

Product Description

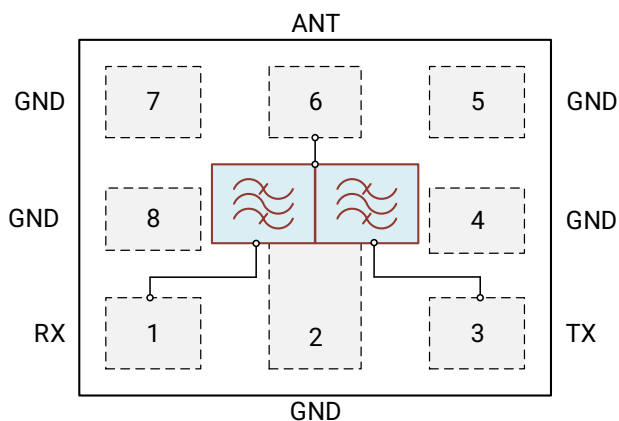
The NS83212C is a high-performance, Surface Acoustic Wave (SAW) Duplexer for B12 application with low insertion loss and high isolation.

The NS83212C uses Chip Scale Packaging (CSP) techniques to achieve the industry advanced 1.6 x 1.2 mm footprint and 0.55 mm typical height. The duplexer exhibits excellent power handling capabilities.

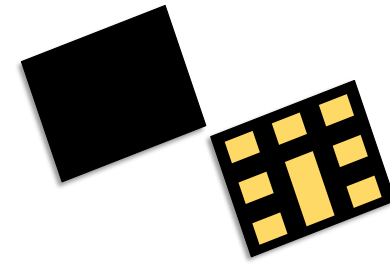
Applications

- Band12 Duplexer Application

Functional Block Diagram



Top Through View



Product Features

- Low Insertion Loss
- High Isolation
- Standard Size: 1.6 x 1.2 mm
- Operating Temperature -30 to +85°C
- Single Ended Operation
- RoHS2.0 Compliant, Halogen Free
Pb-free Module Package, MSL3

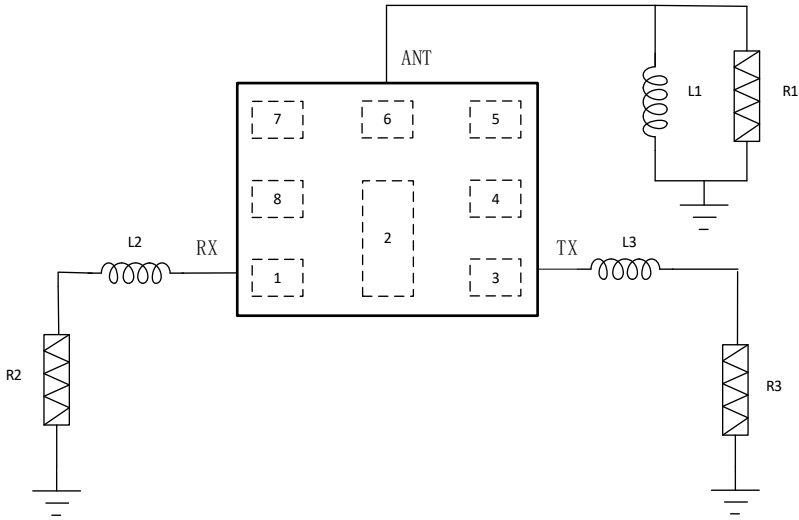
Ordering Information

Part No.	Description
NS83212C	Packaged Part
NS83212C_EVB	Evaluation Board

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40°C ~ +85°C
Operating Temperature	-30°C ~ +85°C
RF Input Power	+30dBm, +50°C for 5000 hours
Maximum DC Voltage	3 V

Testing Circuit (Top Thru View)



R1	50 ohm
R2	50 ohm
R3	50 ohm
L1*	13.0 nH
L2*	2.0 nH
L3*	6.0 nH
Pin1	RX
Pin3	TX
Pin6	ANT
Pin 2/4/5/7/8	GND

*Ideal value

Electrical Specifications (TX)

Temperature Range for Specification: Tc = -30 ~ +85°C

ANT Terminating Condition: 50Ω // 13.0 nH

TX Terminating Condition: 50Ω + 6.0 nH

RX Terminating Condition: 50Ω + 2.0 nH

Parameter	Frequency	Min.	Typ. ^[a]	Max.	Unit	Note
		-30°C to +85°C				
Insertion Loss	699 to 716 MHz		1.7	2.5	dB	
Ripple ^[b]	699 to 716 MHz		0.7	1.6	dB	
VSWR_TX	699 to 716 MHz		1.5	1.9		
VSWR_ANT	699 to 716 MHz		1.5	1.9		
Attenuation	450 to 680 MHz	35	38		dB	
	722 to 729 MHz	2	4		dB	
	729 to 746 MHz	41	53		dB	B12 RX
	814 to 849 MHz	37	40		dB	B26 RX
	869 to 894 MHz	37	40		dB	B26 TX
	1164 to 1240 MHz	42	46		dB	GPS L2
	1559 to 1610 MHz	47	50		dB	GPS L1/L5
	1398 to 1432 MHz	52	55		dB	2f0
	1710 to 1785 MHz	43	46		dB	B3 TX
	1805 to 1880 MHz	41	44		dB	B3 RX
	1920 to 1980 MHz	40	43		dB	B1 TX
	2097 to 2170 MHz	38	41		dB	3f0
	2110 to 2170 MHz	38	41		dB	B1 RX
	2401 to 2483 MHz	35	38		dB	2.4G WIFI
	2496 to 2690 MHz	33	36		dB	n41
	3300 to 4200 MHz	27	30		dB	n77/n78
	4900 to 5950 MHz	35	38		dB	5G WIFI

[a]. Typical data is the worst value of the parameter over the indicated band at +25°C.

[b]. Ripple is the difference between the max and min value in passband.

Electrical Specifications (RX)

Temperature Range for Specification: Tc = -30 ~ +85°C
ANT Terminating Condition: 50Ω // 13.0 nH
TX Terminating Condition: 50Ω + 6.0 nH
RX Terminating Condition: 50Ω + 2.0 nH

Parameter	Frequency	Min.	Typ. ^[a]	Max.	Unit	Note
		-30°C to +85°C				
Insertion Loss	729 to 746 MHz		1.8	2.5	dB	
Ripple ^[b]	729 to 746 MHz		1.1	1.3	dB	
VSWR_RX	729 to 746 MHz		1.6	1.8		
VSWR_ANT	729 to 746 MHz		1.6	1.8		
Attenuation	450 to 699 MHz	48	52		dB	LB
	699 to 716 MHz	55	59		dB	B12 TX
	776 to 793 MHz	45	48		dB	
	793 to 915 MHz	45	48		dB	
	1447 to 1463 MHz	55	57		dB	
	1710 to 1785 MHz	55	58		dB	B3 TX
	1920 to 1980 MHz	55	58		dB	B1 TX
	2400 to 2500 MHz	55	58		dB	2.4G WIFI
	2500 to 2570 MHz	54	58		dB	B7 TX
	3300 to 4200 MHz	37	40		dB	n77/n78
	4900 to 5950 MHz	36	39		dB	5G WIFI

[a]. Typical data is the worst value of the parameter over the indicated band at +25°C.
[b]. Ripple is the difference between the max and min value in passband.

Electrical Specifications (Isolation)

Temperature Range for Specification: Tc = -30 ~ +85°C
ANT Terminating Condition: 50Ω // 13.0 nH
TX Terminating Condition: 50Ω + 6.0 nH
RX Terminating Condition: 50Ω + 2.0 nH

Parameter	Frequency	Min.	Typ. ^[a]	Max.	Unit	Note
		-30°C to +85°C				
Isolation	699 to 716 MHz	56	60		dB	
	729 to 746 MHz	50	55		dB	

Typical TX to ANT Transmission Coefficient (+25°C)

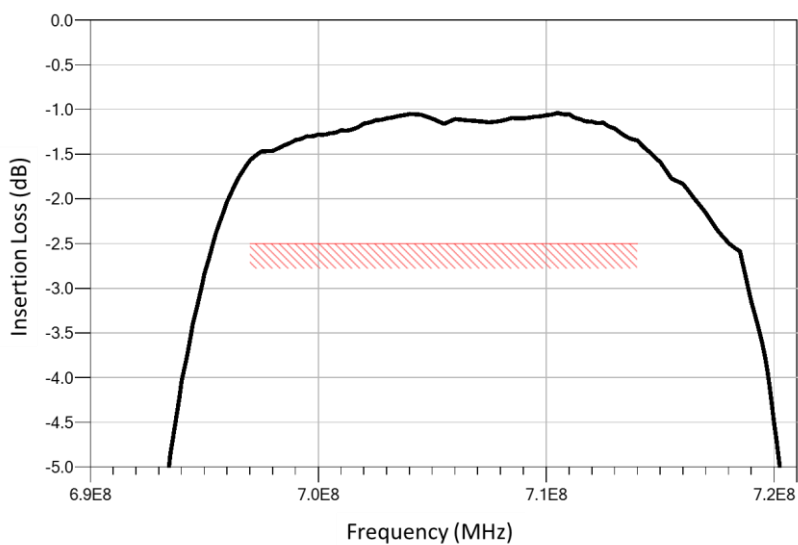


Figure 1. Passband Insertion Loss, 699 – 716 MHz

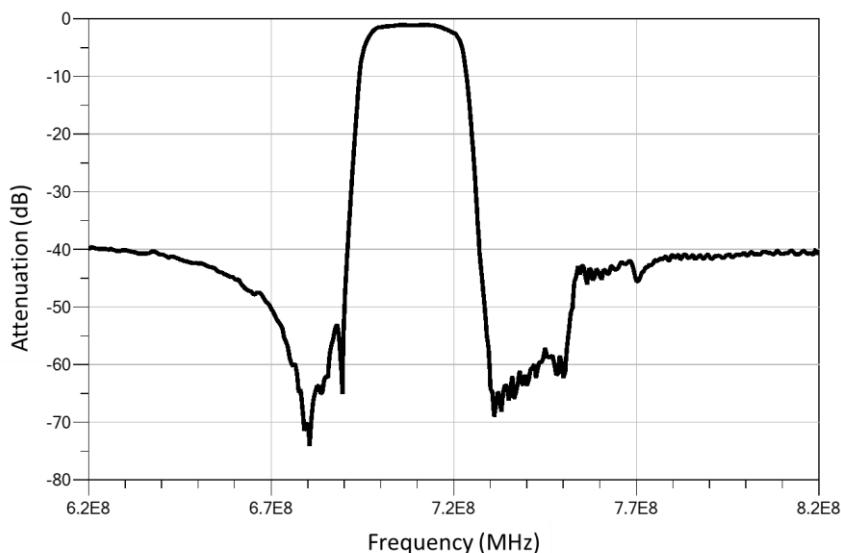


Figure 2. Narrow Band Attenuation, 620 – 820 MHz

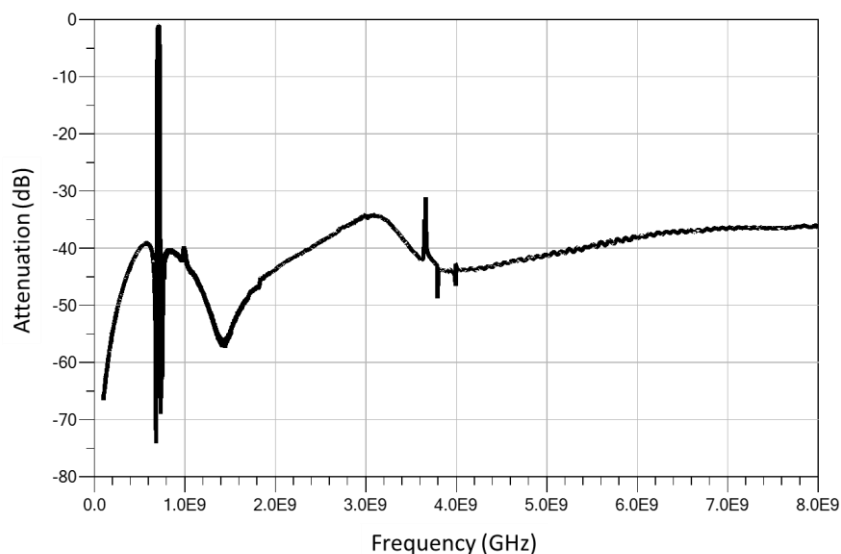


Figure 3. Wide Band Attenuation, 450 – 8000 MHz

Typical ANT to RX Transmission Coefficient (+25°C)

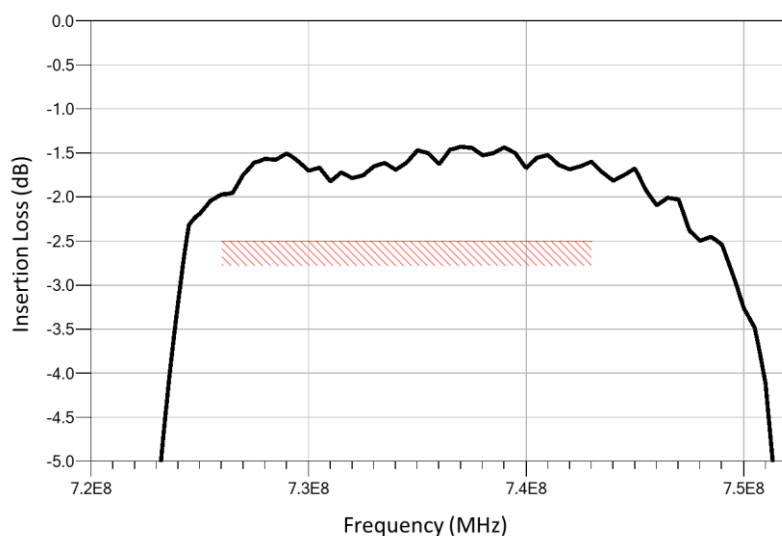


Figure 4. Passband Insertion Loss, 729 – 746 MHz

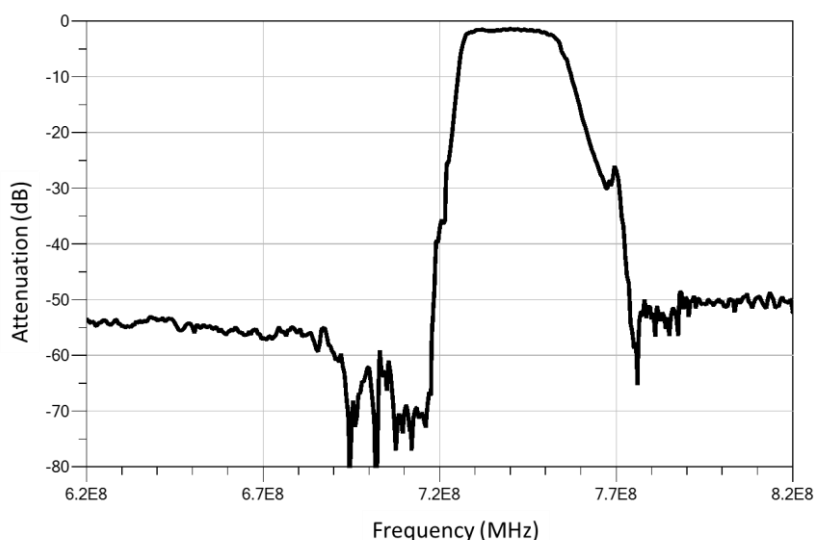


Figure 5. Narrow Band Attenuation, 620 – 820 MHz

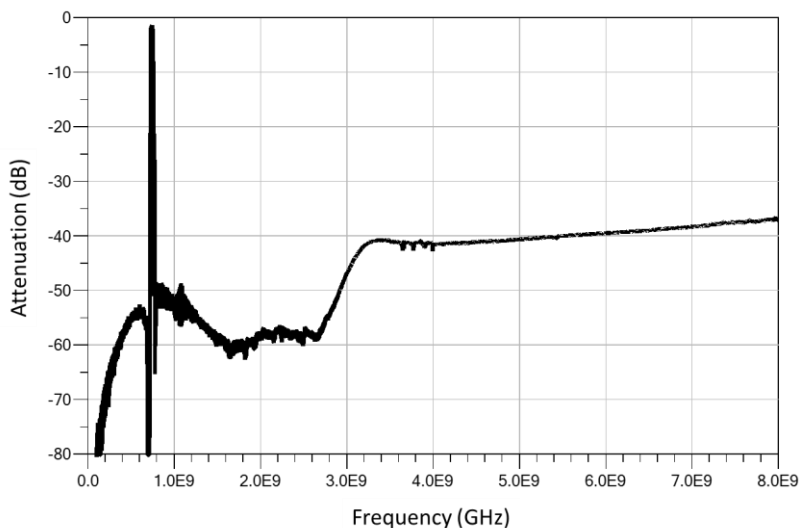
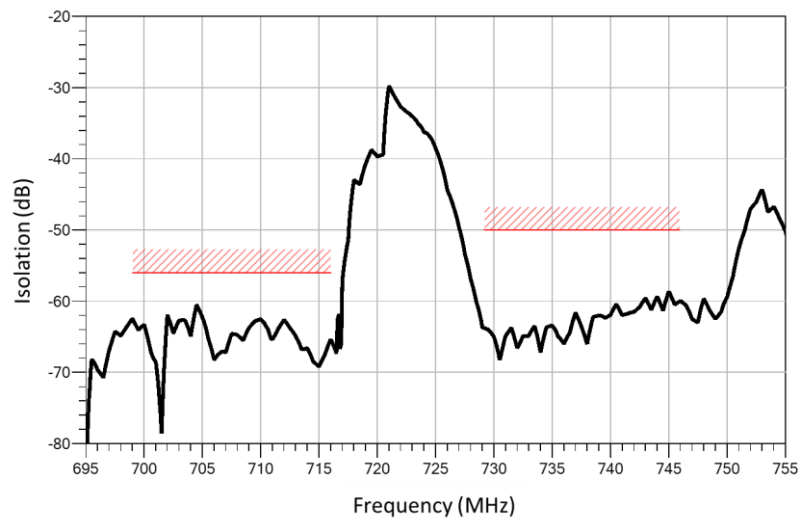
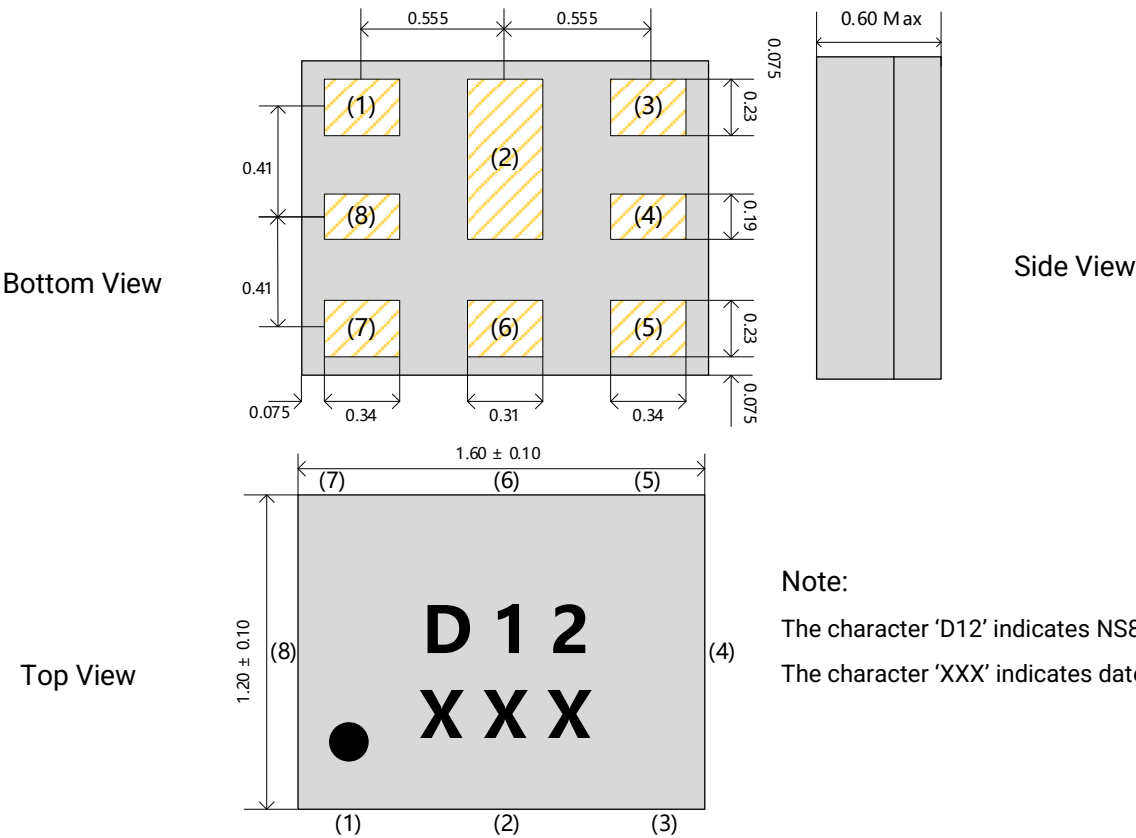


Figure 6. Wide Band Attenuation, 450 – 8000 MHz

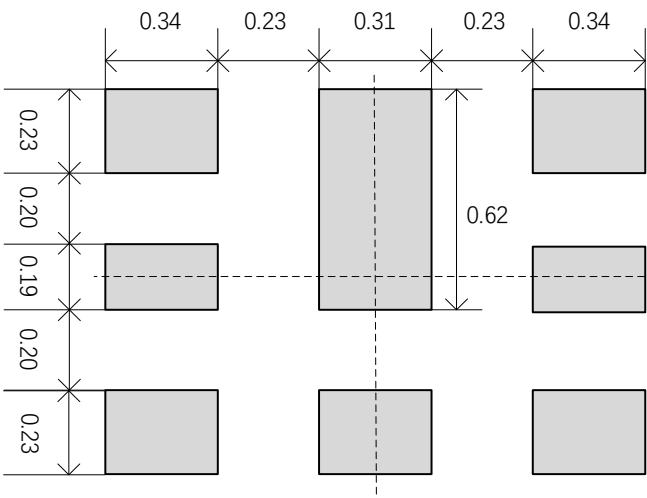
Typical Isolation (+25°C)



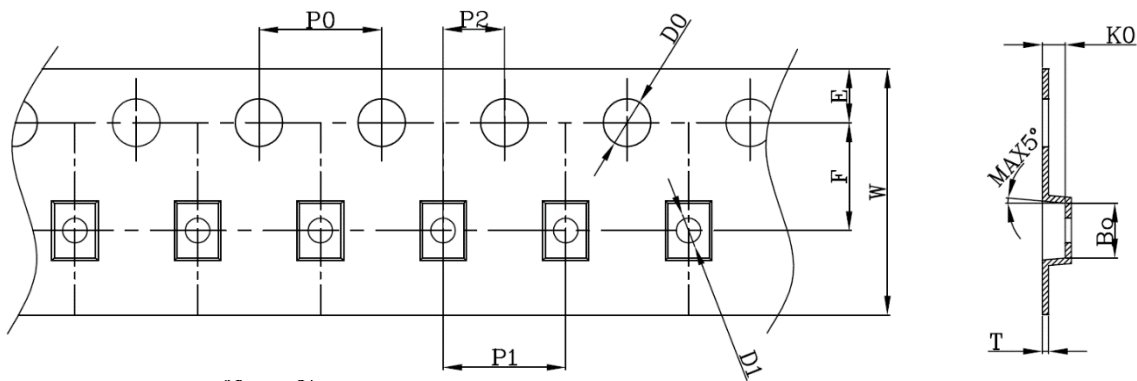
Package & Dimensions (Unit: mm)



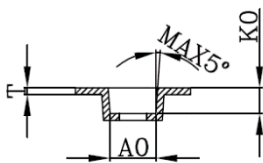
PCB Mounting Pattern (Unit: mm)



Tape and Reel Information (Unit: mm)



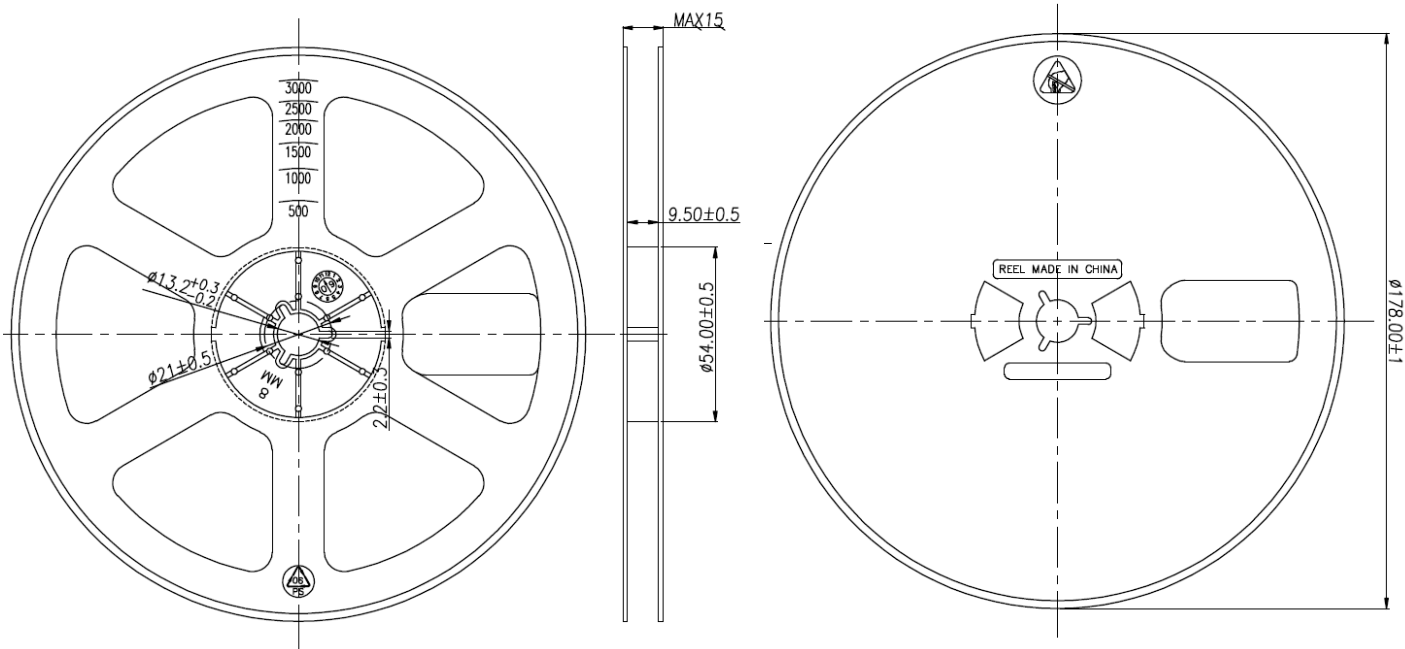
A0	B0	K0	P0	P1	P2
1.35±0.05	1.78±0.05	0.70±0.05	4.00±0.10	4.00±0.10	2.00±0.05
T	E	F	D0	D1	W
0.20±0.05	1.75±0.05	3.50±0.05	1.55±0.05	0.80±0.10	8.00±0.10



Note:

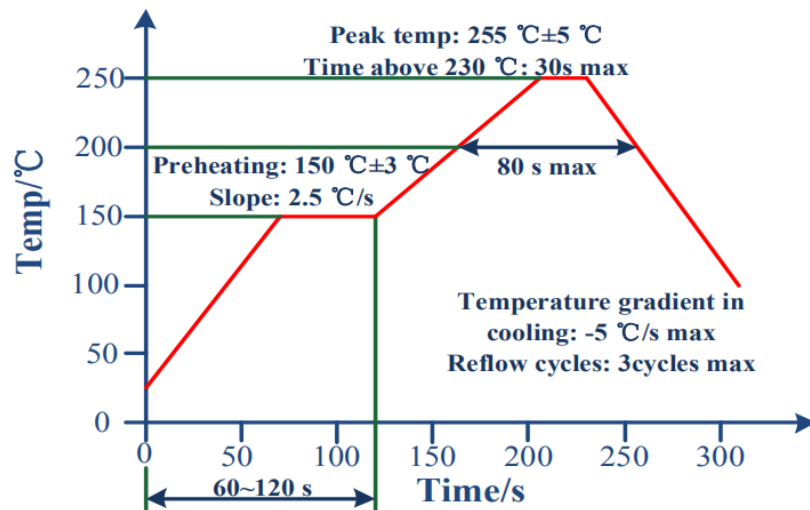
- (1) Black antistatic composite PC.
- (2) Cumulative tolerance of 10 sprocket holes is ± 0.20 .
- (3) All dimensions meet EIA-481-E requirements.
- (4) The sector of 250mm straps shall not exceed 2mm.

Reel



Reeling Quantity: 5000 PCS / Reel

Recommended IR Reflow Profile



Important Notes

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