

Product Description

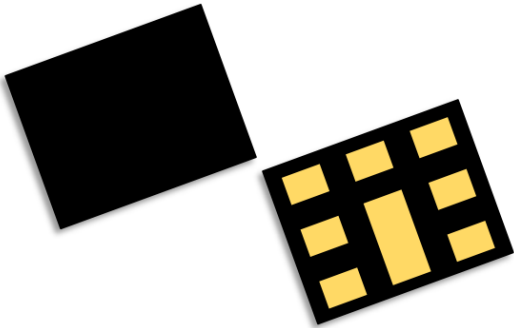
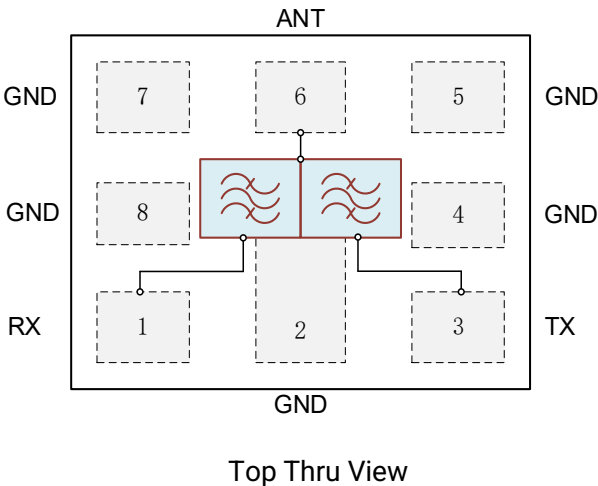
The NS63271A is a high-performance, Newsonic TF-SAW Duplexer for B71 application with low insertion loss and high isolation.

The NS63271A uses 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

- Band71 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

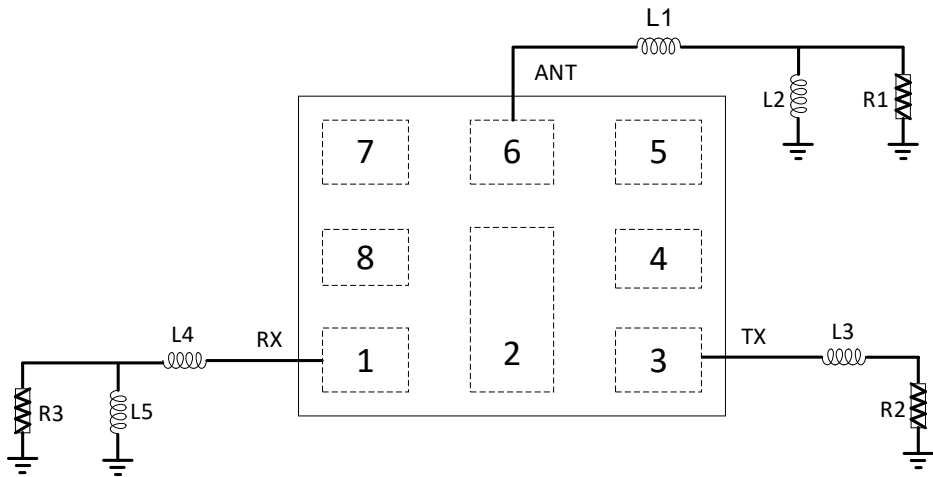
Ordering Information

| Part No.     | Description      |
|--------------|------------------|
| NS63271A     | Packaged Part    |
| NS63271A_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*           | 7.5nH  |
| L2*           | 22nH   |
| L3*           | 8.2nH  |
| L4*           | 6.8nH  |
| L5*           | 22nH   |
| Pin1          | RX     |
| Pin3          | TX     |
| Pin6          | ANT    |
| Pin 2/4/5/7/8 | GND    |

\*Ideal value

## Electrical Specifications (TX)

| Parameter             | Frequency        | Min.           | Typ. <sup>[a]</sup> | Max. | Unit | Note      |
|-----------------------|------------------|----------------|---------------------|------|------|-----------|
|                       |                  | -30°C to +85°C |                     |      |      |           |
| Insertion Loss        | 663 to 698 MHz   |                | 1.7                 | 2.3  | dB   |           |
| Ripple <sup>[b]</sup> | 663 to 698 MHz   |                | 1.1                 | 1.5  | dB   |           |
| VSWR_TX               | 663 to 698 MHz   |                | 1.4                 | 1.8  |      |           |
| VSWR_ANT              | 663 to 698 MHz   |                | 1.5                 | 1.8  |      |           |
| Attenuation           | 608 to 614 MHz   | 49             | 53                  |      | dB   |           |
|                       | 617 to 652 MHz   | 50             | 55                  |      | dB   | RX        |
|                       | 717 to 728 MHz   | 50             | 55                  |      | dB   | B29_RX    |
|                       | 729 to 768 MHz   | 45             | 49                  |      | dB   | B12_RX    |
|                       | 768 to 805 MHz   | 22             | 25                  |      | dB   |           |
|                       | 824 to 849 MHz   | 36             | 39                  |      | dB   | B5_TX     |
|                       | 859 to 894 MHz   | 37             | 41                  |      | dB   | B25_RX    |
|                       | 1164 to 1250 MHz | 47             | 51                  |      | dB   | GPS L2/L5 |
|                       | 1326 to 1396 MHz | 56             | 61                  |      | dB   | 2f0       |
|                       | 1559 to 1606 MHz | 55             | 60                  |      | dB   | GPS L1    |
|                       | 1710 to 1785 MHz | 52             | 57                  |      | dB   | B3_TX     |
|                       | 1805 to 1880 MHz | 50             | 55                  |      | dB   | B3_RX     |
|                       | 1930 to 1990 MHz | 50             | 55                  |      | dB   | B2_RX     |
|                       | 1989 to 2094 MHz | 50             | 54                  |      | dB   | 3f0       |
|                       | 2110 to 2200 MHz | 50             | 54                  |      | dB   | B66_RX    |
|                       | 2400 to 2484 MHz | 50             | 54                  |      | dB   | 2.4G WIFI |
|                       | 2496 to 2690 MHz | 48             | 52                  |      | dB   | B7/41     |
|                       | 2652 to 2792 MHz | 48             | 52                  |      | dB   | 4f0       |
|                       | 3315 to 3490 MHz | 45             | 49                  |      | dB   | 5f0       |
|                       | 3978 to 4188 MHz | 62             | 67                  |      | dB   | 6f0       |
|                       | 3300 to 4200 MHz | 45             | 49                  |      |      | n77       |
|                       | 4400 to 5000 MHz | 60             | 64                  |      | dB   | n79       |
|                       | 4900 to 5950 MHz | 58             | 61                  |      | dB   | ISM 5G    |

[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)

| Parameter             | Frequency        | Min.           | Typ. <sup>[a]</sup> | Max. | Unit | Note                |
|-----------------------|------------------|----------------|---------------------|------|------|---------------------|
|                       |                  | -30°C to +85°C |                     |      |      |                     |
| Insertion Loss        | 617 to 652 MHz   |                | 1.5                 | 1.9  | dB   |                     |
| Ripple <sup>[b]</sup> | 617 to 652 MHz   |                | 0.5                 | 0.9  | dB   |                     |
| VSWR_RX               | 617 to 652 MHz   |                | 1.4                 | 1.7  |      |                     |
| VSWR_ANT              | 617 to 652 MHz   |                | 1.5                 | 1.8  |      |                     |
| Attenuation           | 450 to 602 MHz   | 27             | 30                  |      | dB   |                     |
|                       | 602 to 608 MHz   | 18             | 33                  |      | dB   |                     |
|                       | 663 to 698 MHz   | 51             | 54                  |      | dB   | TX                  |
|                       | 709 to 740 MHz   | 42             | 46                  |      | dB   | 2TX - RX            |
|                       | 716 to 722 MHz   | 45             | 48                  |      | dB   |                     |
|                       | 776 to 793 MHz   | 34             | 38                  |      | dB   |                     |
|                       | 793 to 805 MHz   | 33             | 37                  |      | dB   |                     |
|                       | 824 to 849 MHz   | 33             | 36                  |      | dB   | B5_TX               |
|                       | 1058 to 1168 MHz | 37             | 41                  |      | dB   | B3_TX_CA TX-RX      |
|                       | 1163 to 1219 MHz | 40             | 44                  |      | dB   | B3 TX CA (RX+TX)/2  |
|                       | 1233 to 1281 MHz | 42             | 46                  |      | dB   | B2 TX CA (RX+TX)/2  |
|                       | 1268 to 1363 MHz | 42             | 47                  |      | dB   | B1 TX CA TX-RX      |
|                       | 1461 to 1484 MHz | 47             | 50                  |      | dB   | B30 TX CA (RX+TX)/2 |
|                       | 1653 to 1698 MHz | 52             | 57                  |      | dB   | B30 TX CA TX-RX     |
|                       | 1710 to 1785 MHz | 53             | 58                  |      | dB   | B3_TX               |
|                       | 1850 to 1910 MHz | 57             | 61                  |      | dB   | B2_TX               |
|                       | 1851 to 1956 MHz | 57             | 61                  |      | dB   | 3f0                 |
|                       | 1920 to 1980 MHz | 57             | 61                  |      | dB   | B1_TX               |
|                       | 2305 to 2315 MHz | 54             | 59                  |      | dB   | B30_TX              |
|                       | 2327 to 2437 MHz | 55             | 60                  |      | dB   | B3 TX CA TX+RX      |
|                       | 2400 to 2500 MHz | 57             | 62                  |      | dB   | 2.4G WIFI           |
|                       | 2468 to 2608 MHz | 57             | 62                  |      | dB   | 4f0                 |
|                       | 2922 to 2967 MHz | 57             | 62                  |      | dB   | B30 TX CA TX+RX     |
|                       | 4037 to 4222 MHz | 55             | 60                  |      | dB   | B3 TX CA 2TX+RX     |
|                       | 4317 to 4472 MHz | 55             | 60                  |      | dB   | B2 TX CA 2TX+RX     |
|                       | 4457 to 4612 MHz | 57             | 61                  |      | dB   | B1 TX CA 2TX+RX     |
|                       | 4900 to 5950 MHz | 53             | 58                  |      | dB   | 5G WIFI             |

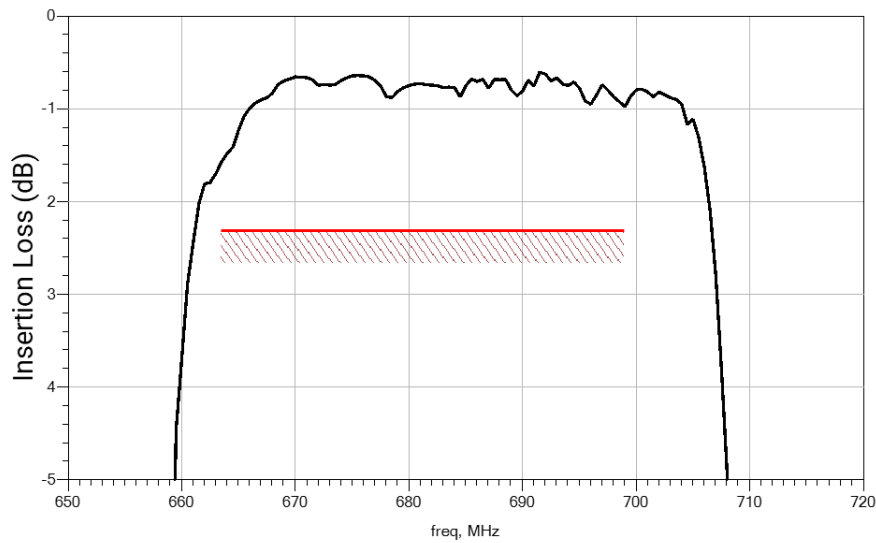
[a]. Typical data is the worst value of the parameter over the indicated band at +25°C.

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

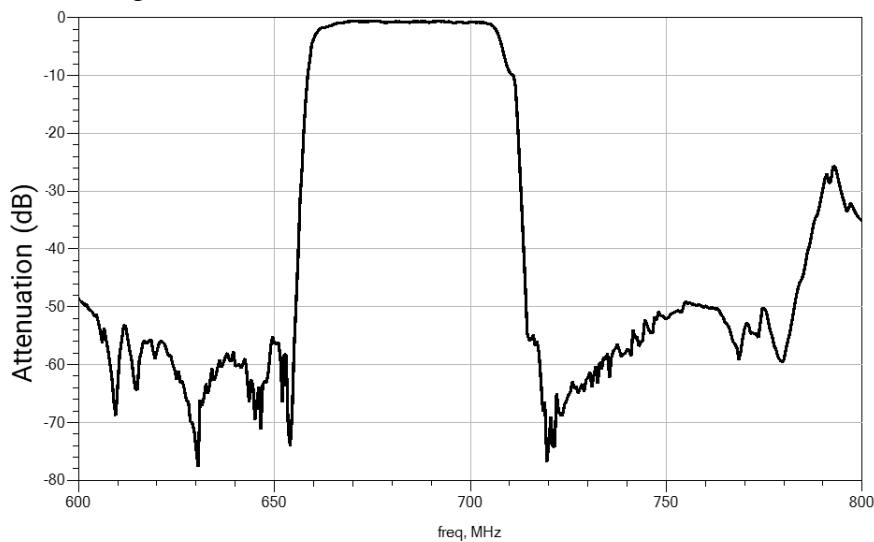
Electrical Specifications (Isolation)

| Parameter | Frequency      | Min.           | Typ. | Max. | Unit | Note |
|-----------|----------------|----------------|------|------|------|------|
|           |                | -30°C to +85°C |      |      |      |      |
| Isolation | 663 to 698 MHz | 52             | 55   |      | dB   | TX   |
|           | 617 to 652 MHz | 52             | 56   |      | dB   | RX   |

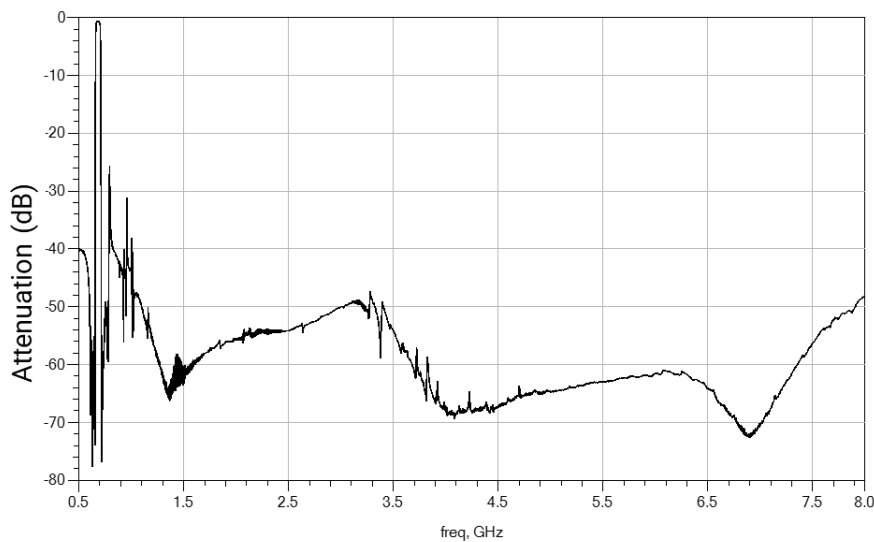
## Typical TX to ANT Transmission Coefficient (+25°C)



**Figure 1. Passband Insertion Loss, 663 – 698 MHz**

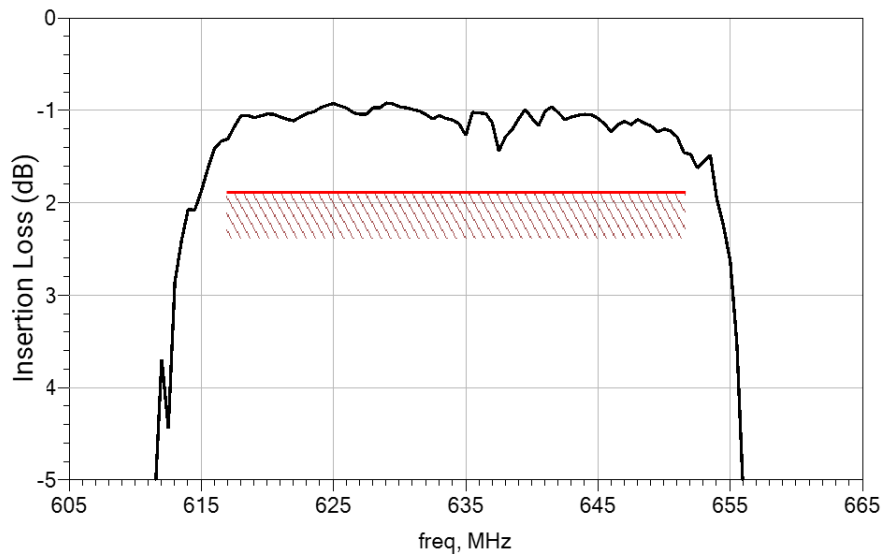


**Figure 2. Narrow Band Attenuation, 600 – 800MHz**

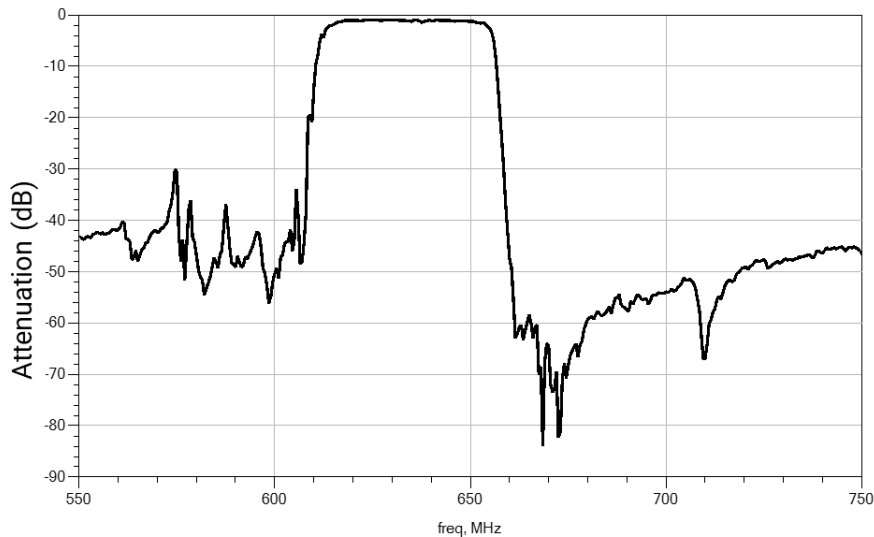


**Figure 3. Wide Band Attenuation, 450 – 8000 MHz**

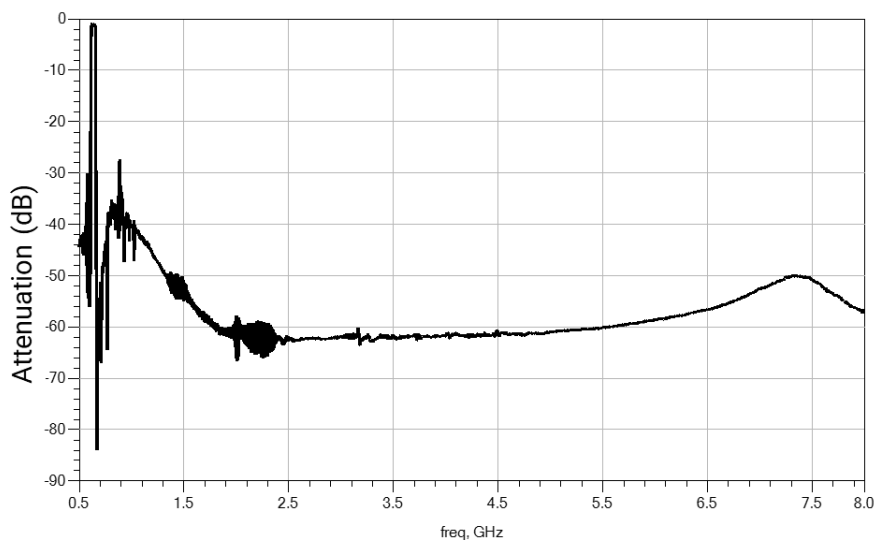
## Typical ANT to RX Transmission Coefficient (+25°C)



**Figure 4. Passband Insertion Loss, 617 – 652 MHz**

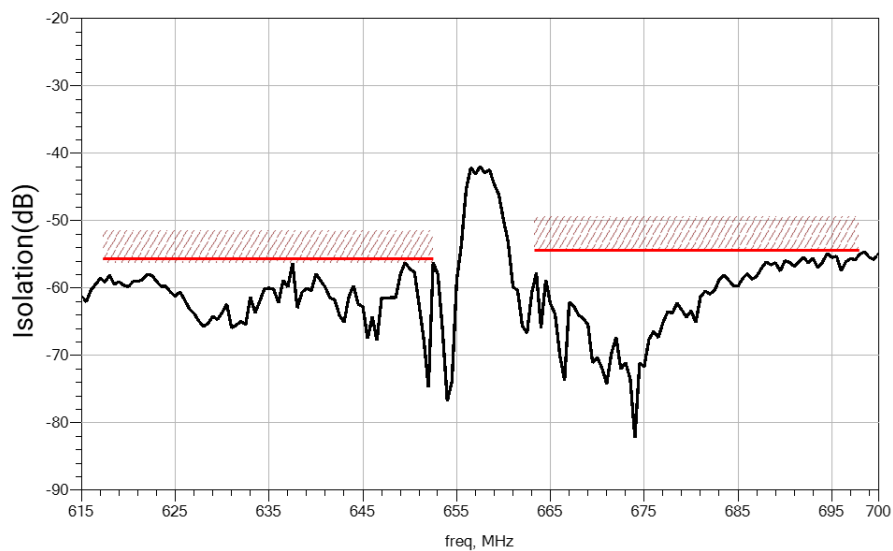


**Figure 5. Narrow Band Attenuation, 550 – 750MHz**

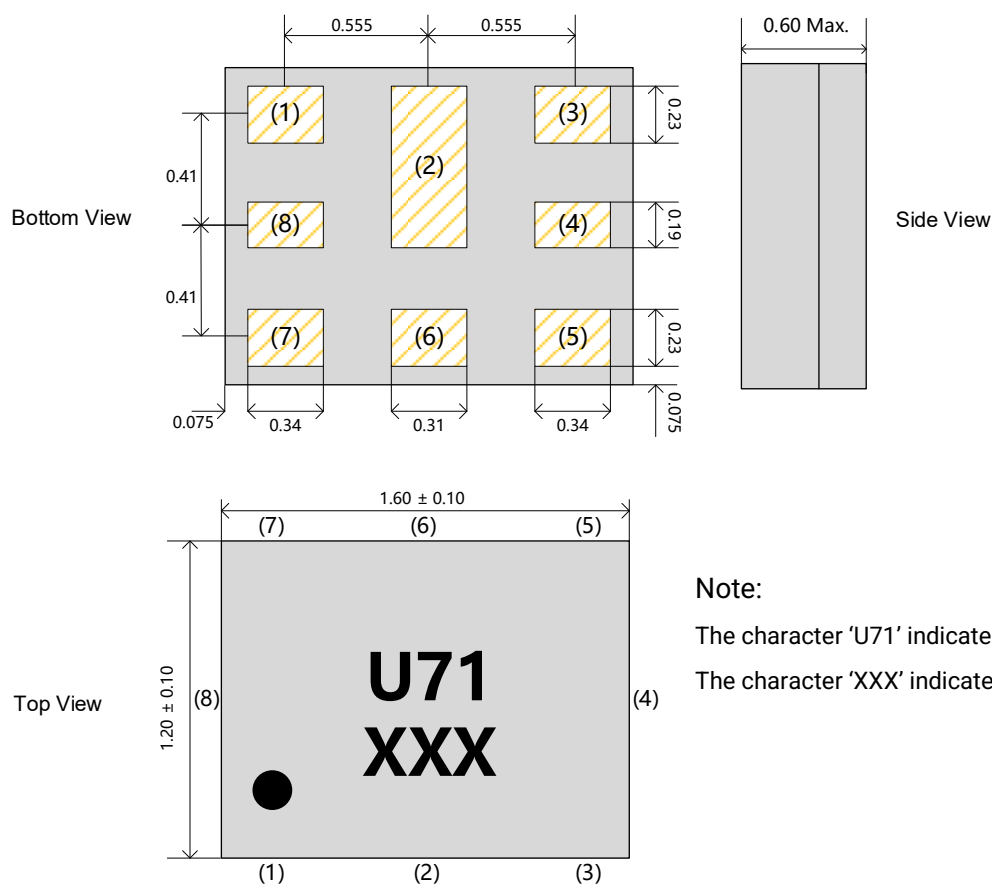


**Figure 6. Wide Band Attenuation, 500 – 8000 MHz**

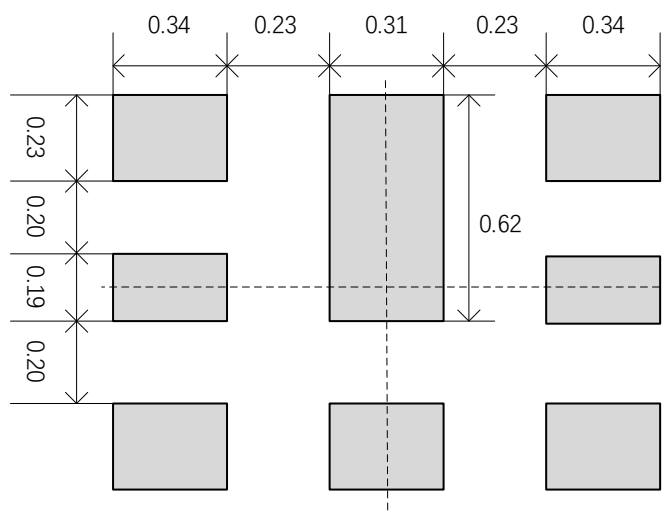
## Typical Isolation (+25°C)



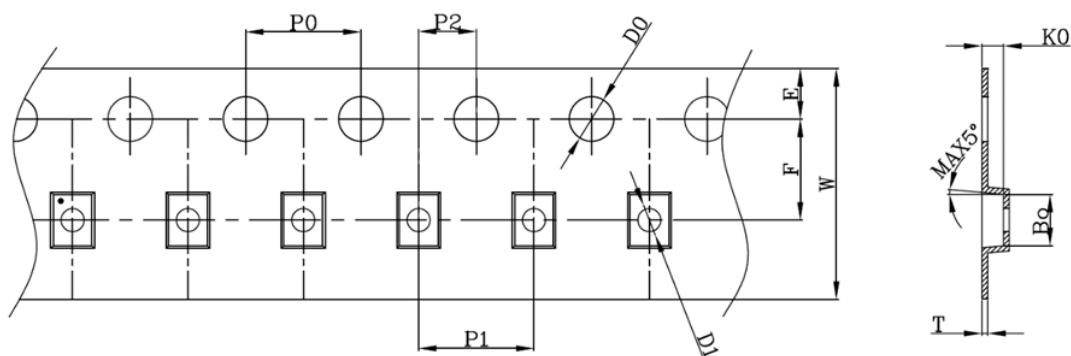
## Package & Dimensions (Unit: mm)



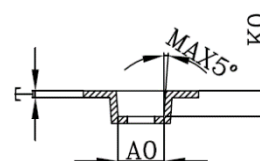
## PCB Mounting Pattern (Unit: mm)



## Tape and Reel Information (Unit: mm)



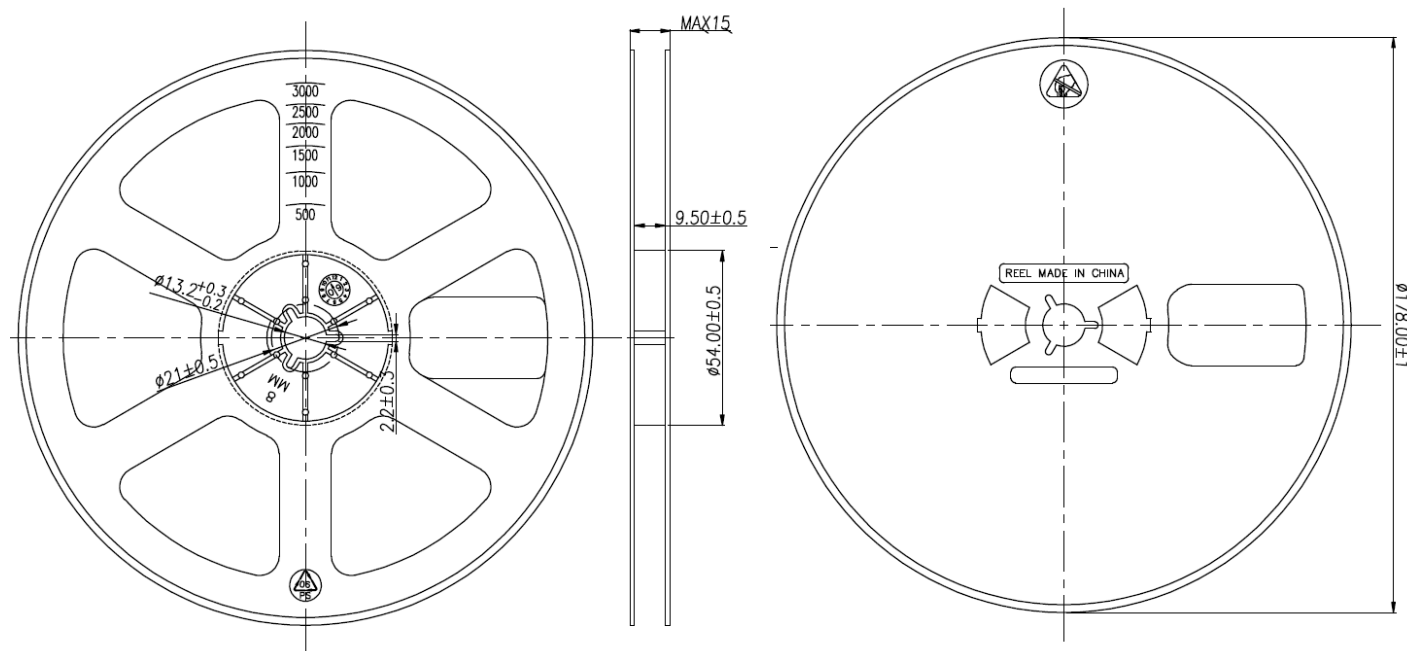
| A0        | B0        | K0        | P0        | P1        | P2        |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 1.35±0.05 | 1.78±0.05 | 0.70±0.05 | 4.00±0.10 | 4.00±0.10 | 2.00±0.05 |
| T         | E         | F         | D0        | D1        | W         |
| 0.20±0.05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



### Note:

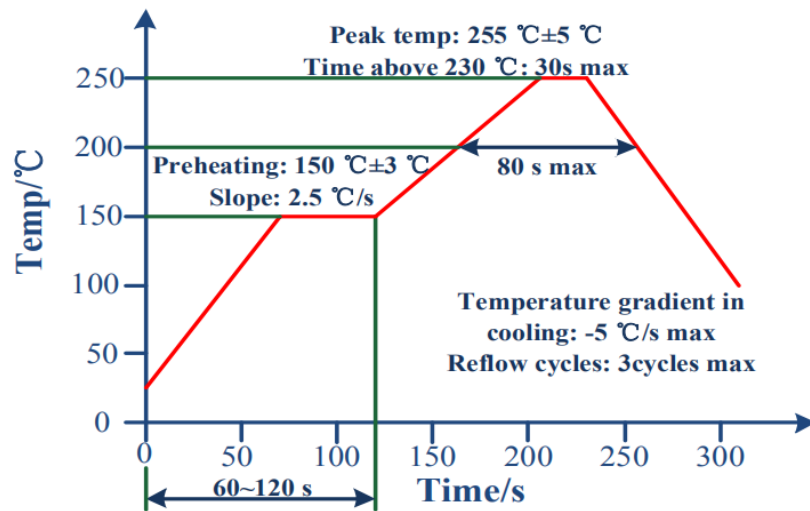
- (1) Black antistatic composite PC.
- (2) Cumulative tolerance of 10 sprocket holes is  $\pm 0.20$ .
- (3) All dimensions meet EIA-481-E requirements.
- (4) The sector of 250mm straps shall not exceed 2mm.

### 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.
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