

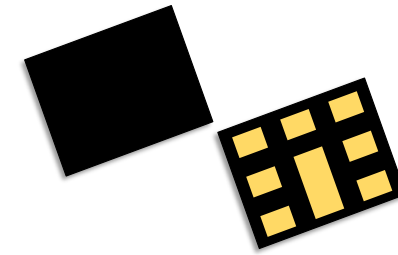
Product Description

The NS63203C is a high-performance, Surface Acoustic Wave (SAW) Duplexer for Band3 application with low insertion loss and high isolation.

The NS63203C uses Chip Scale Packaging (CSP) techniques to achieve the industry advanced 1.6 x 1.2 mm footprint and 0.6 mm max height. The duplexer exhibits excellent power handling capabilities.

Applications

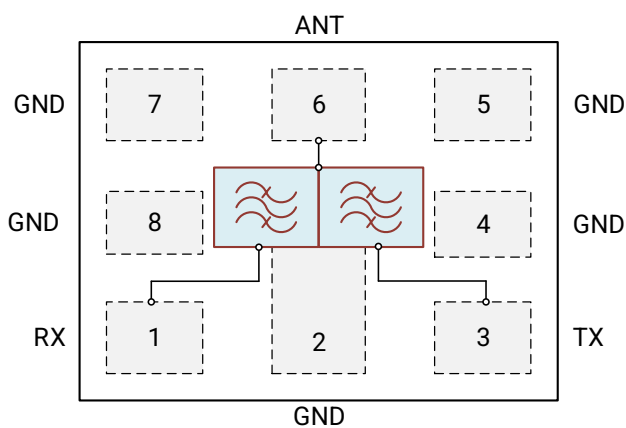
- Band3 Duplexer Application



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

Functional Block Diagram



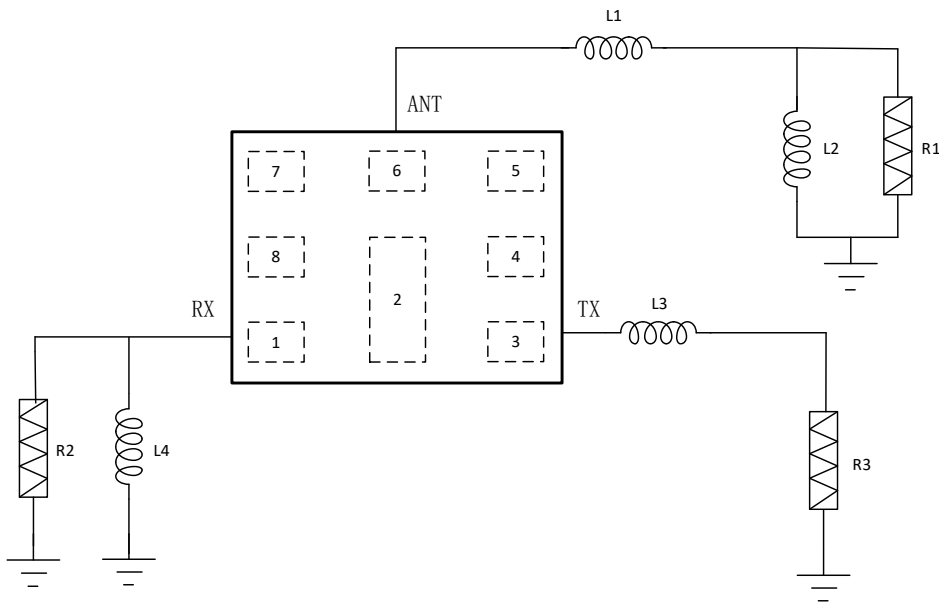
Ordering Information

Part No.	Description
NS63203C	Packaged Part
NS63203C_EVB	Evaluation Board

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40°C ~ +85°C
Operating Temperature	-30°C ~ +85°C
RF Input Power	+30dBm, +55°C for 5000 hours
Maximum DC Voltage	3 V

Testing Circuit (Top Thru View)



R1	50 ohm
R2	50 ohm
R3	50 ohm
L1*	0.7 nH
L2*	6.1 nH
L3*	6.4 nH
L4*	8.3 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 // 6.1 nH + 0.7nH

TX Terminating Condition: 50Ω + 6.4 nH

RX Terminating Condition: 50Ω // 8.3 nH

Parameter	Frequency	Min.	Typ. ^[a]	Max.	Unit	Note
		-30°C to +85°C				
Insertion Loss	1710 to 1785 MHz		1.6	2.3	dB	
Ripple ^[b]	1710 to 1785 MHz		0.7	1.7	dB	
VSWR_TX	1710 to 1785 MHz		1.5	1.8		
VSWR_ANT	1710 to 1785 MHz		1.6	1.9		
Attenuation	450 to 960 MHz	43	46		dB	
	1164 to 1189 MHz	40	42		dB	GPS_L5
	1226 to 1250 MHz	40	42		dB	GPS_L2
	1559 to 1610 MHz	41	43		dB	
	1805 to 1880 MHz	52	54		dB	B3_RX
	1920 to 1980 MHz	37	40		dB	B1_TX
	2110 to 2170 MHz	36	39		dB	B1_RX
	2401 to 2483 MHz	38	41		dB	2.4G WIFI
	2496 to 2690 MHz	36	38		dB	B41
	3420 to 3570 MHz	32	35		dB	2f0
	3300 to 4200 MHz	32	35		dB	n77
	5130 to 5355 MHz	50	53		dB	3f0
	4900 to 5950 MHz	50	52		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 // 6.1 nH + 0.7nH

TX Terminating Condition: 50Ω + 6.4 nH

RX Terminating Condition: 50Ω // 8.3 nH

Parameter	Frequency	Min.	Typ. ^[a]	Max.	Unit	Note
		-30°C to +85°C				
Insertion Loss	1805 to 1880 MHz		1.7	2.2	dB	
Ripple ^[b]	1805 to 1880 MHz		0.7	1.5	dB	
VSWR_RX	1805 to 1880 MHz		1.5	1.8		
VSWR_ANT	1805 to 1880 MHz		1.5	1.8		
Attenuation	450 to 960 MHz	45	48		dB	LB_CA
	1447 to 1463 MHz	40	43		dB	
	1710 to 1785 MHz	50	54		dB	B3_TX
	1920 to 1980 MHz	35	37		dB	B1_TX
	2400 to 2500 MHz	38	40		dB	2.4G WIFI
	2496 to 2690 MHz	38	40		dB	B41
	3300 to 4200 MHz	30	32		dB	n77
	4900 to 5950 MHz	43	45		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 // 6.1 nH + 0.7nH

TX Terminating Condition: 50Ω + 6.4 nH

RX Terminating Condition: 50Ω // 8.3 nH

Parameter	Frequency	Min.	Typ. ^[a]	Max.	Unit	Note
		-30°C to +85°C				
Isolation	1710 to 1785 MHz	50	54		dB	
	1805 to 1880 MHz	52	54		dB	

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

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

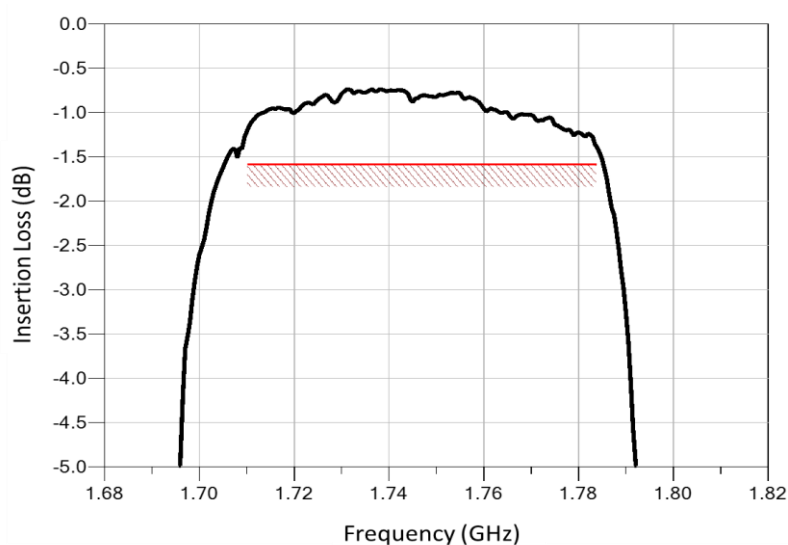


Figure 1. TX Passband Insertion Loss, 1710 – 1785 MHz

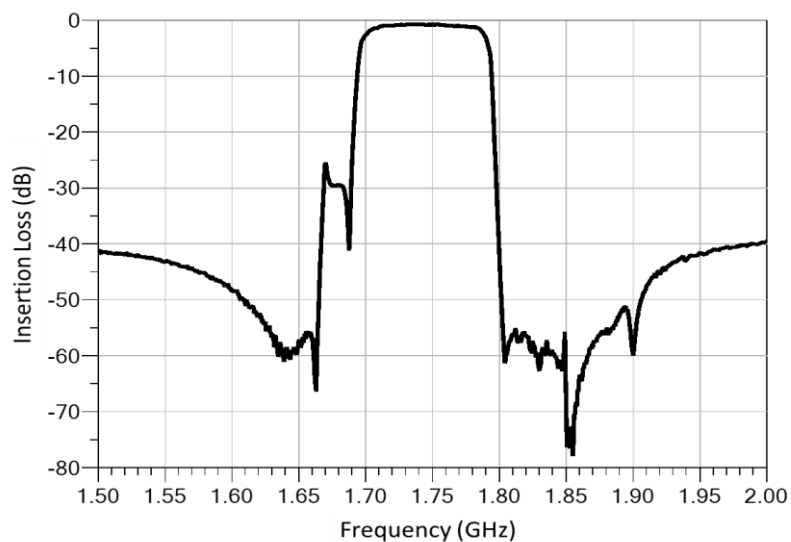


Figure 2. TX Narrow Band Attenuation, 1500 – 2000 MHz

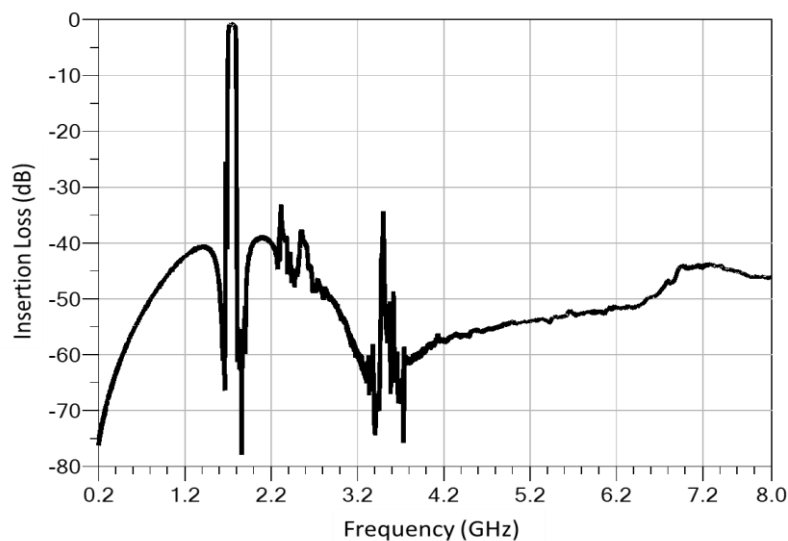


Figure 3. TX Wide Band Attenuation, 200 – 8000 MHz

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

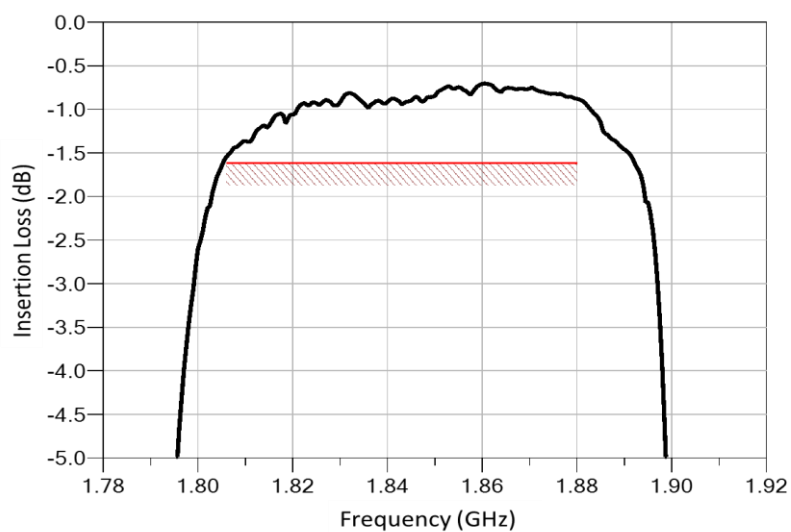


Figure 4. RX Passband Insertion Loss, 1805 – 1880 MHz

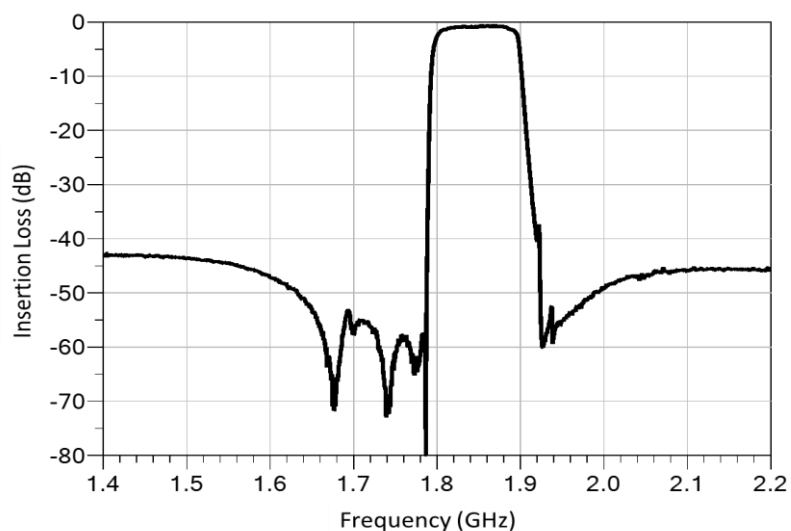


Figure 5. RX Narrow Band Attenuation, 1400 – 2200 MHz

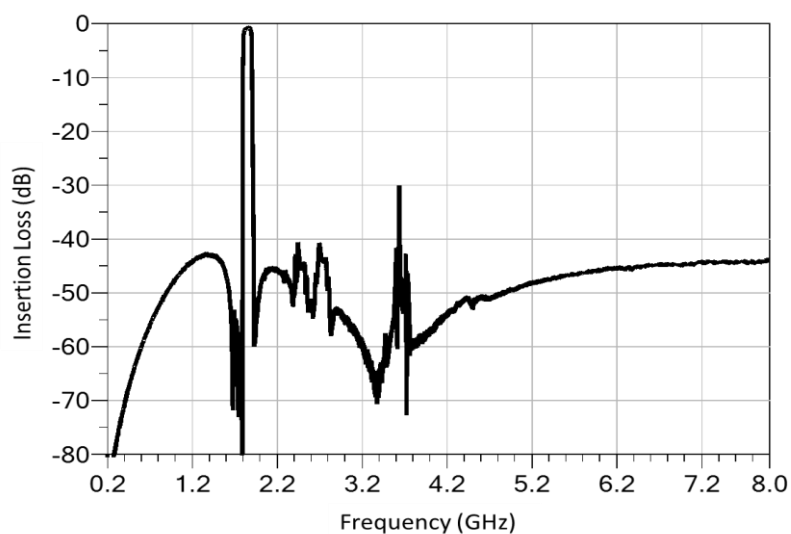


Figure 6. RX Wide Band Attenuation, 200 – 8000 MHz

Typical Isolation (+25°C)

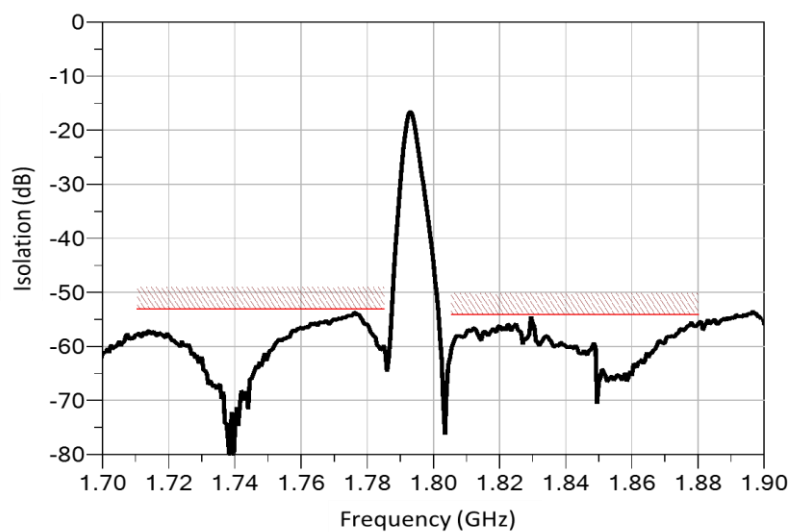
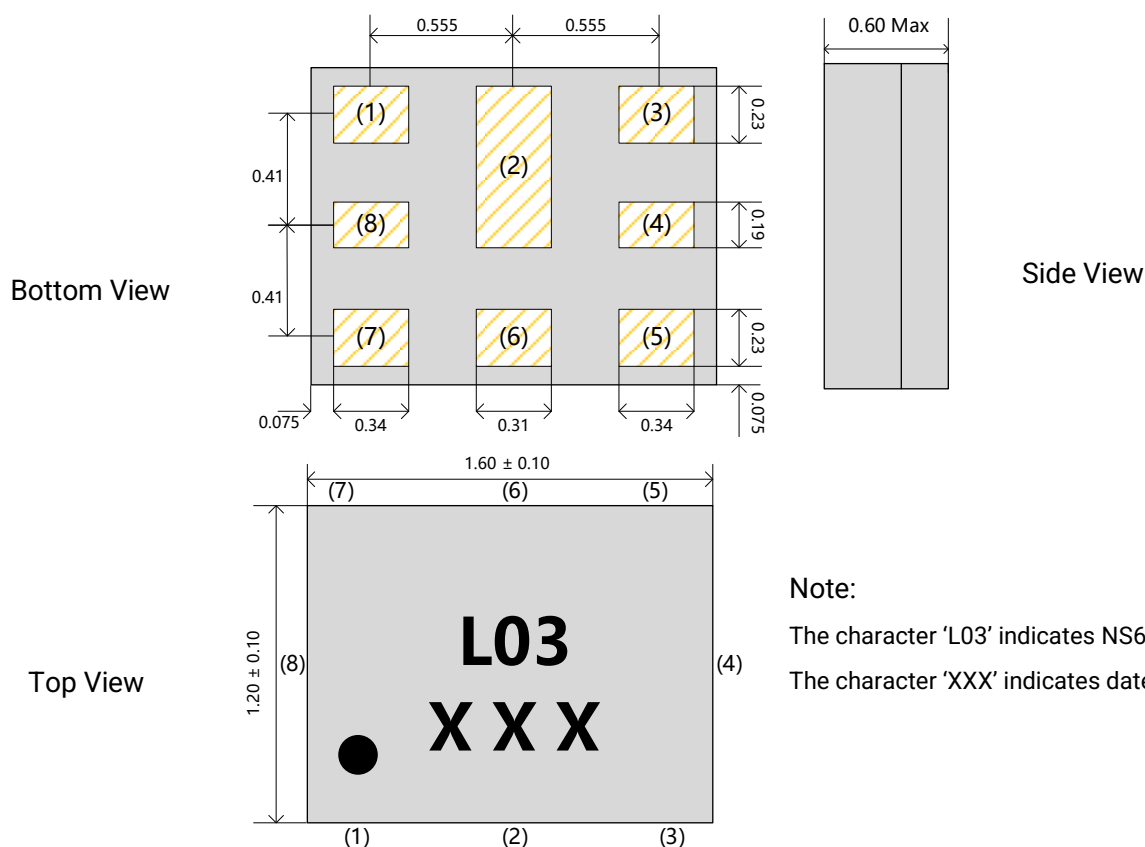
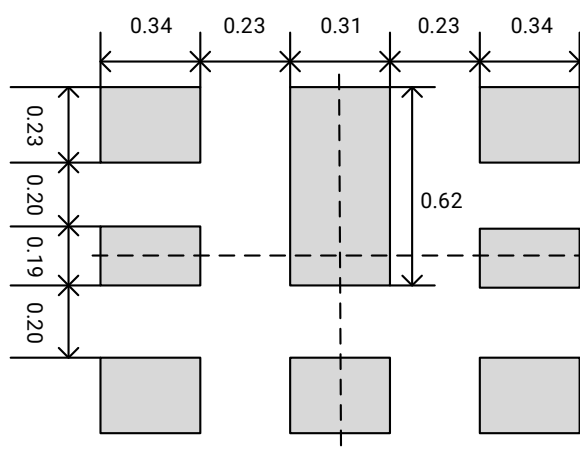


Figure 7. Isolation, 1700 – 1900 MHz

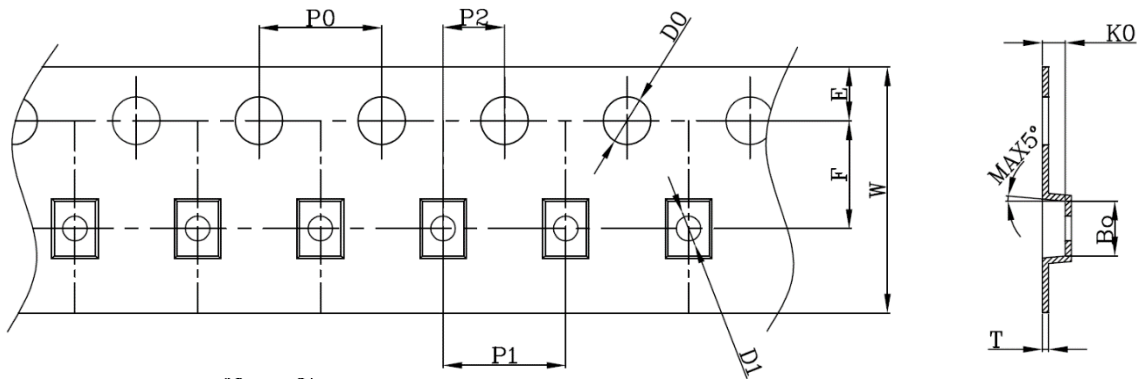
Package & Dimensions (Unit: mm)



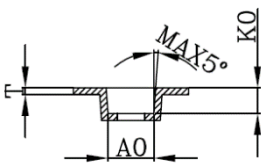
PCB Mounting Pattern (Unit: mm)



Tape and Reel Information (Unit: mm)



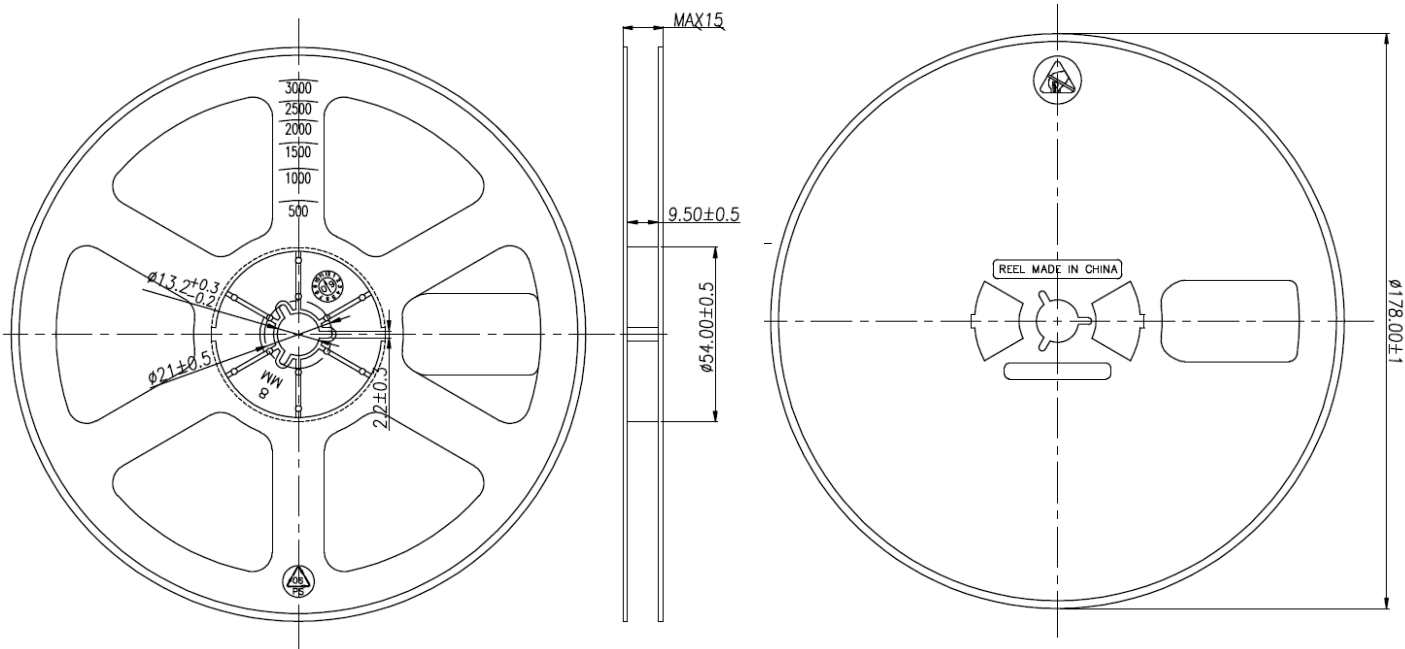
A0	B0	K0	P0	P1	P2
1.35±0.05	1.78±0.05	0.70±0.05	4.00±0.10	4.00±0.10	2.00±0.05
T	E	F	D0	D1	W
0.20±0.05	1.75±0.05	3.50±0.05	1.55±0.05	0.80±0.10	8.00±0.10



Note:

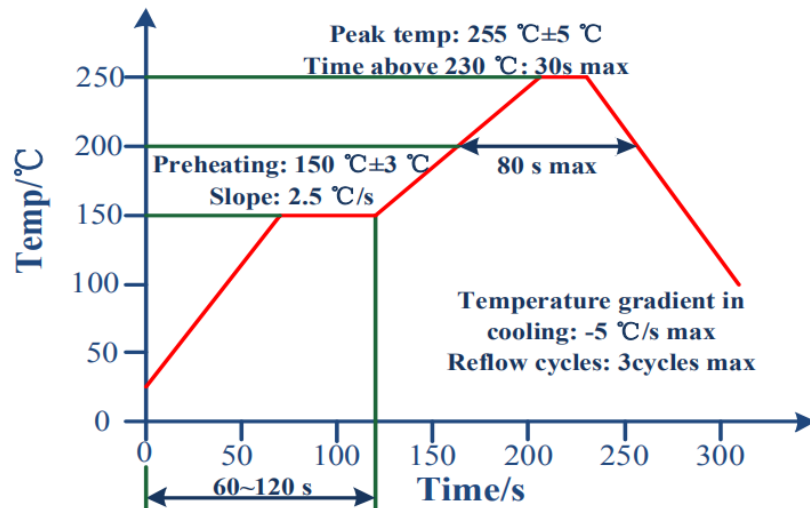
- (1) Black antistatic composite PC.
- (2) Cumulative tolerance of 10 sprocket holes is ± 0.20mm.
- (3) All dimensions meet EIA-481-E requirements.
- (4) The sector of 250mm straps shall not exceed 2mm.

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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