Application

- High Isolation SAW Notch Filter for WIFI Extractor
- High attenuation for Coexistence

Features

- Ceramic Package for Surface Mounted Technology (SMT)
- RoHS compatible
- Package size 1.8*1.4mm
- Electrostatic Sensitive Device(ESD)

Electrical Specification Cell-ANT

Antenna terminating impedance: Z_{ANT}=50Ω

Wifi terminating impedance: Z_{Wifi}=50Ω

Cell terminating impedance: Z_{Cell}=50Ω

ITEM		Min.	Typ.	Max.	Unit	Note
Center Frequency		1427 2535		2370 2690	MHz	
Maximum Insertion Loss	1427~1511MHz	-	0.8	1.5	dB	-30~85°C
Maximum Insertion Loss	1559~1606MHz		0.8	1.5	dB	-30~85°C
Maximum Insertion Loss	1710~2170 MHz		0.9	1.5	dB	-30~85°C
Maximum Insertion Loss	2300~2370MHz		1.5	2.6	dB	-30~85°C
Maximum Insertion Loss	2496~2535MHz		2.7	27	dB	-30~85°C
Maximum Insertion Loss	2496~2515MHz		2.7	27	dB	-30~85°C
Maximum Insertion Loss	2515~2535MHz		0.7	1.7	dB	-30~85°C
Maximum Insertion Loss	2535~2655MHz		1.0	1.5	dB	-30~85°C
Maximum Insertion Loss	2620~2690MHz		1.1	1.5	dB	-30~85°C
Maximum Insertion Loss						RT(25°C)
Maximum Insertion Loss						-10~85°C
Amplitude ripple@20MHz	699~960MHz		0.5	1.5	dB	-30~85°C
Amplitude ripple@20MHz	1427~1511MHz		0.1	1.5	dB	-30~85°C
Amplitude ripple@20MHz	1710~2200MHz		0.7	1.5	dB	-30~85°C
Amplitude ripple@20MHz	2300~2370MHz		1.1	2.2	dB	-30~85°C
Amplitude ripple@20MHz	2496~2535MHz		2.1	24.7	dB	-30~85°C
Amplitude ripple@20MHz	2496~2515MHz		2.1	24.7	dB	-30~85°C
Amplitude ripple@20MHz	2515~2535MHz		0.1	1.5	dB	-30~85°C
Amplitude ripple@20MHz	2535~2655MHz			1.5	dB	-30~85°C
Amplitude ripple@20MHz	2620~2690MHz			1	dB	-30~85°C

Amplitude ripple@20MHz					dB	RT(25°C)
VSWR @Cell port	699MHz~2200MHz	-	2.7	3.2		-30~85°C
VSWR @Cell port	699~960MHz		2.7	3.2		-30~85°C
VSWR @Cell port	1427~2200MHz		1.5	2.0		-30~85°C
VSWR @Cell port	2300~2370MHz		1.2	1.8		-30~85°C
VSWR @Cell port	2535~2655MHz		1.3	1.8		-30~85°C
VSWR @Cell port	2620~2690MHz		1.3	1.8		-30~85°C
VSWR @ANT port	699MHz–2200MHz		2.8	3.2		-30~85°C
VSWR @ANT port	699~960MHz		2.8	3.2		-30~85°C
VSWR @ANT port	1427~2200MHz		1.5	2.0		-30~85°C
VSWR @ANT port	2300~2370MHz		1.2	1.8		-30~85°C
VSWR @ANT port	2535~2655MHz		1.3	1.8		-30~85°C
VSWR @ANT port	2620~2690MHz		1.3	1.8		-30~85°C
VSWR @Cell port			/	/		RT(25°C)
VSWR @ANT port			/	/		RT(25°C)
Attenuation	2402.5~2481.5 MHz	12	17		dB	WIFI 2.4G Averaged for any 19 MHz BW
Input / Output Impedance (Nominal)		50Ω/50Ω				

Electrical Specification WIFI-ANT

Antenna terminating impedance: Z_{ANT}=50Ω

Wifi terminating impedance: Z_{Wifi}=50Ω

Cell terminating impedance: Z_{Cell}=50Ω

ITEM		Min.	Typ.	Max.	Unit	Note
Center Frequency		2402		2482	MHz	
Maximum Insertion Loss	2402~2482MHz	-	2.5	4.4	dB	-30~85°C
Maximum Insertion Loss	2402~2482MHz		2.5	3.6	dB	RT(25°C)
Maximum Insertion Loss	ISM Channel 1 to 12 (Integrated over 19 MHz)		1.6	2.4	dB	-30~85°C
Maximum Insertion Loss	ISM Channel 13 (Integrated over 19 MHz)		1.5	2.4	dB	RT(25°C)
Maximum Insertion Loss	2402~2482MHz		/	/		-10-85℃
Amplitude ripple@20MHz	2402~2482MHz				dB	-30~85°C
Amplitude ripple@20MHz	2402~2482MHz			3.7	dB	-30~85°C
VSWR @Wifi port	2402~2482MHz		1.8	2.3		-30~85°C
VSWR @Ant port	2402~2482MHz		1.8	2.1		-30~85°C
VSWR @Wifi port	2402~2482MHz		/	/		RT(25°C)

VSWR @Ant port	2402~2482MHz		/	/		RT(25°C)
Attenuation	699~1511MHz	35	40		dB	MLB
Attenuation	1559~1606MHz	36	44		dB	GPS
Attenuation	1710~2025MHz	36	43		dB	MB
Attenuation	2110~ 2170MHz	36	44		dB	MB
Attenuation	2300~2370 MHz	30	45		dB	B40n
Attenuation	2496~2510MHz				dB	B41
Attenuation	2510~2570MHz	25	45		dB	B7 Tx
Attenuation	2535~2690MHz	40	44		dB	B41n
Attenuation	4800~5000MHz	30	40		dB	2f0
Attenuation	5150~5950MHz	25	38		dB	WIFI 5G
Rx spurious(Rx port)					dBm/Hz	Pin=Pmax(CW) @Tx port
Input / Output Impedance (Nominal)		50Ω/50Ω				

Electrical Specification Cell-WIFI

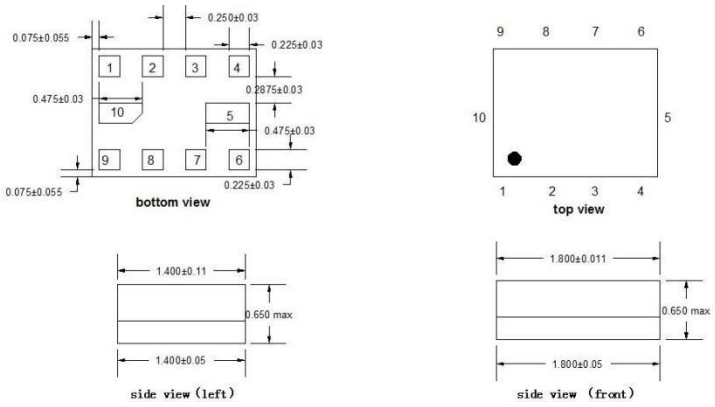
ITEM		Min.	Typ.	Max.	Unit	Note
Isolation	2300-2370 MHz	35	42		dB	B40 Low
Isolation	2370-2380 MHz	6	43		dB	B40 Mid
Isolation	2380-2400 MHz	6	12		dB	B40 High
Isolation	2402.5-2481.5 MHz	15	21		dB	WIFI Averaged for any 19 MHz BW
Isolation	2496-2500 MHz	6	16		dB	B41 Low
Isolation	2500-2510MHz	6	28		dB	B41 Mid
Isolation	2510-2620MHz	20	47		dB	B41 High
Isolation	2620-2690MHz	42	48		dB	B7

Maximum Ratings

Rating	Symbol	Value	Unit
Input RF Power (cell port: 1427-2370,2496-2690MHz)	P	28dBm,CW,3000h,50℃	
Input RF Power (cell port: GSM LB)	P	/	
Input RF Power (cell port: GSM LB)	P	20dBm GMSK duty cycle 1:8, 3000 h, 50 °C	
Input RF Power (cell port: 2402~2482MHz)	P	24dBm, 19.2MHz WIAN , 3000 h, 50 °C	
Input RF Power (cell port: 1427~2370,2496~2690MHz)	P	15dBm, CW, 3000 h, 50 °C	
Operating Temperature Range	T_A	-30 ~ +85	°C
Storage Temperature Range	Tstg	-40 ~ +85	°C
ESD Voltage (HBM)	V_{ESD}	> 100	V
ESD Voltage (CDM)	V_{ESD}	> 100	V

Moisture Sensitivity Levels	MSL	3

Outline Drawing



Pin Configuration

PIN#	Description
1	Unbalance Port (ISM2.4-port)
4	Unbalance Port(Cell port)
6	Connected to coil
7	Connected to coil
9	Unbalance Port (Ant.-side), Connected to coil
2,3,5,8,10	GND

Marking

Top View, Laser Marking

"E10": Part Number
"." Dot marking, indicates input

"1": Terminal 1

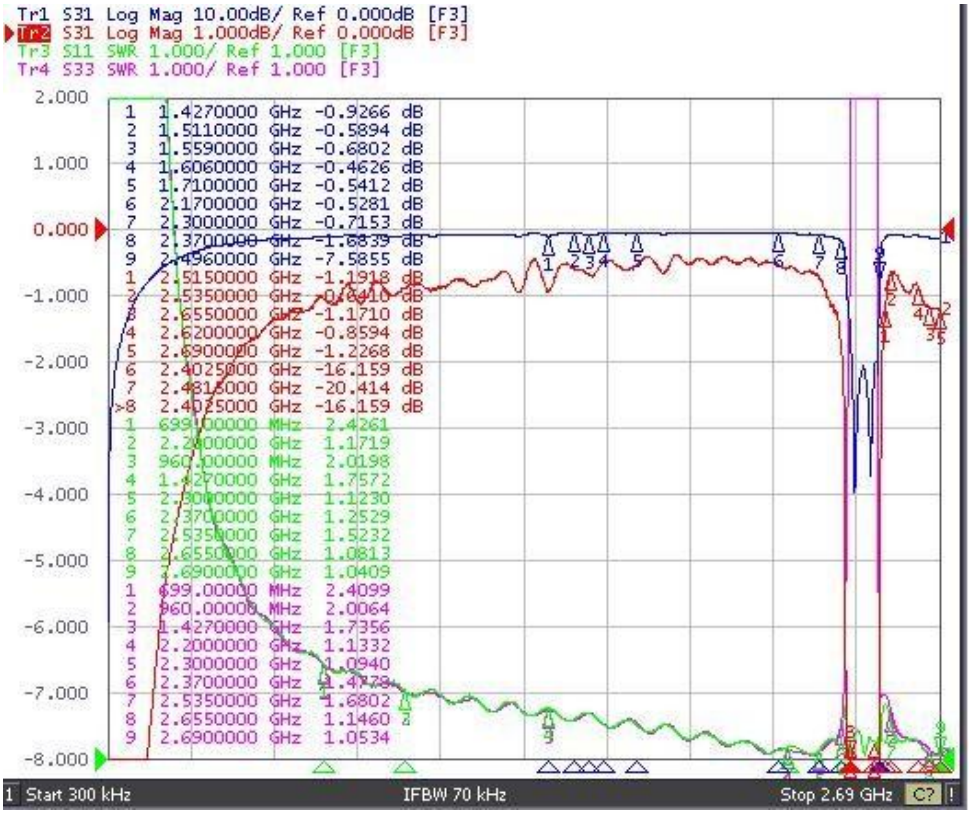
The first "*": Month Code (The code shown below varies in a 4-year-cycle)

Month	1	2	3	4	5	6	7	8	9	10	11	12
2016/2020	n	p	q	r	s	t	u	v	w	x	y	z
2017/2021	A	B	C	D	E	F	G	H	J	K	L	M
2018/2022	N	P	Q	R	S	T	U	V	W	X	Y	Z
2019/2023	a	b	c	d	e	f	g	h	i	j	k	m

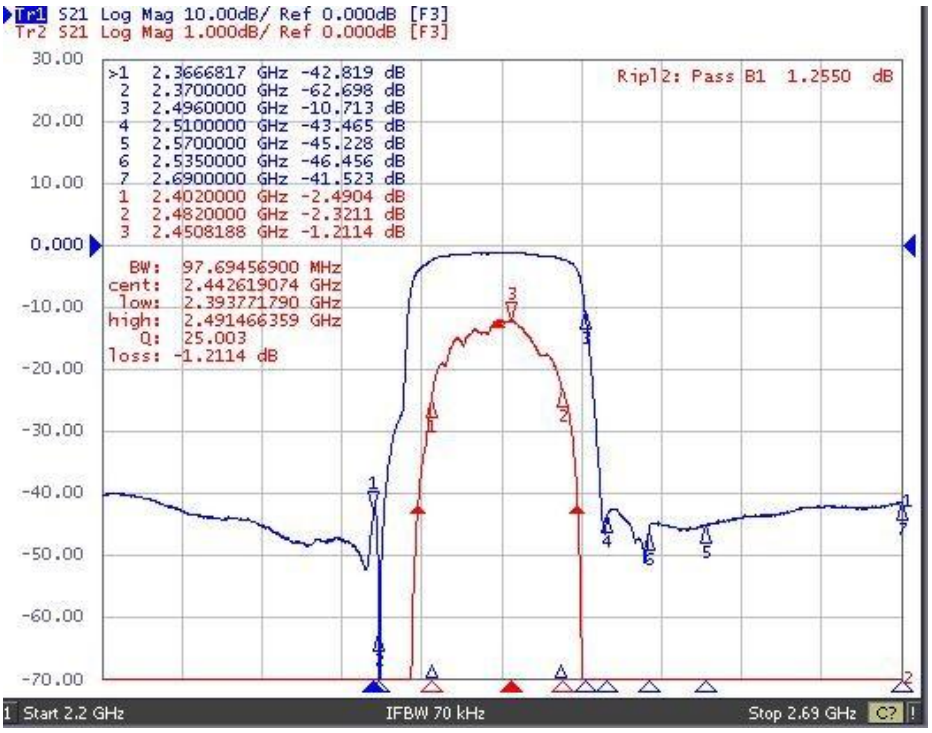
The second "*": Date Code

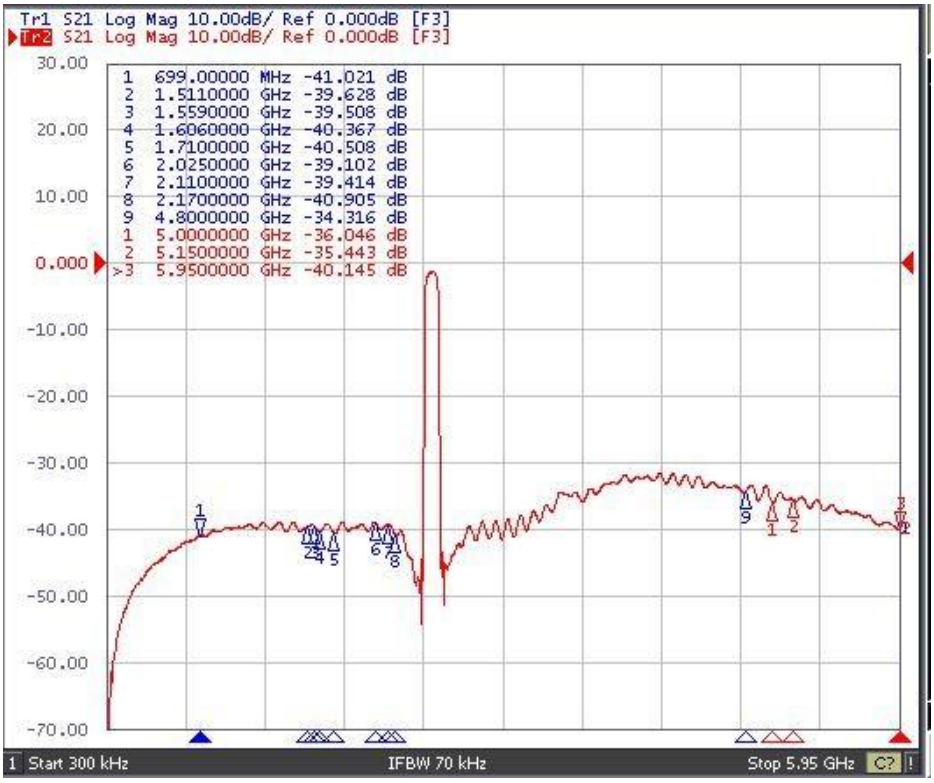
Date	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	
Code	A	B	C	D	E	F	G	H	J	K	
Date	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	
Code	L	M	N	P	Q	R	S	T	U	V	
Date	21st	22nd	23rd	24th	25th	26th	27th	28th	19th	30th	31th
Code	W	X	Y	Z	a	b	d	e	f	g	h

Typical Frequency Response Cell-ANT

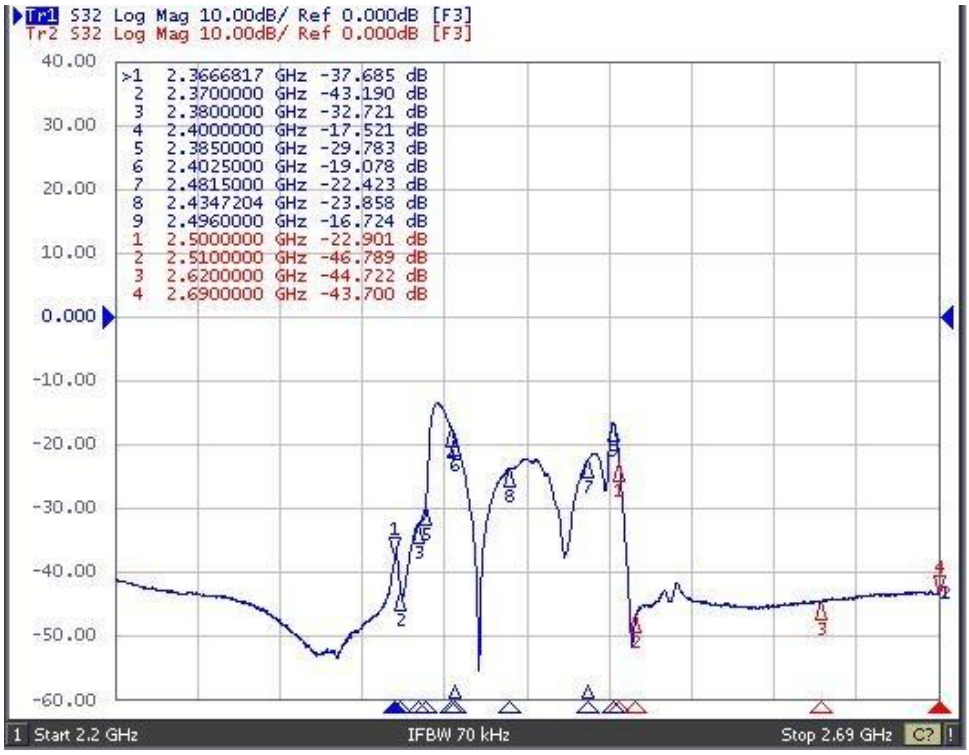


Typical Frequency Response ANT-WIFI

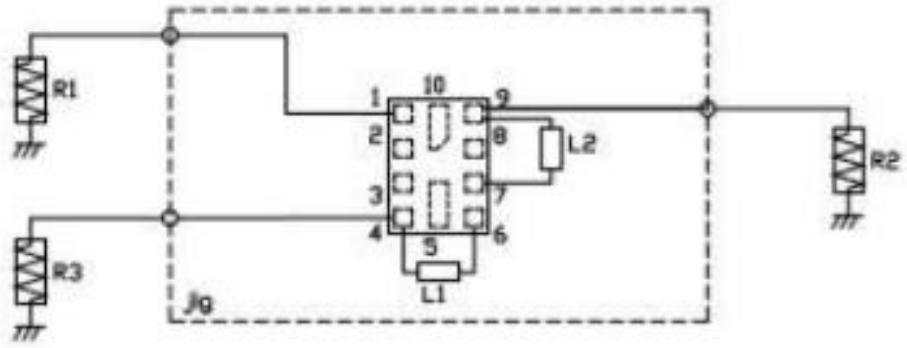




Typical Frequency Response Cell-WIFI



Test Circuit



L1=3.6nH L2=3.9nH

Stability Characteristics

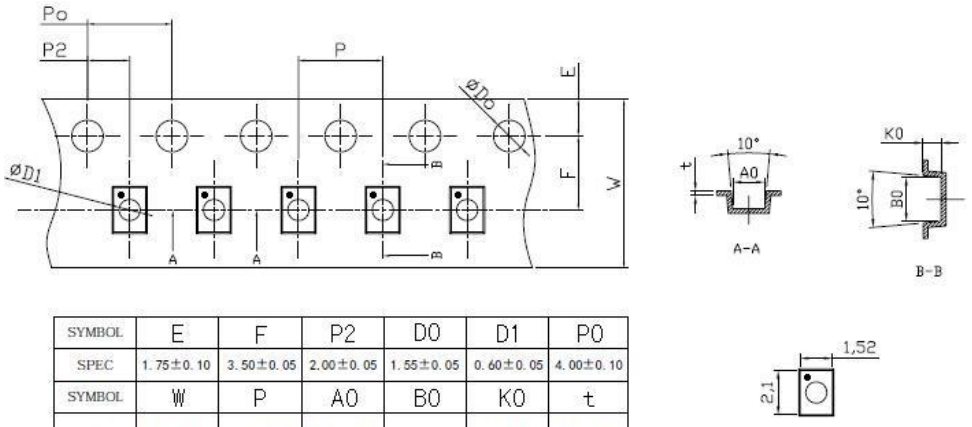
ITEM	Test Name	STD Reference	Test Conditions	Least lot
Precondition		JESD22-A113	1) Temperature Cycling, 5 cycles -40 ℃ (or lower) to 60℃(or higher); 2) Bake, 24 hrs @ 85±5℃; Moisture Soak, Soak time and conditions per IPC/JEDEC J-STD-020 based on device MSL level; Reflow, 3 reflow cycles using profiles per IPC/JEDEC J-STD-020, SnPb or Pb-free profile based on device end use process; Drying, Room ambient temperature.	All behind
1	Temperature Cycling	JESD22-A104	Temperature range -40 ℃ /85 ℃ , 5 15min dwell. Release after 500 cycles.	℃/min, 3*25 pcs
2	High Temperature Storage	JESD22-A103	Temperature = 85℃, 1000 hours.	3*25 pcs
3	Temperature Humidity no bias	JEDEC Std A101-B	85°C / 85%RH / 240 hours	3*25 pcs
4	Human Body Mode ESD	JESD22-A114	Ta=25C,>100V.	3 pcs
5	Charge Device Mode ESD	JESD22-C101	Ta=25C,>100V.	3 pcs
6	Solderability (lead-free)	JESD22-B102	Wetting: 245℃, 5s.	22 pcs
7	Drop Test	JESD22-B111	1500Gs,0.5millisecond duration, half-sine pulse.	20 pcs
8	Mechanical Shock	JESD-47	Shock pulse of 1500g with pulse duration of 0.5+/-0.1msec (X ,Y & Z); 5 shocks per axis.	3*25 pcs

Remarks

- SAW devices should not be used in any type of fluid such as water, oil, organic solvent, etc.
- Be certain not to apply voltage exceeding the rated voltage of components.
- Do not operate outside the recommended operating temperature range of components.
- Sudden change of temperature shall be avoided, deterioration of the characteristics can occur.
- Be careful of soldering temperature and duration of components when soldering.
- Do not place soldering iron on the body of components.
- Be careful not to subject the terminals or leads of components to excessive force.
- SAW devices are electrostatic sensitive. Please avoid static voltage during operation and storage.
- Ultrasonic cleaning shall be avoided. Ultrasonic vibration may cause destruction of components.

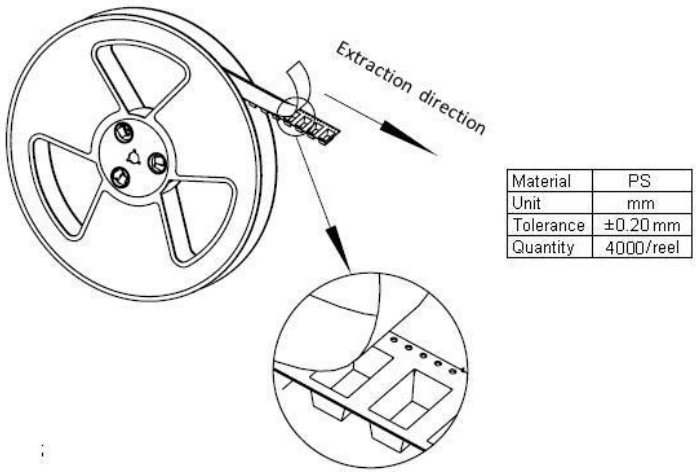
Packing Information

Carrier Tape



SYMBOL	E	F	P2	D0	D1	P0
SPEC	1.75±0.10	3.50±0.05	2.00±0.05	1.55±0.05	0.60±0.05	4.00±0.10
SYMBOL	W	P	A0	B0	K0	t
SPEC	8.00±0.10	4.00±0.10	1.60±0.05	2.10±0.10	0.80±0.05	0.30±0.10

Reel Dimensions

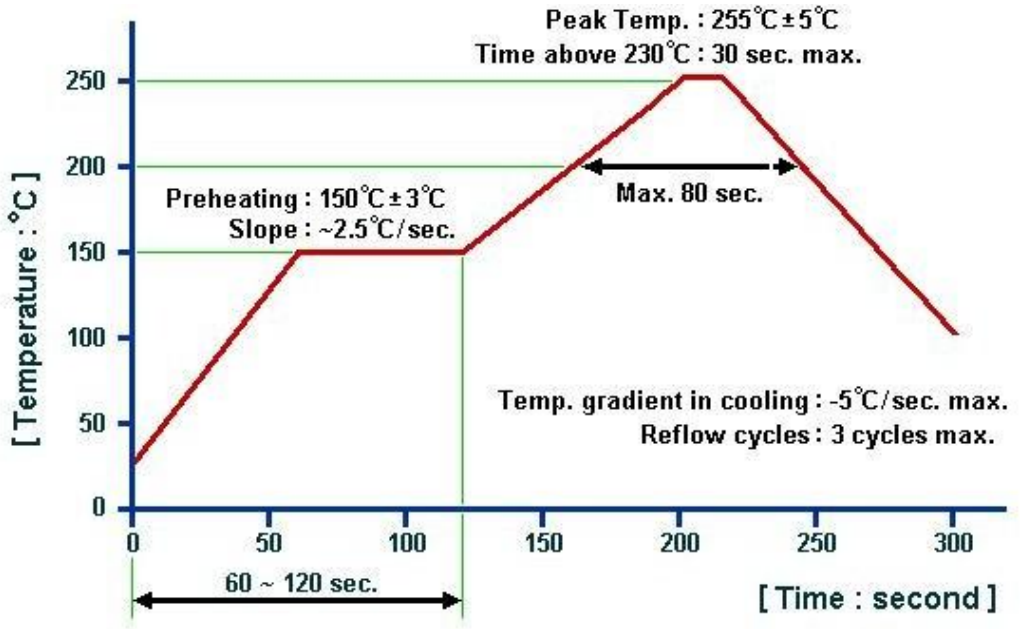


Material	PS
Unit	mm
Tolerance	±0.20 mm
Quantity	4000/reel

Outer Packing

Type	Quantity	Dimension	Description	Weight
Carton Box I	40000	240×210×285mm	anti-static plastic bag & carton box 1 reel / bag 10 bags / box (40000pcs)	1.66kg
Carton Box II	120000	470×310×285mm	30 bags / box (120000pcs)	4.64kg

Recommended Soldering Profile



Remarks:

1. The specifications of this device are subject to change or obsolescence without notice.
2. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
3. Our liability is only assumed for the Surface Acoustic Wave (SAW) component(s) per se, not for applications, processes and circuits implemented within components or assemblies.
4. For questions on technology, prices and delivery, please contact our sales offices or e-mail sales@sainty-tech.com.