C range cont.

Characteristics ANT – RX							
Parameters Description			Unit	min.	typ.*	max.	Note
Center Frequency			MHz	-	773	-	-
Insertion Loss	758 ~ 788	MHz	dB INT	-	2.0	3.2	-
	758.24 ~ 787.76	MHz	dB INT	-	1.9	3	-
Amplitude Ripple	758.24 ~ 787.76	MHz	dB p-p	-	0.8	1.9	-
VSWR	ANT 758 ~ 788	MHz	-	-	1.7	2.0	0°~+90°C
	ANT 758 ~ 788	MHz	-	-	1.7	2.2	-20°~ 0°C
	RX 758 ~ 88	MHz	-	-	1.6	2.1	-
Absolute Attenuation	10 ~ 699	MHz	dB	40	61	-	-
	45 ~ 65	MHz	dB	50	99	-	-
	703.24 ~ 732.76	MHz	dB	50	58	-	-
	733.24 ~ 747.76	MHz	dB	30	34	-	-
	814 ~ 3000	MHz	dB	35	44	-	-
	3000 ~ 6000	MHz	dB	26	46	-	-

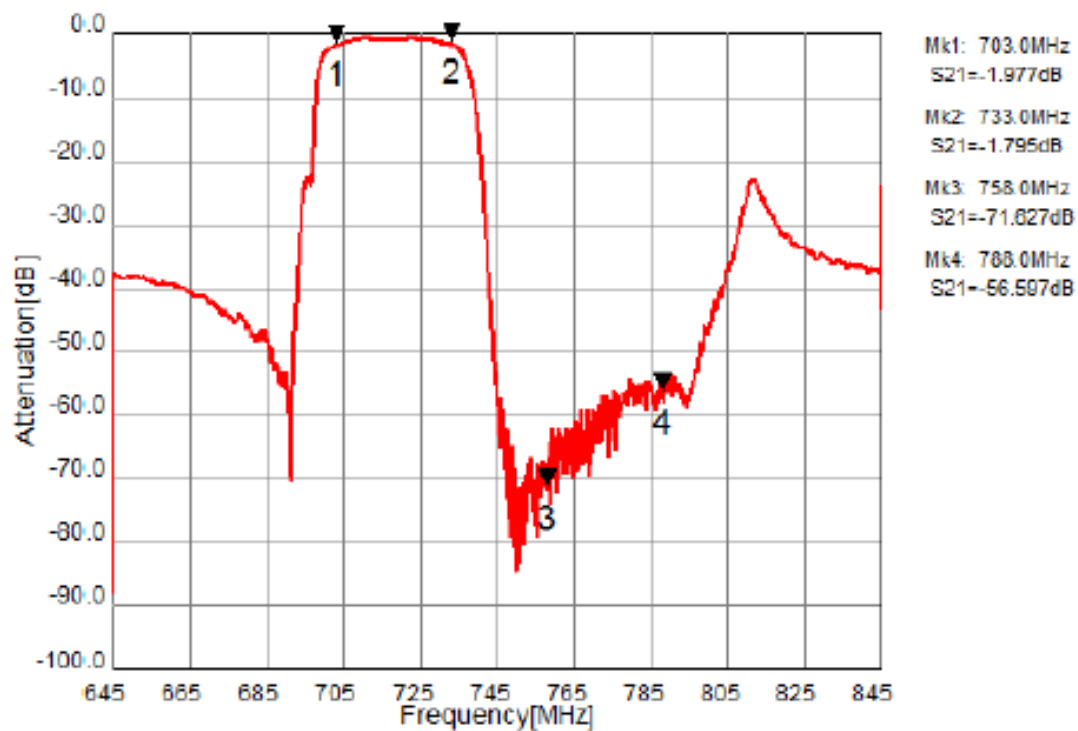
Tx to Rx

Minimum isolation	703.24 ~ 732.76	MHz	dB	55	59	-	Tx
	758.24 ~ 787.76	MHz	dB	54 ₂₎	62	-	Rx
	758.24 ~ 787.76	MHz	dB	53 ₃₎	62	-	Rx

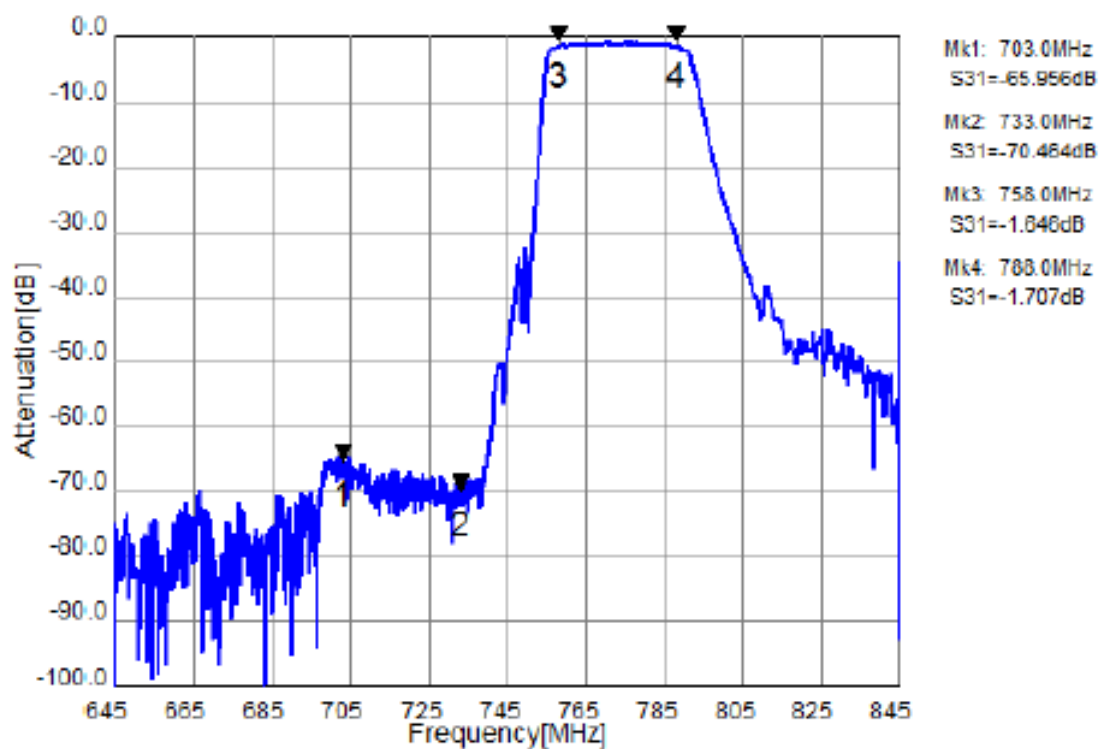
1) De-embedded test fixture.

Frequency Characteristics:

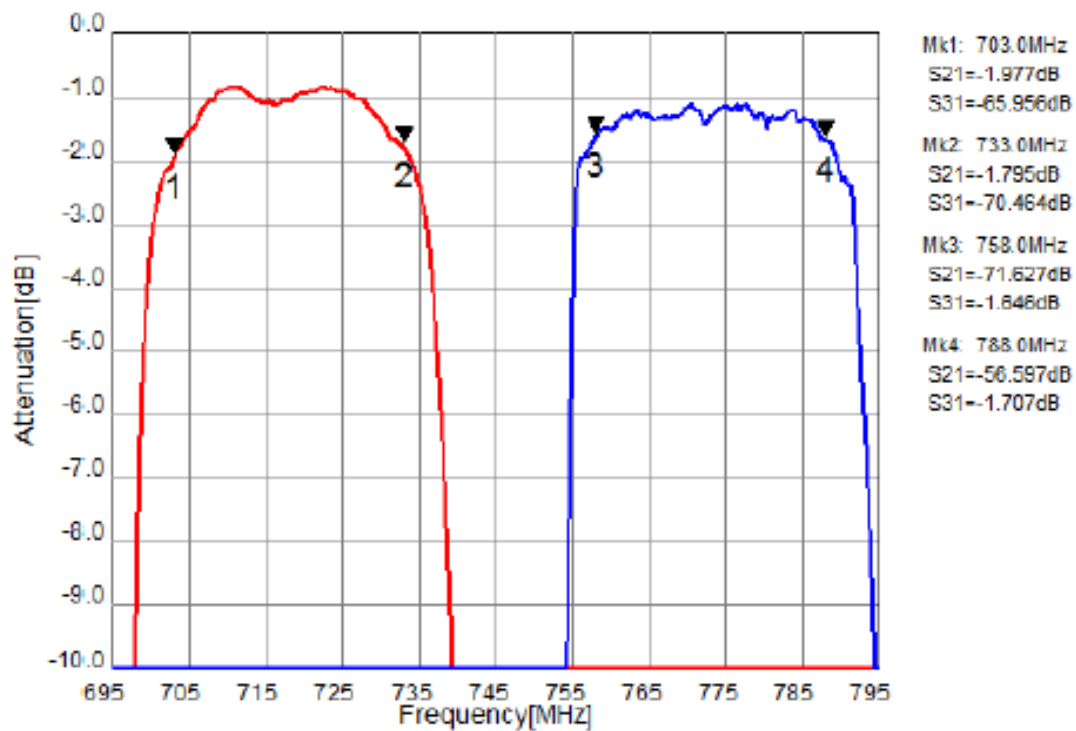
Tx to Ant



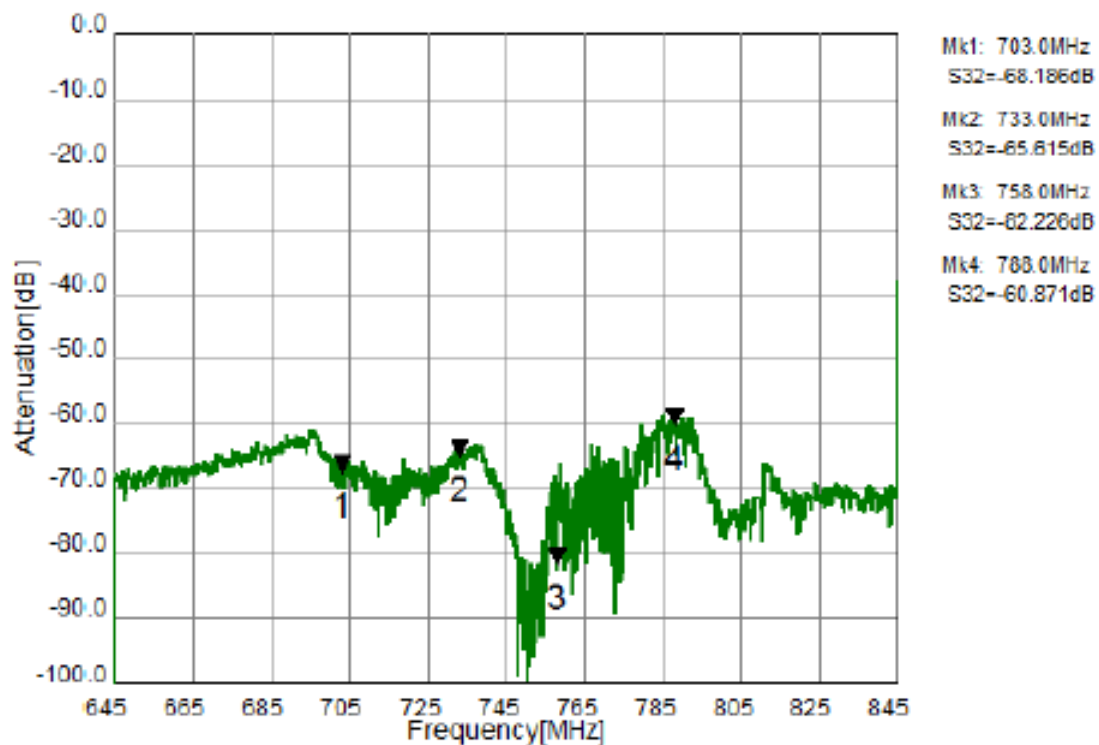
Ant to Rx



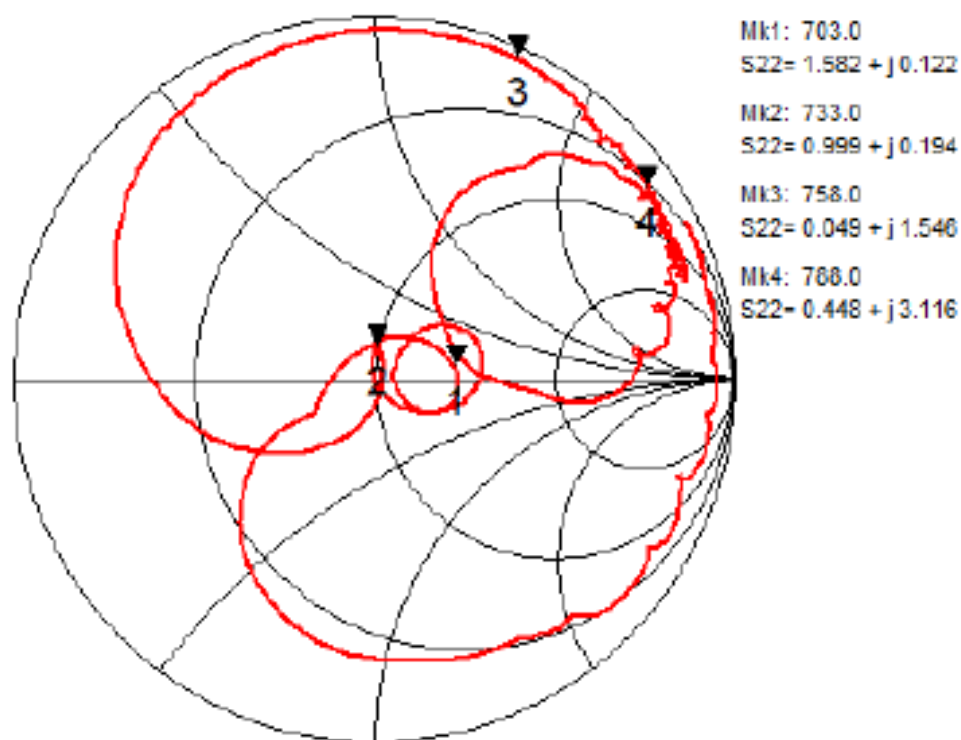
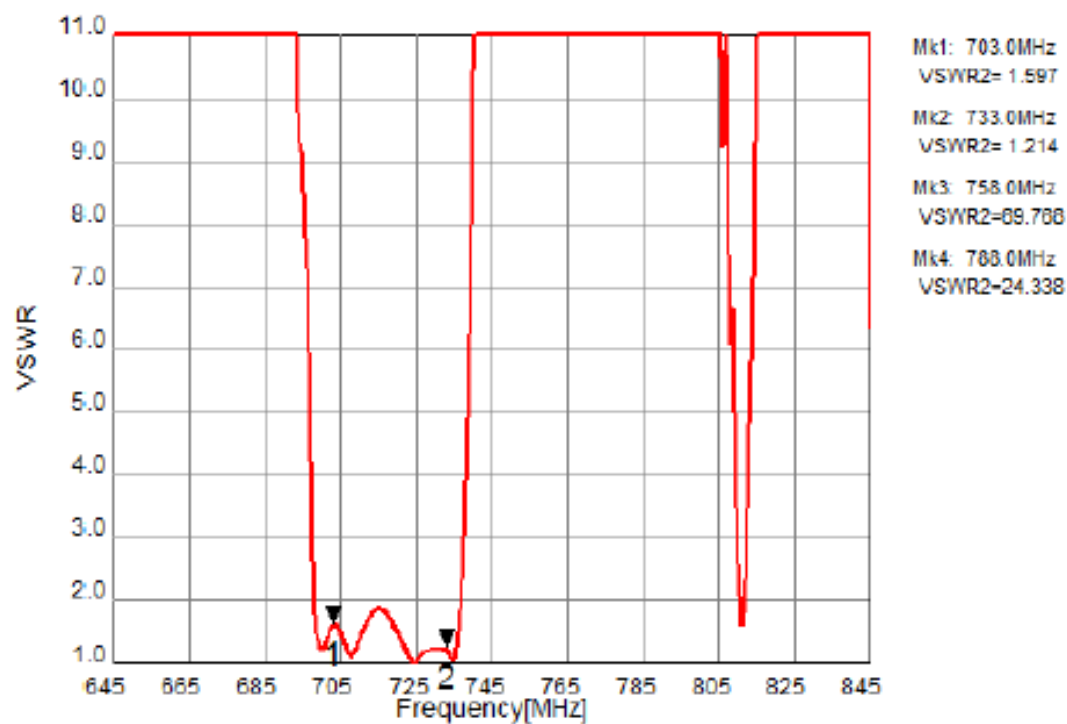
Tx to Ant, Ant to Rx



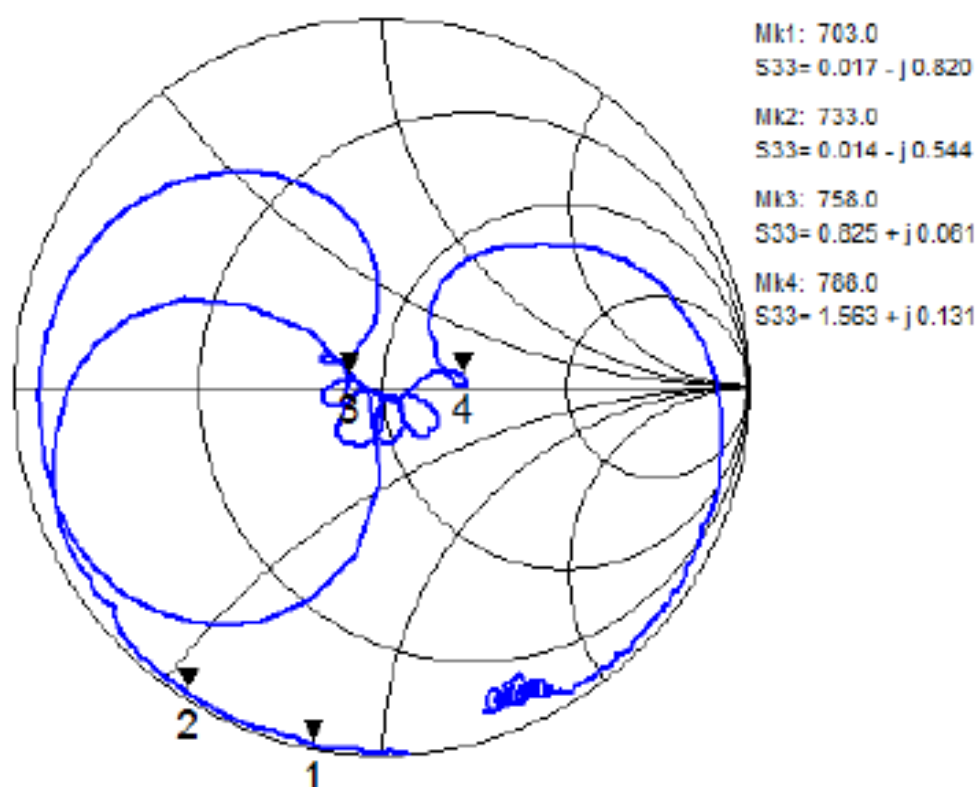
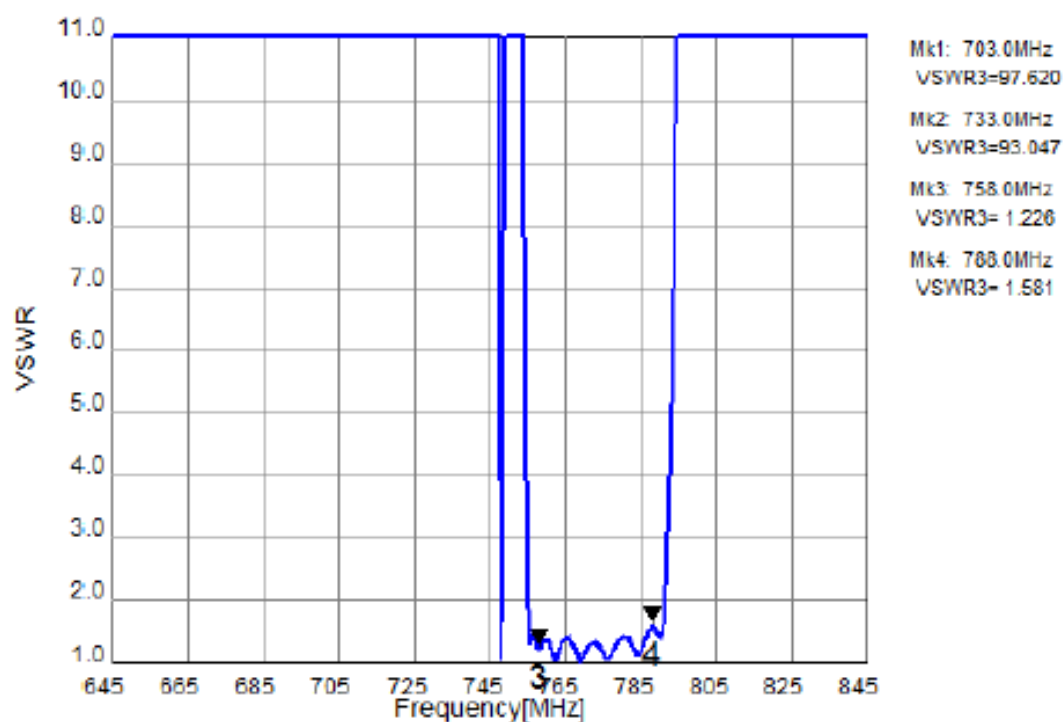
Tx to Rx Isolation



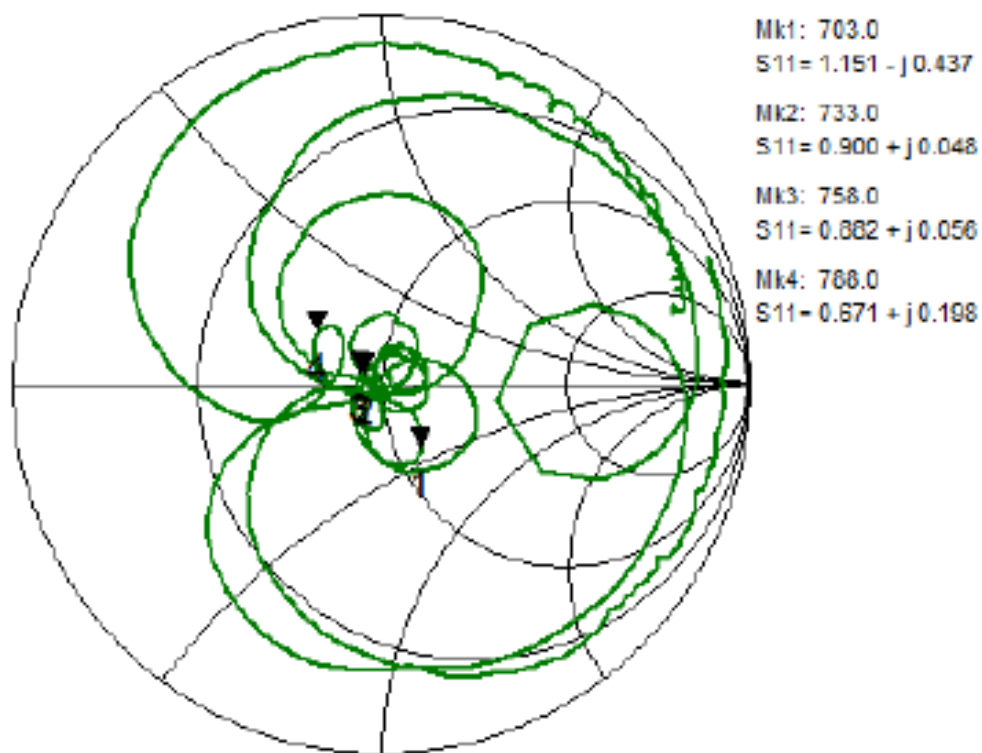
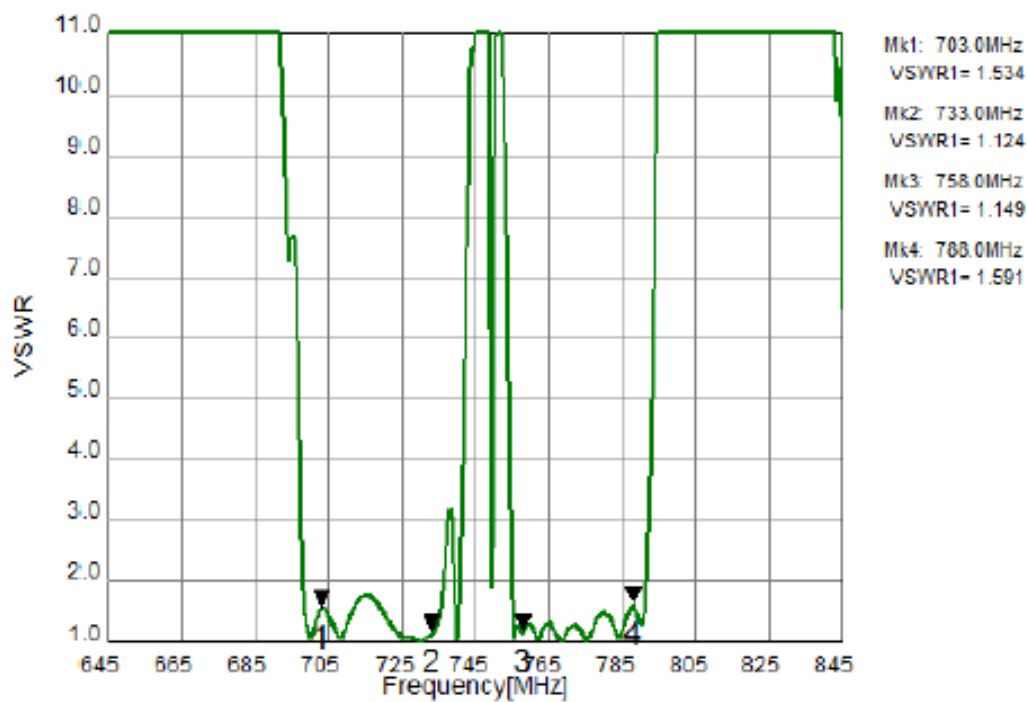
Tx Port



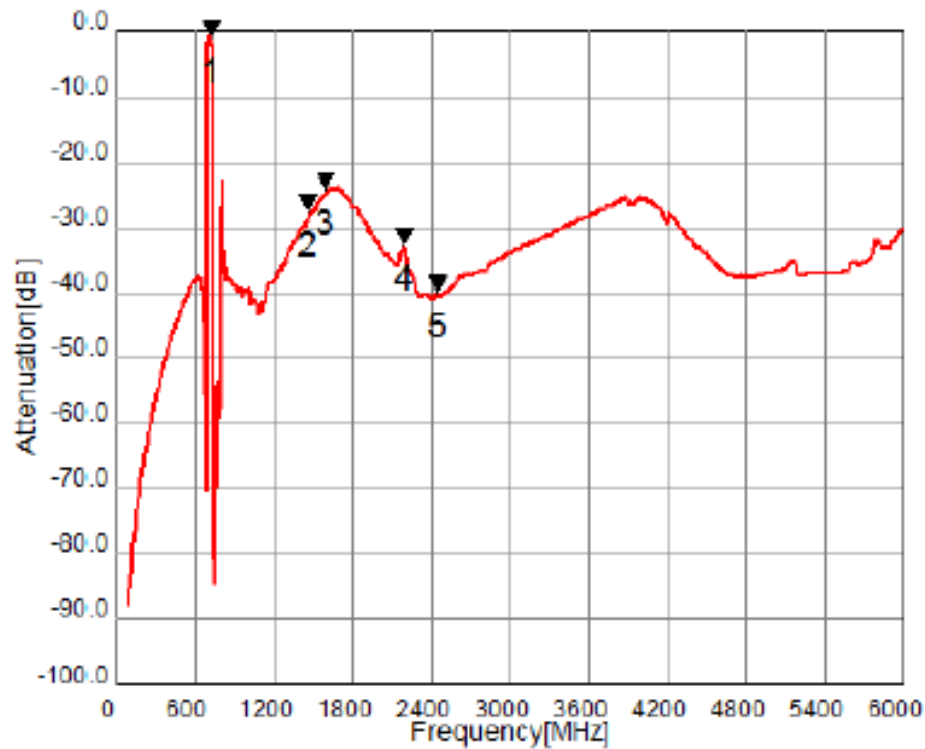
Rx Port



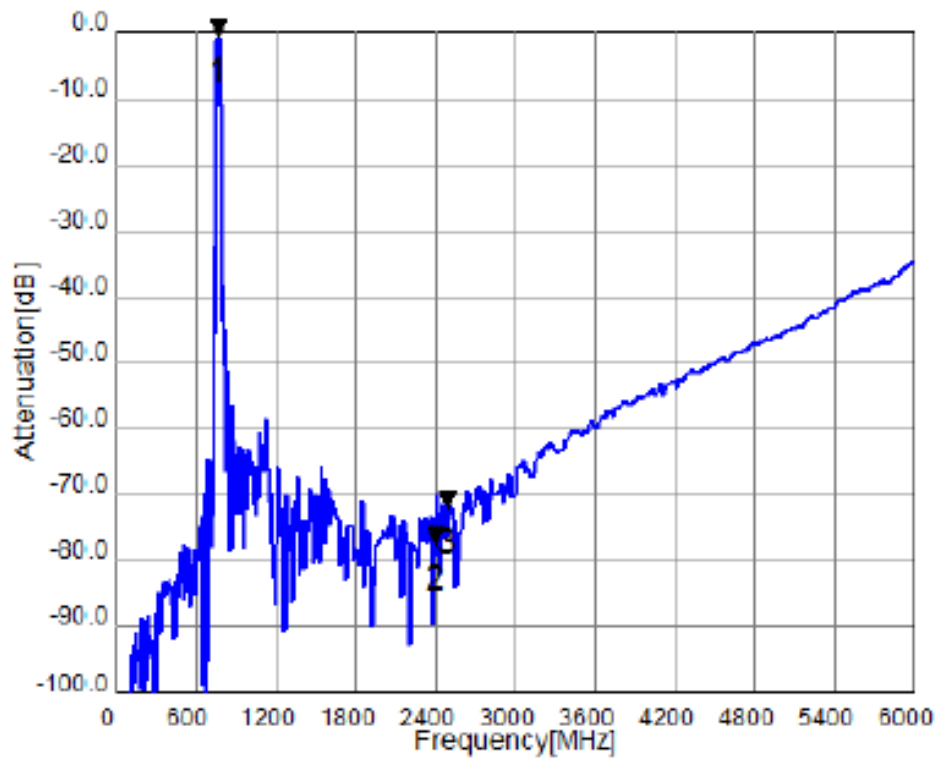
Ant Port



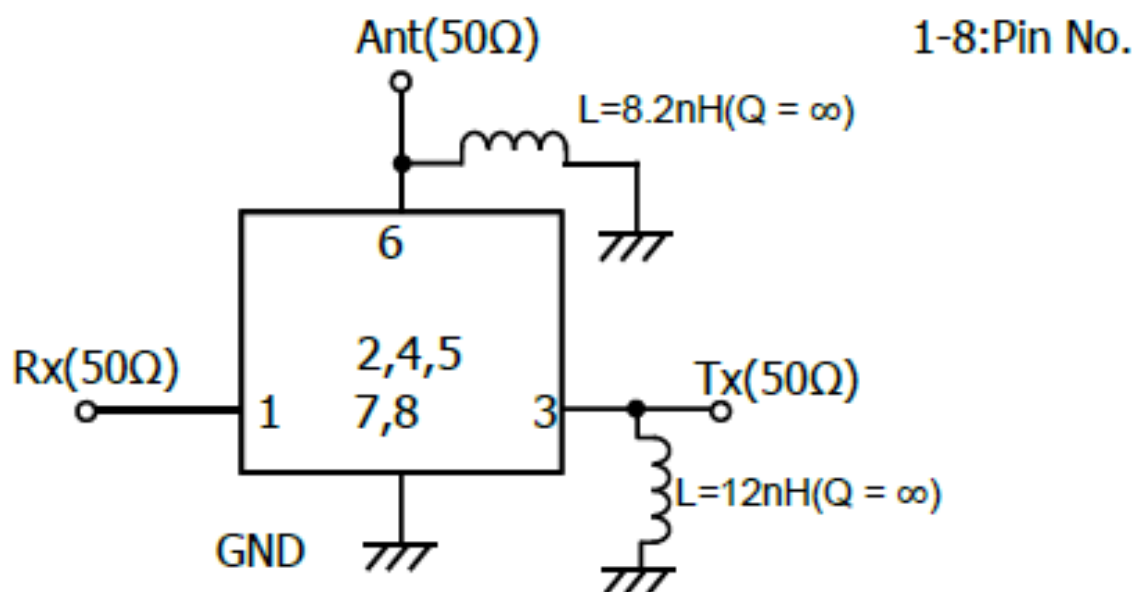
Tx to Ant (Wide span)



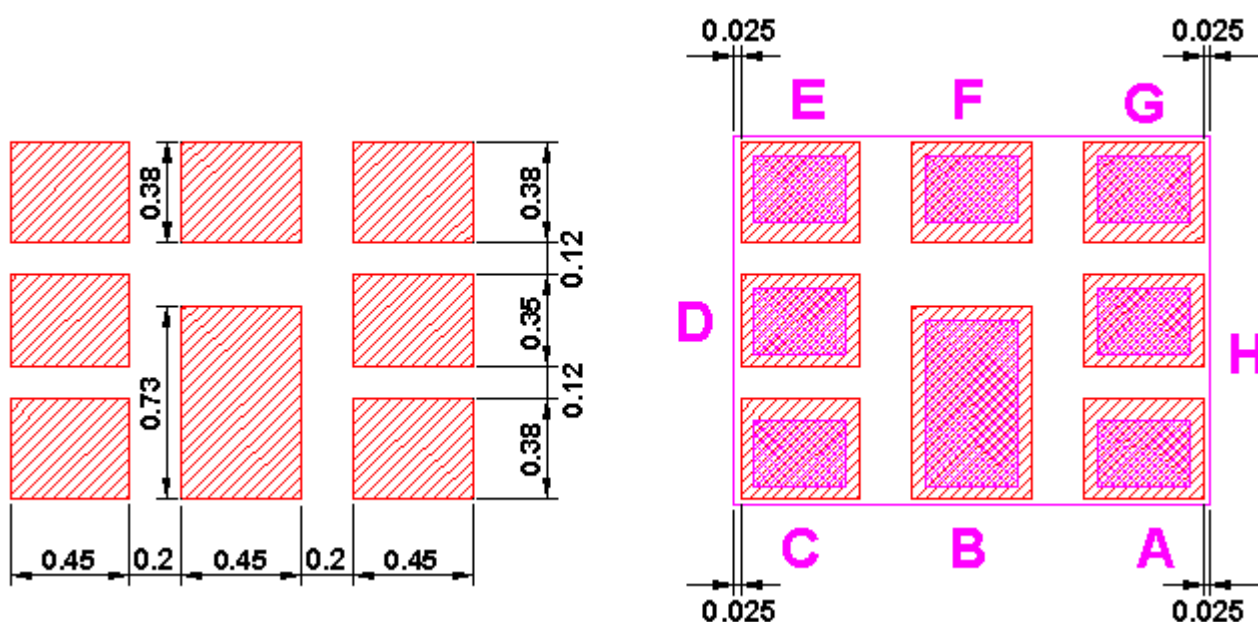
Ant to Rx (Wide span)



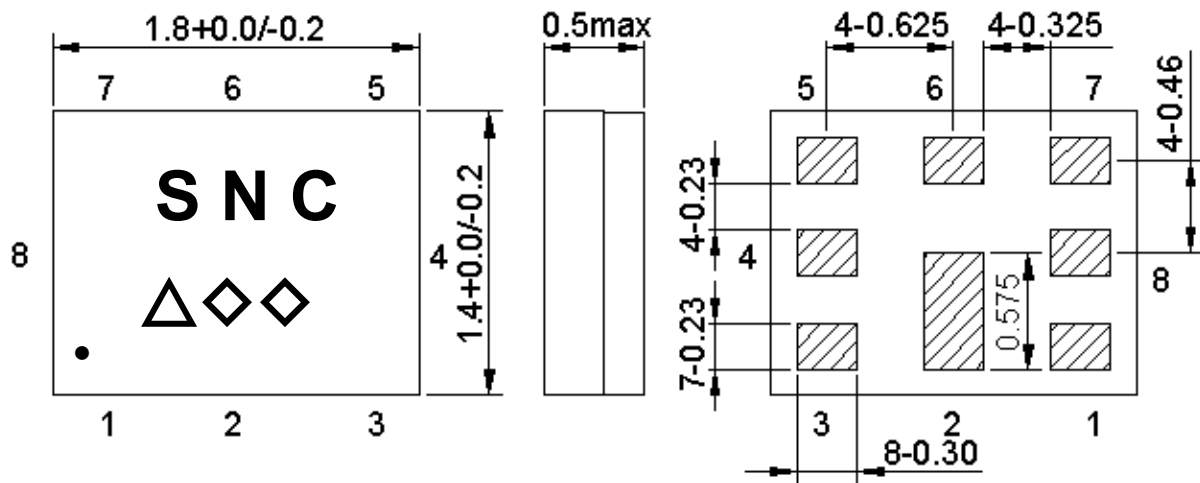
MEASUREMENT CIRCUIT:



PCB FOOTPRINT:



OUTLINE DRAWING: (Mass Production)



Marking name : NC

△: Date code(2016 May → s ,....., 2019 Dec→m.)

◇◇: Lot Code.

Product Date Code. Follow below table.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2016	n	p	q	r	s	t	u	v	w	x	y	z
2017	A	B	C	D	E	F	G	H	J	K	L	M
2018	N	P	Q	R	S	T	U	V	W	X	Y	Z
2019	a	b	c	d	e	f	g	h	j	k	l	m
2020	n	p	q	r	s	t	u	v	w	x	y	z
2021	A	B	C	D	E	F	G	H	J	K	L	M

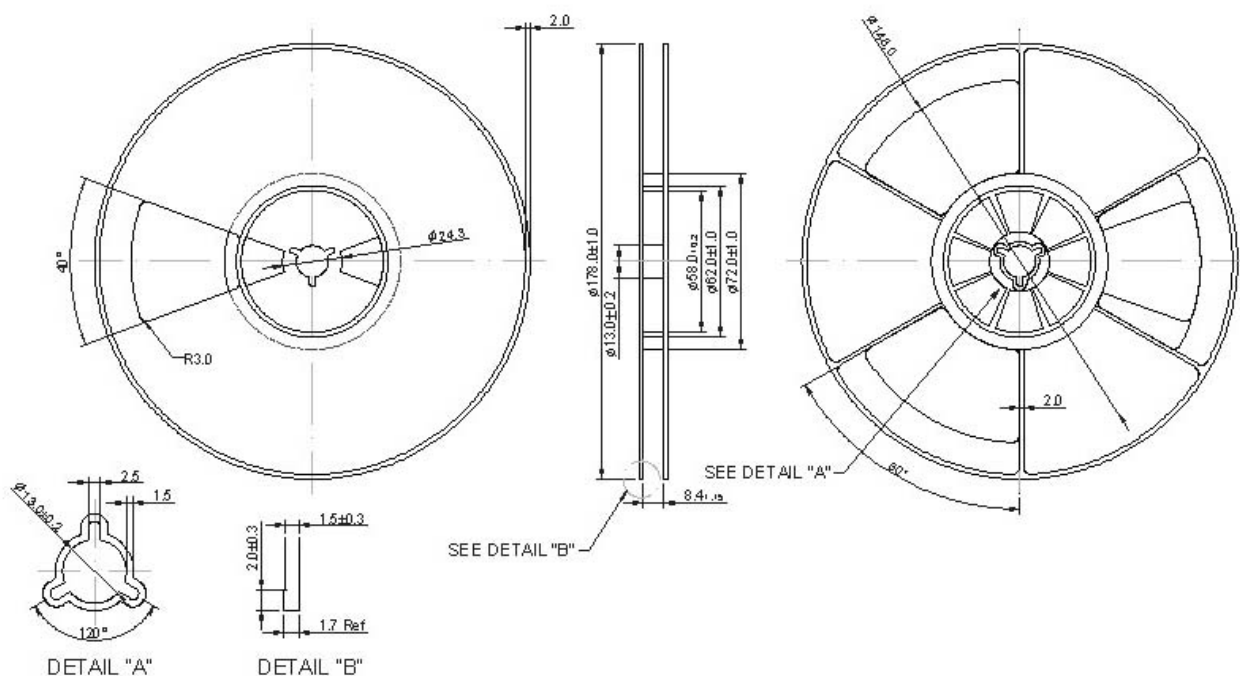
Pin assignment

Pin No.	Pin name	Description
1	Rx	Receiver
2	GND	Ground
3	Tx	Transmitter
4	GND	Ground
5	GND	Ground
6	Ant	Antenna
7	GND	Ground
8	GND	Ground

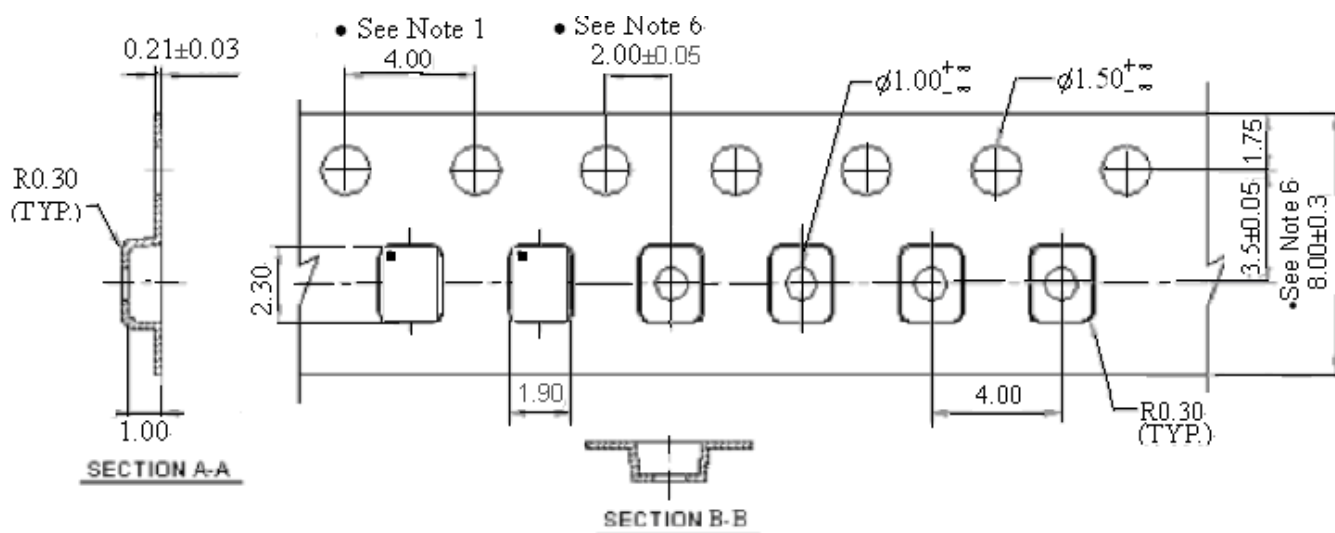
Figure 1. Dimensions and Pin assignment

PACKING:
REEL DIMENSION

Reel Count:
7" = 3000
13" = 10,000



TAPE DIMENSION



RECOMMENDED 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 and at 260°C+0/-5°C peak (20~40sec).
4. Time: 2 times.

