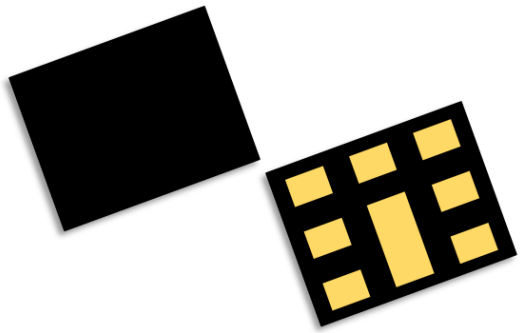
Product Description

The NS73171A is a high-performance, Surface Acoustic Wave (Alpha-SAW) Duplexer for LTE B71 application with low insertion loss and high isolation.

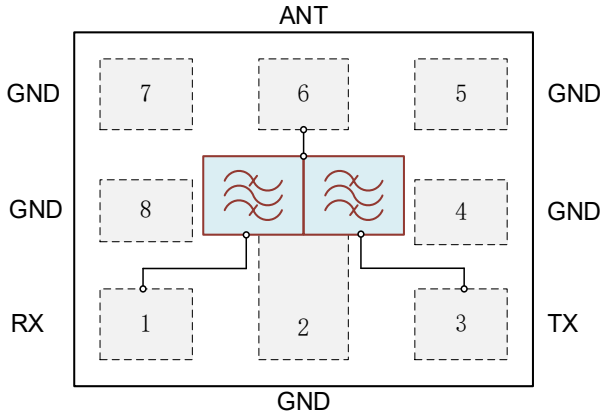
The NS73171A uses CSP techniques to achieve the industry advanced 1.8 x 1.4 mm footprint and 0.55 mm typical height. The duplexer exhibits excellent power handling capabilities.



Applications

- LTE Band71 Duplexer Application

Functional Block Diagram



Top Thru View

Product Features

- Low Insertion Loss
- High Isolation
- Standard Size: 1.8 x 1.4 mm
- Operating Temperature -30 to +85°C
- Single Ended Operation
- RoHS2.0 Compliant, Halogen Free Pb-free Module Package, MSL3

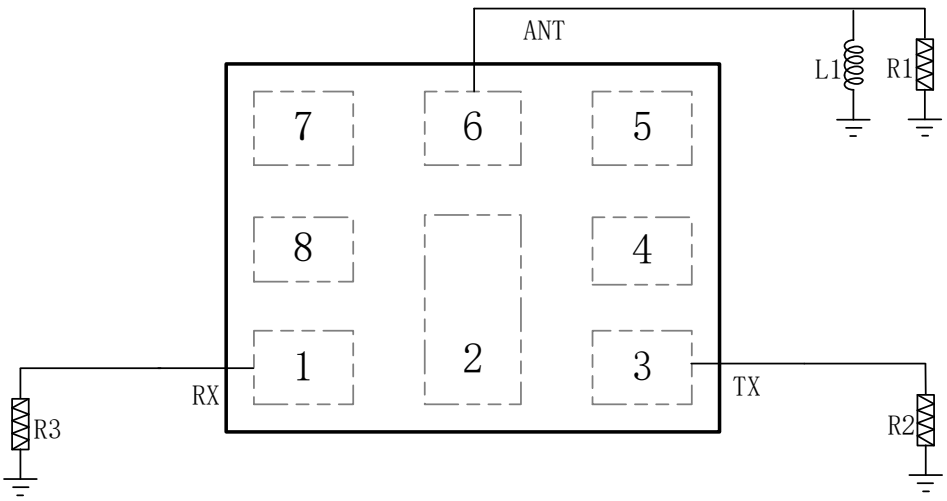
Ordering Information

Part No.	Description
NS73171A	Packaged Part
NS73171A_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*	15nH
Pin1	RX
Pin3	TX
Pin6	ANT
Pin 2/4/5/7/8	GND

*Ideal value

Electrical Specifications (TX)

ANT Terminating Condition: 50Ω // 15 nH
TX Terminating Condition: 50Ω
RX Terminating Condition: 50Ω

Parameter	Frequency	Min.	Typ. [a]	Max.	Unit	Note
		-30°C to +85°C				
Insertion Loss	663 to 698 MHz		2.0	2.4	dB	
	665.5 to 695.5 MHz		1.5	1.9	dB_{int}	Any 4.5MHz
Ripple[b]	663 to 698 MHz		1.3	1.7	dB	
VSWR_TX	663 to 698 MHz		1.5	1.6		
VSWR_ANT	663 to 698 MHz		1.6	1.7		
Attenuation	608 to 614 MHz	55	56		dB	
	617 to 652 MHz	57	59		dB	B71_RX
	717 to 728 MHz	20	25		dB	
	722 to 729 MHz	39	44		dB	
	729 to 768 MHz	57	58		dB	
	768 to 805 MHz	44	45		dB	
	824 to 849 MHz	38	39		dB	
	869 to 894 MHz	46	47		dB	
	1164 to 1250 MHz	45	47		dB	
	1326 to 1396 MHz	44	45		dB	
	1559 to 1606 MHz	55	56		dB	
	1710 to 1755 MHz	56	57		dB	
	1805 to 1880 MHz	52	53		dB	
	1930 to 1990 MHz	51	52		dB	
	1989 to 2094 MHz	51	52		dB	
	2110 to 2200 MHz	55	56		dB	
	2400 to 2500 MHz	54	55		dB	2.4G WIFI
	2652 to 2792 MHz	54	55		dB	
	2496 to 2690 MHz	53	55		dB	
	4900 to 5950 MHz	35	37		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)

ANT Terminating Condition: 50Ω // 15 nH
TX Terminating Condition: 50Ω
RX Terminating Condition: 50Ω

Parameter	Frequency	Min.	Typ. [a]	Max.	Unit	Note
		-30°C to +85°C				
Insertion Loss	617 to 652 MHz		1.8	2.3	dB	
	619.5 to 649.5 MHz		1.5	2.0	dB_{int}	Any 4.5MHz
Ripple[b]	617 to 652 MHz		1.0	1.8	dB	
VSWR_RX	617 to 652 MHz		1.8	1.9		
VSWR_ANT	617 to 652 MHz		1.7	1.8		
Attenuation	450 to 602 MHz	31	32		dB	
	602 to 608 MHz	24	26		dB	
	663 to 698 MHz	50	51		dB	
	709 to 740 MHz	38	39		dB	
	716 to 722 MHz	42	43		dB	
	776 to 793 MHz	35	36		dB	
	793 to 805 MHz	35	36		dB	
	824 to 849 MHz	35	36		dB	
	1058 to 1138 MHz	35	37		dB	
	1163 to 1204 MHz	34	35		dB	
	1233 to 1281 MHz	34	35		dB	
	1461 to 1484 MHz	37	38		dB	
	1653 to 1698 MHz	38	40		dB	
	1710 to 1755 MHz	37	38		dB	
	1850 to 1920 MHz	38	39		dB	
	1851 to 1956 MHz	35	39		dB	
	2305 to 2315 MHz	41	42		dB	
	2327 to 2407 MHz	41	42		dB	
	2400 to 2500 MHz	42	44		dB	2.4G WIFI
	2468 to 2608 MHz	43	44		dB	
	2922 to 2967 MHz	47	48		dB	
	4900 to 5950 MHz	49	50		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)

ANT Terminating Condition: 50Ω // 15 nH
TX Terminating Condition: 50Ω
RX Terminating Condition: 50Ω

Parameter	Frequency	Min.	Typ.	Max.	Unit	Note
		-30°C to +85°C				
Isolation	663 to 698 MHz	52	53		dB	
	665.5 to 695.5 MHz	55	58		dB_{int}	Any 4.5MHz
	617 to 652 MHz	55	60		dB	
	619.5 to 649.5 MHz	60	63		dB_{int}	Any 4.5MHz

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

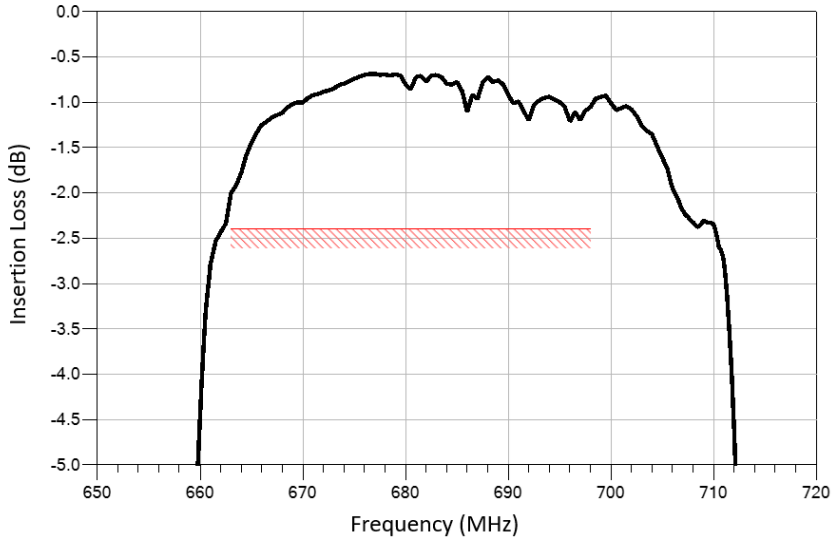


Figure 1. Passband Insertion Loss, 663 – 698 MHz

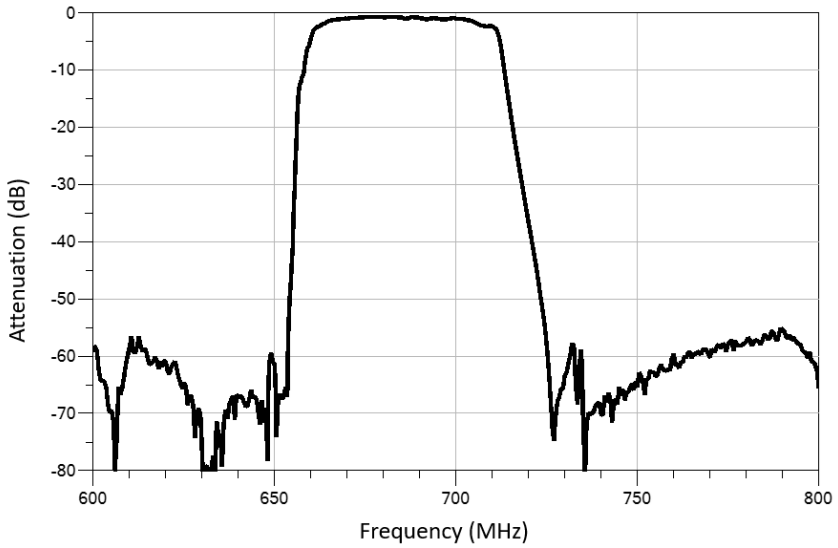


Figure 2. Narrow Band Attenuation, 600 –800MHz

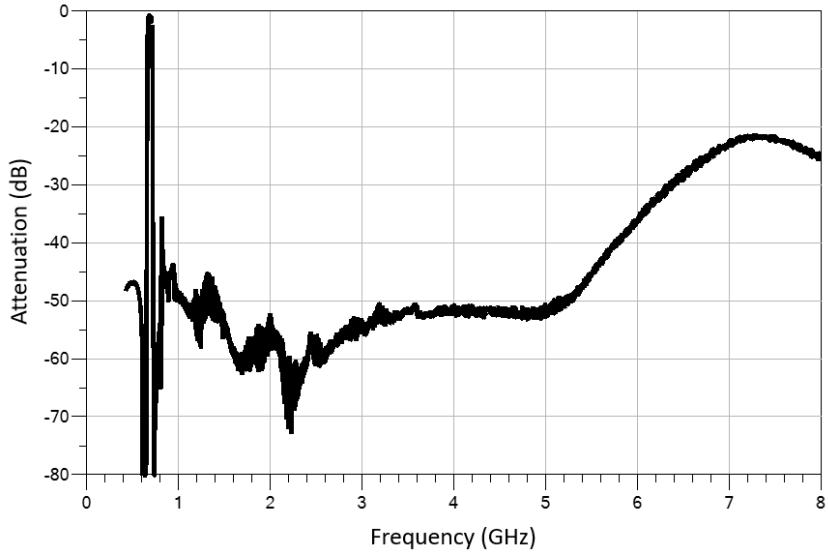


Figure 3. Wide Band Attenuation, 450 – 8000 MHz

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

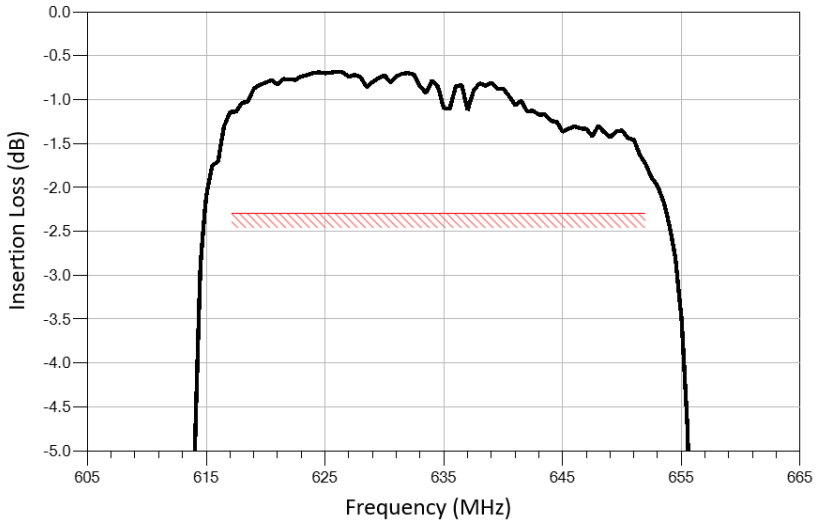


Figure 4. Passband Insertion Loss, 617 – 652 MHz

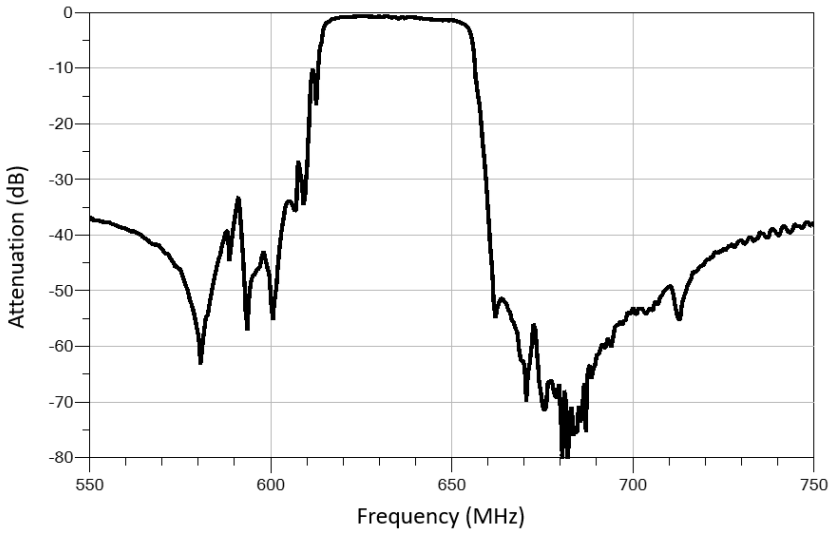


Figure 5. Narrow Band Attenuation, 550 –750MHz

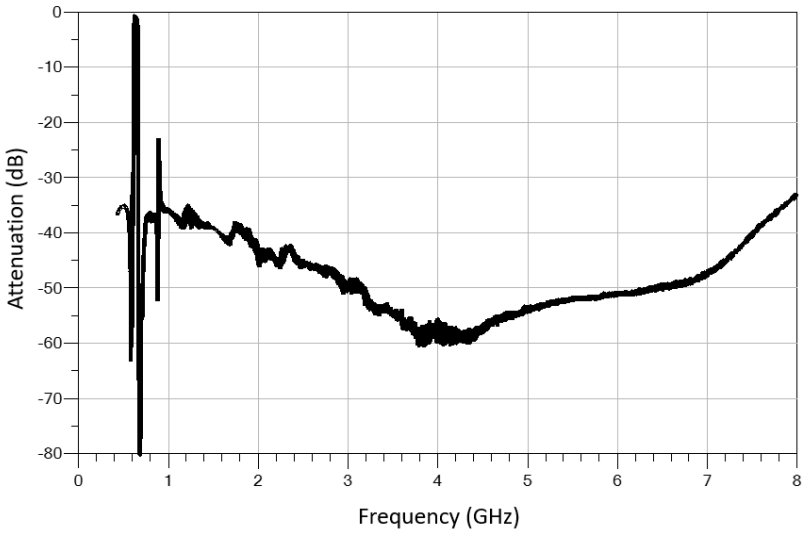
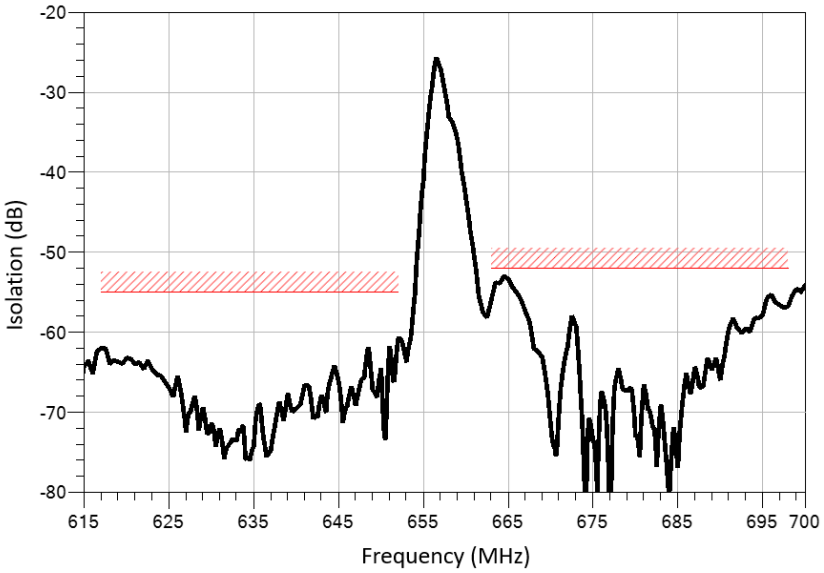


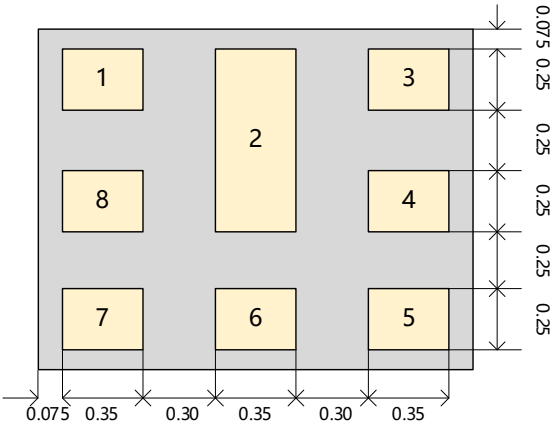
Figure 6. Wide Band Attenuation, 450 – 8000 MHz

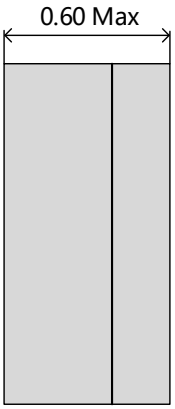
Typical Isolation (+25°C)



Package & Dimensions (Unit: mm)

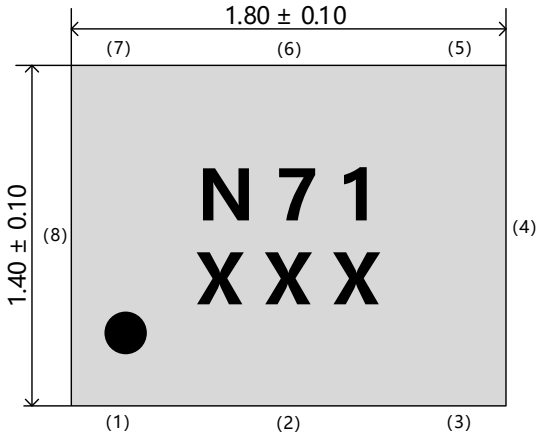
Bottom View





Side View

Top View

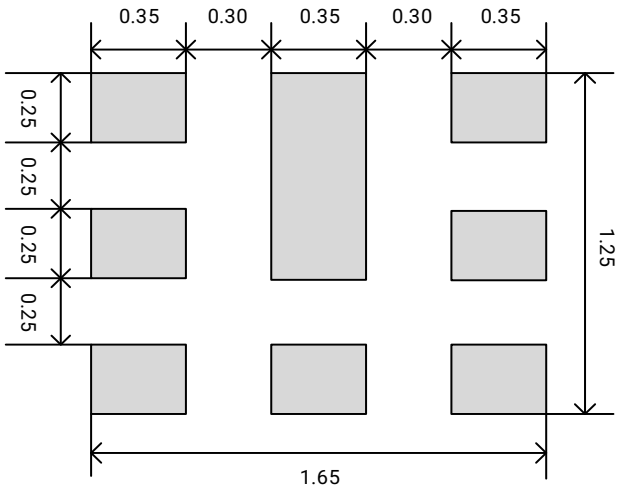


Note:

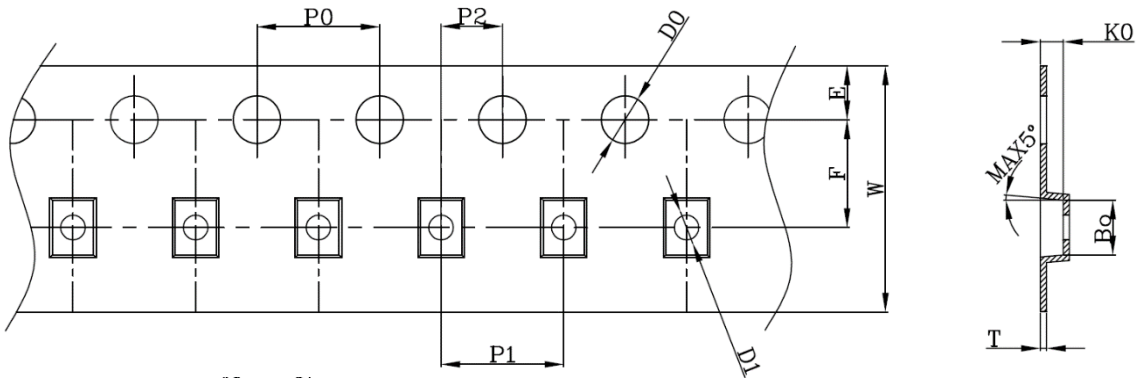
The character ‘N71’ indicates NS73171A.

The character ‘XXX’ indicates date code.

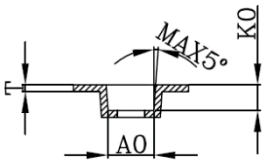
PCB Mounting Pattern (Unit: mm)



Tape and Reel Information (Unit: mm)



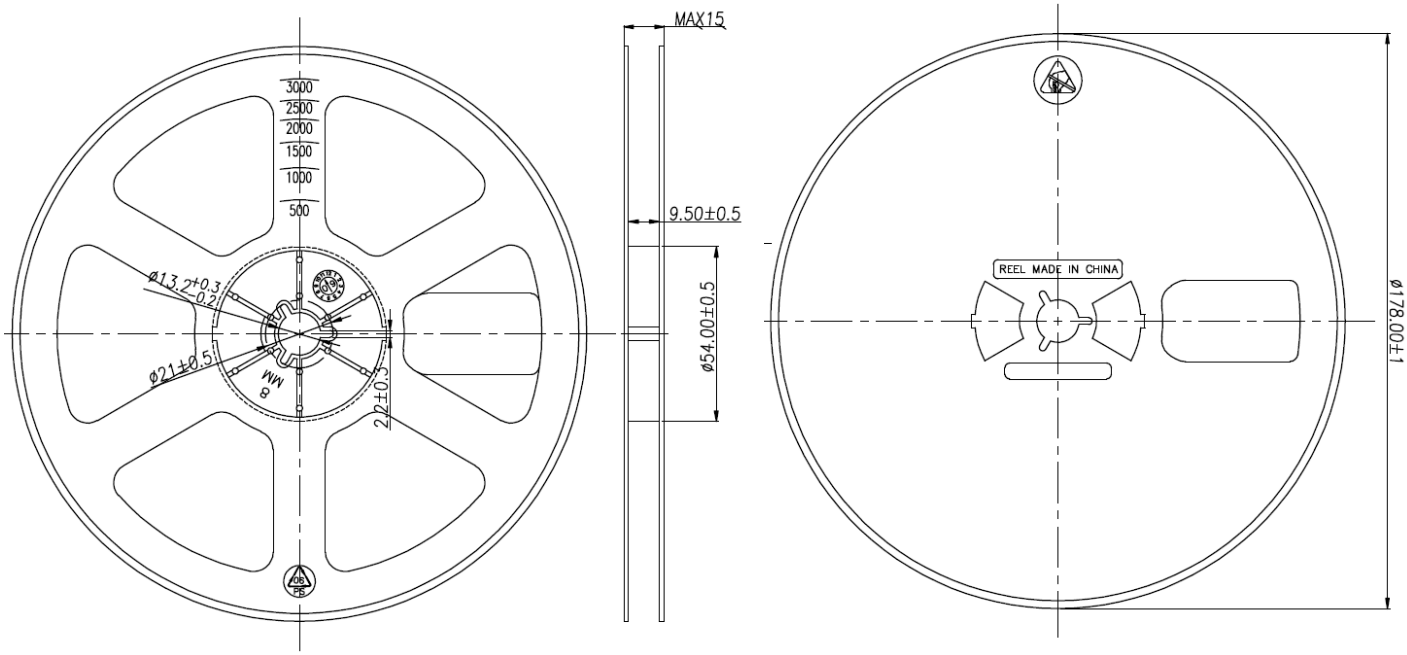
A0	B0	K0	P0	P1	P2
1.60±0.05	2.00±0.05	0.70±0.05	4.00±0.10	4.00±0.10	2.00±0.05
T	E	F	D0	D1	W
0.20±0.03	1.75±0.05	3.50±0.05	1.55±0.05	0.80±0.10	8.00±0.10



Note:

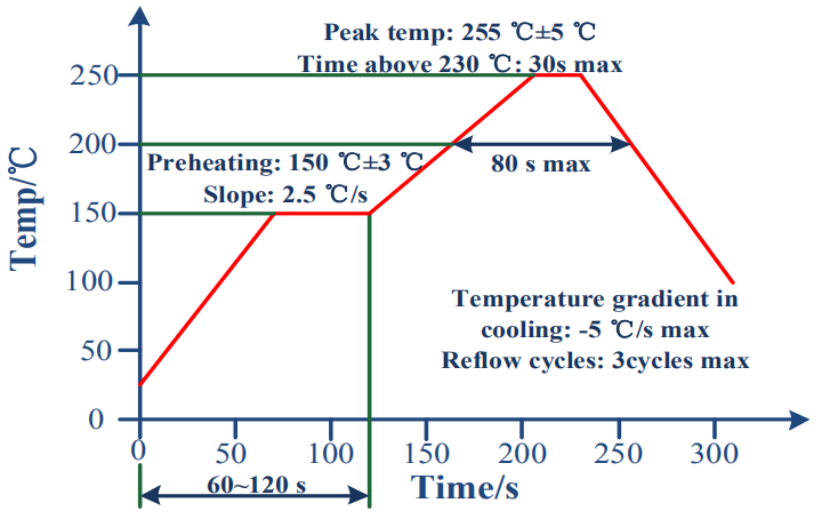
(1) Black antistatic composite PC.
(2) Cumulative tolerance of 10 sprocket holes is ± 0.20.
(3) All dimensions meet EIA-481-E requirements.
(4) The sector of 250mm straps shall not exceed 2mm.

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.
2. Customers need to know all NEWSONIC products are for consumer market (Mobile-phone, PC-tablet, AP router or other general product). NEWSONIC products are not warranted or authorized for use as critical components in aircraft, plane, medical, life-saving and other high-reliability application environment which can cause severe results such as death.
3. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information.
4. Not to be used, duplicated, reproduced, modified, republished and revealed in whole or in part to others without the express written permission of NEWSONIC.
5. NEWSONIC reject any liability or product warranty for engineering samples, so please don't use NEWSONIC engineering samples for mass-production.