

Product Description

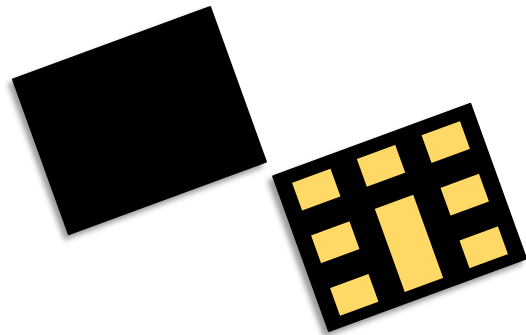
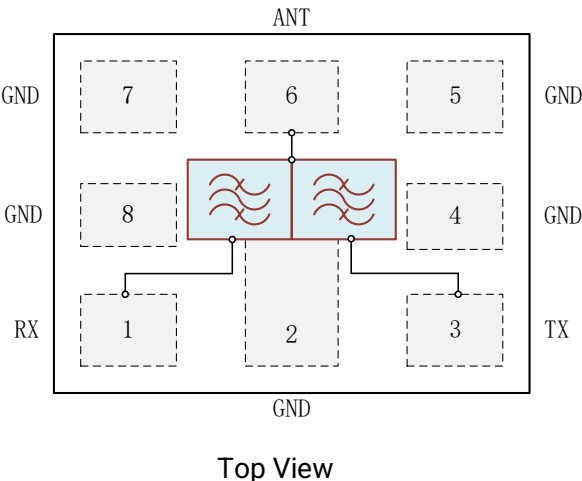
The NS83205D is a high-performance Surface Acoustic Wave (SAW) Duplexer for Band5 application with low insertion loss and high isolation.

The NS83205D 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

- Band5 Duplexer Application

Functional Block Diagram



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

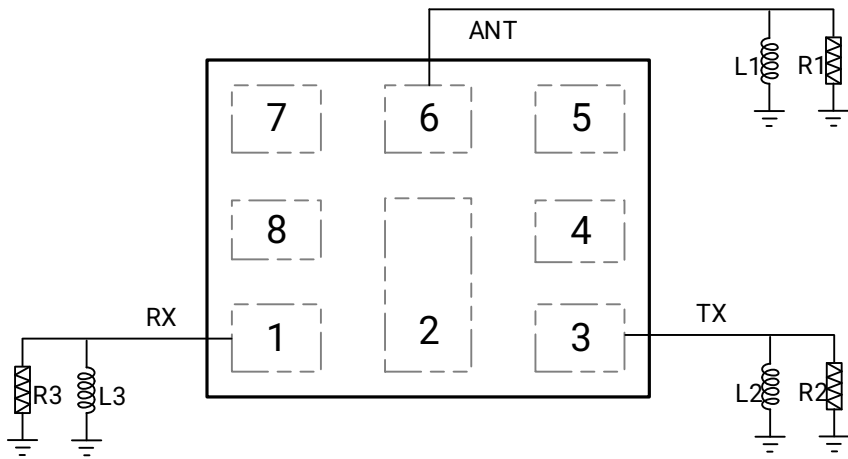
Ordering Information

Part No.	Description
NS83205D	Packaged Part
NS83205D_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*	9 nH
L2*	15 nH
L3*	20 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: 50 Ω // 9 nH
TX Terminating Condition: 50 Ω // 15 nH
RX Terminating Condition: 50 Ω // 20 nH

Parameter	Frequency	Min.	Typ. ^[a]	Max.	Unit	Note
		-30°C to +85°C				
Insertion Loss	824 to 849 MHz		1.5	2.0	dB	
Ripple ^[b]	824 to 849 MHz		0.6	1.3	dB	
VSWR_TX	824 to 849 MHz		1.5	1.6		
VSWR_ANT	824 to 849 MHz		1.5	1.6		
Attenuation	450 to 804 MHz	28	31		dB	
	869 to 894 MHz	54	59		dB	B5 RX
	1559 to 1638 MHz	35	38		dB	
	1638 to 1708 MHz	33	36		dB	2f0
	1710 to 1785 MHz	31	34		dB	B3 TX
	1805 to 1880 MHz	30	32		dB	B3 RX
	1920 to 1980 MHz	27	30		dB	B1 TX
	2110 to 2170 MHz	24	27		dB	B1 RX
	2401 to 2483 MHz	21	24		dB	2.4G WIFI
	2472 to 2547 MHz	20	23		dB	3f0
	3300 to 3900 MHz	16	18		dB	
	4900 to 5950 MHz	8	10		dB	5G WIFI
	6592 to 8000 MHz	9	11		dB	

[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: 50 Ω // 9 nH
TX Terminating Condition: 50 Ω // 15 nH
RX Terminating Condition: 50 Ω // 20 nH

Parameter	Frequency	Min.	Typ. ^[a]	Max.	Unit	Note
		-30°C to +85°C				
Insertion Loss	869 to 894 MHz		1.8	2.1	dB	
Ripple ^[b]	869 to 894 MHz		0.7	1.1	dB	
VSWR_RX	869 to 894 MHz		1.6	1.8		
VSWR_ANT	869 to 894 MHz		1.6	1.7		
Attenuation	450 to 824 MHz	41	44		dB	
	824 to 849 MHz	52	55		dB	B5 TX
	1559 to 1638 MHz	45	51		dB	
	1738 to 1788 MHz	51	54		dB	2f0
	1710 to 1785 MHz	51	54		dB	B3 TX
	1805 to 1880 MHz	51	54		dB	B3 RX
	1920 to 1980 MHz	51	54		dB	B1 TX
	2400 to 2500 MHz	51	54		dB	2.4G WIFI
	2496 to 2690 MHz	51	54		dB	B41
	3300 to 4900 MHz	41	45		dB	
	4900 to 5950 MHz	38	41		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: 50 Ω // 9 nH
TX Terminating Condition: 50 Ω // 15 nH
RX Terminating Condition: 50 Ω // 20 nH

Parameter	Frequency	Min.	Typ.	Max.	Unit	Note
		-30°C to +85°C				
Isolation	824 to 849 MHz	56	61		dB	
	869 to 894 MHz	59	61		dB	

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

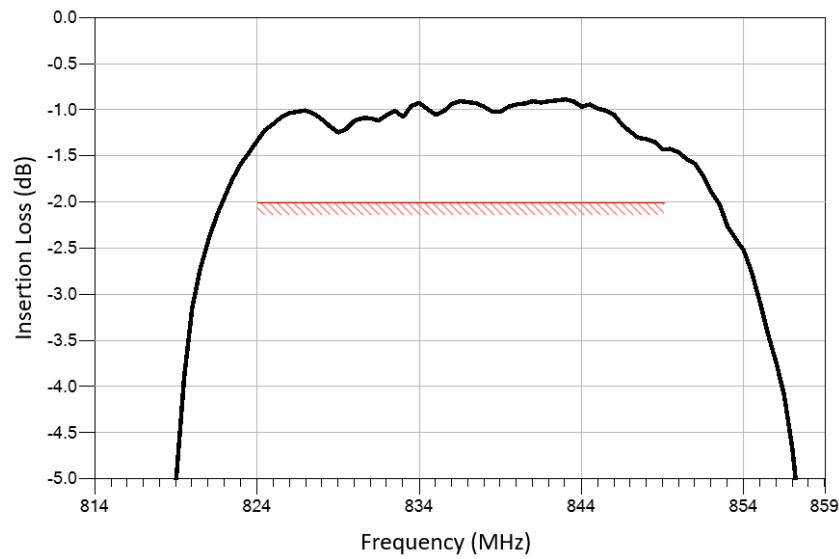


Figure 1. Passband Insertion Loss, 824 – 849 MHz

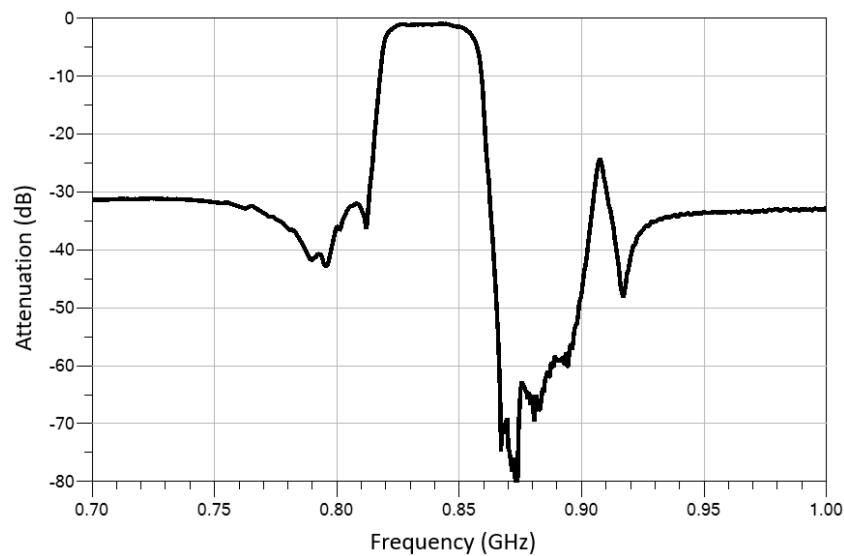


Figure 2. Narrow Band Attenuation, 700 – 1000 MHz

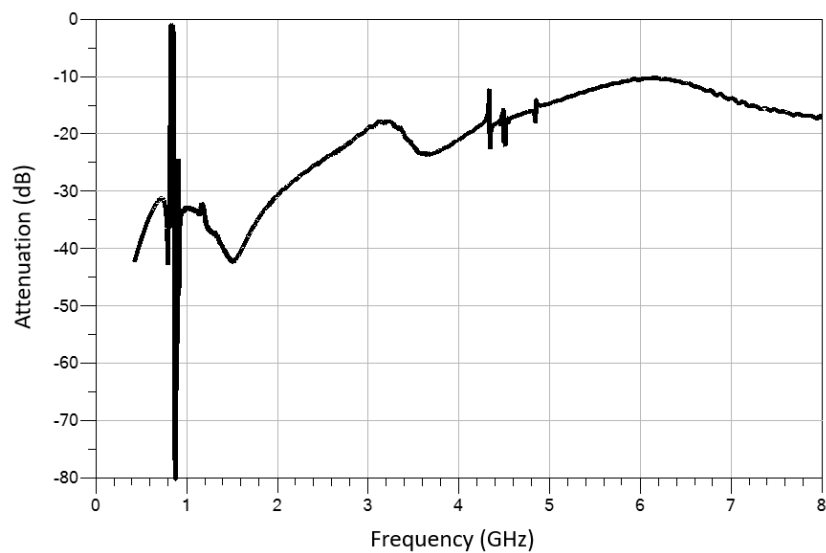


Figure 3. Wide Band Attenuation, 450 – 8000 MHz

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

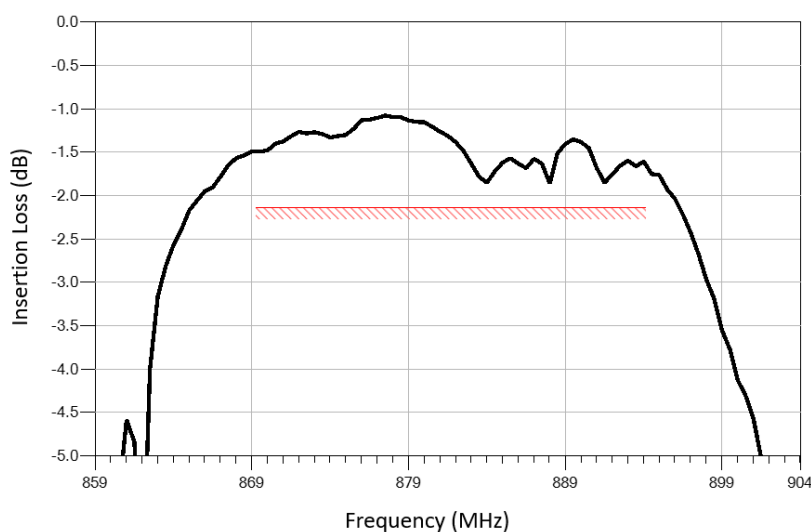


Figure 4. Passband Insertion Loss, 869 – 894 MHz

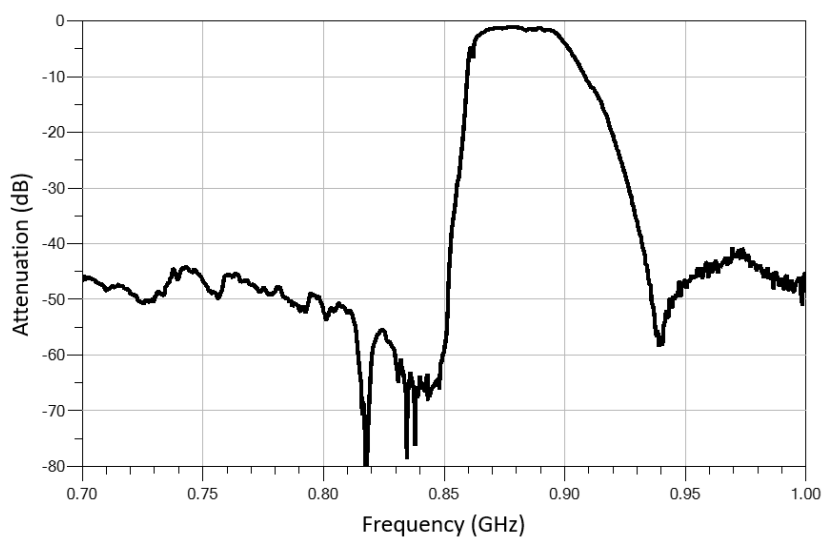


Figure 5. Narrow Band Attenuation, 700 – 1000 MHz

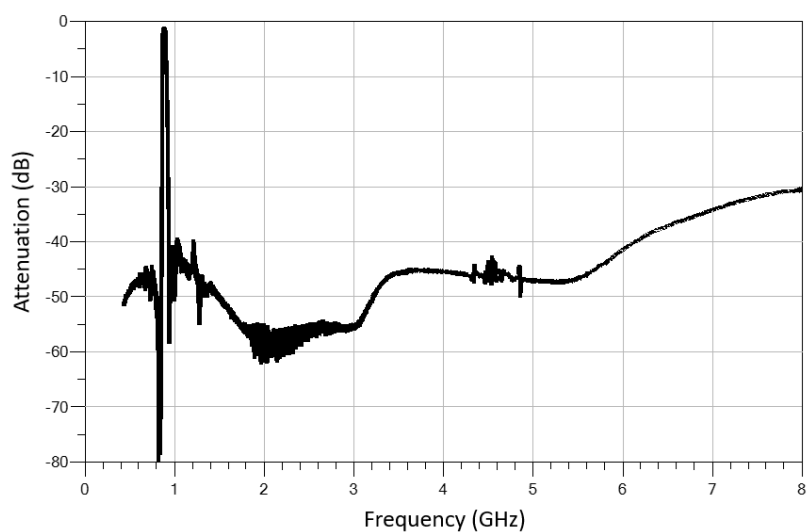
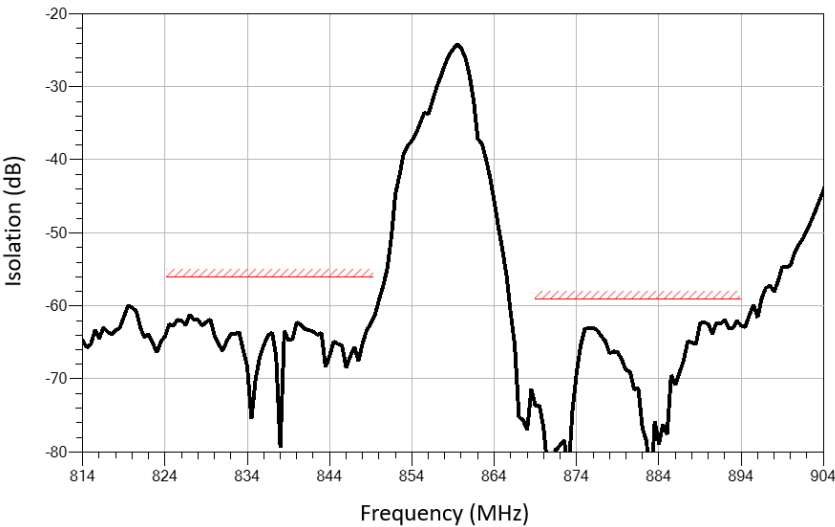
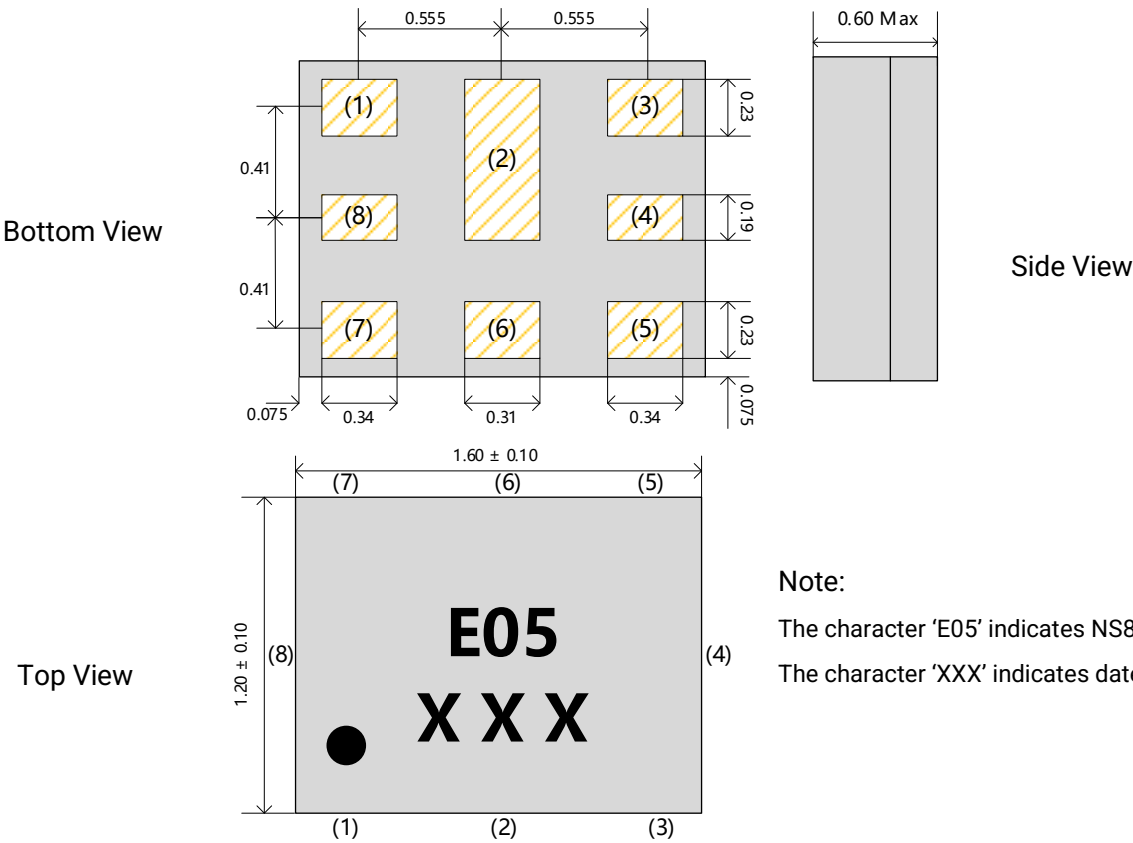


Figure 6. Wide Band Attenuation, 450 – 8000 MHz

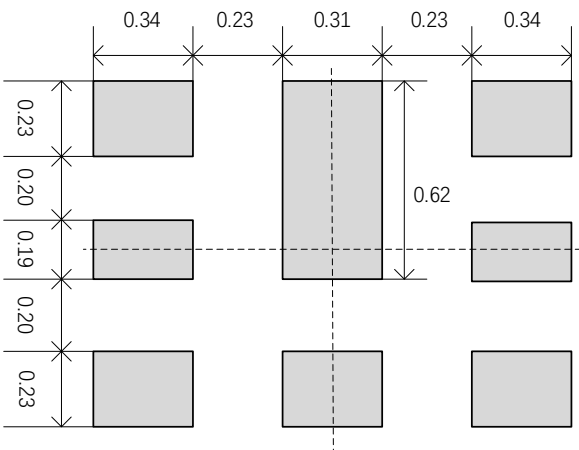
Typical Isolation (+25°C)



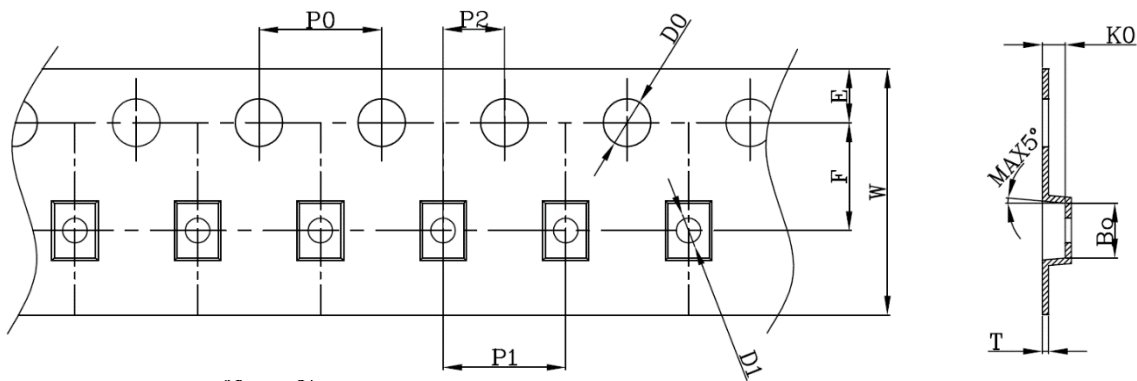
Package & Dimensions (Unit: mm)



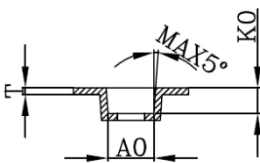
PCB Mounting Pattern (Unit: mm)



Tape and Reel Information (Unit: mm)



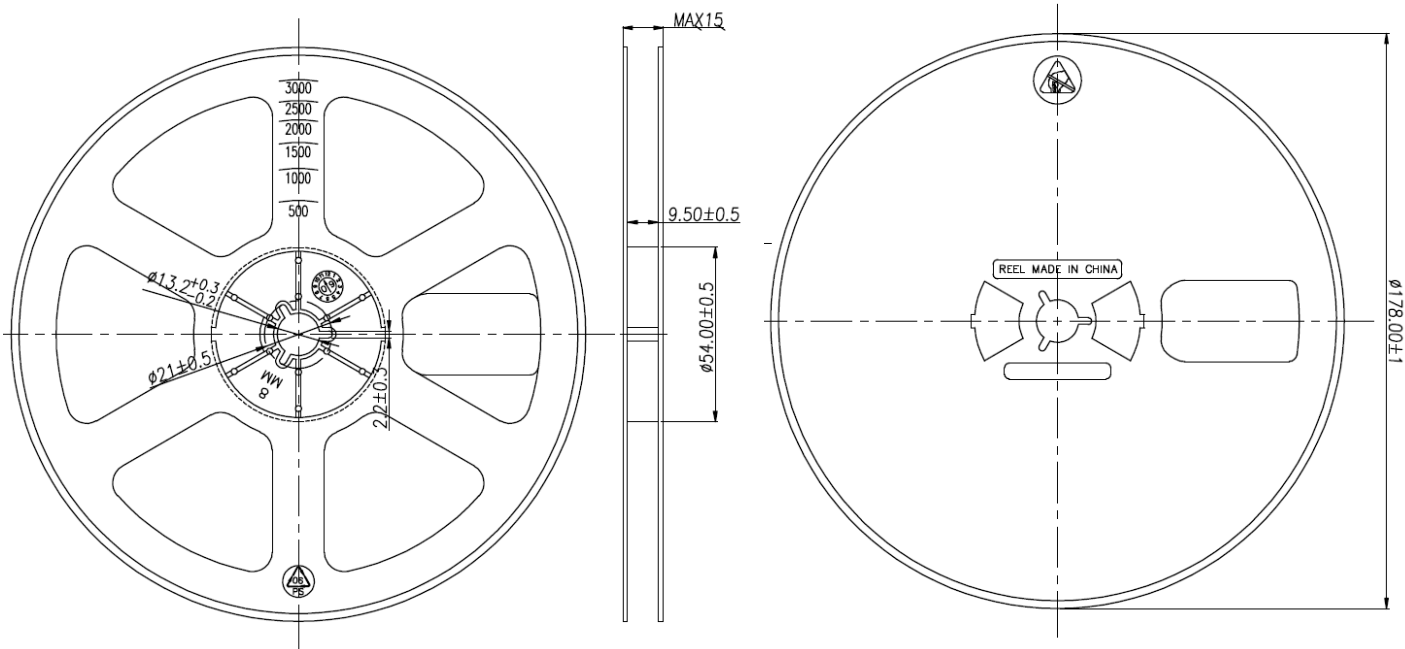
A0	B0	K0	P0	P1	P2
1.35±0.05	1.78±0.05	0.70±0.05	4.00±0.10	4.00±0.10	2.00±0.05
T	E	F	D0	D1	W
0.20±0.05	1.75±0.05	3.50±0.05	1.55±0.05	0.80±0.10	8.00±0.10



Note:

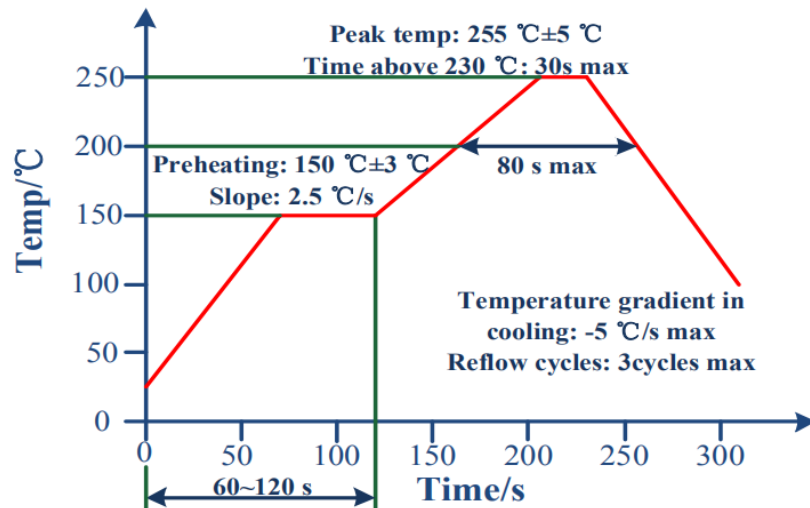
- (1) Black antistatic composite PC.
- (2) Cumulative tolerance of 10 sprocket holes is ± 0.20 .
- (3) All dimensions meet EIA-481-E requirements.
- (4) The sector of 250mm straps shall not exceed 2mm.

Reel



Reeling Quantity: 5000 PCS / Reel

Recommended IR Reflow Profile



Important Notes

1. All data or information contained herein are subject to change without prior notice. Please contact NEWSONIC for verifying details of product specification before ordering NEWSONIC product.
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