

Product Description

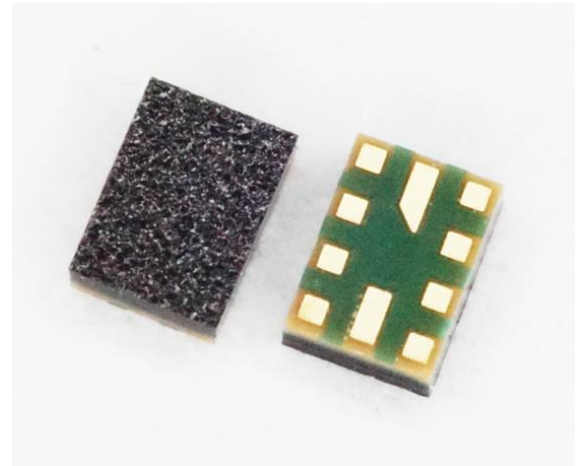
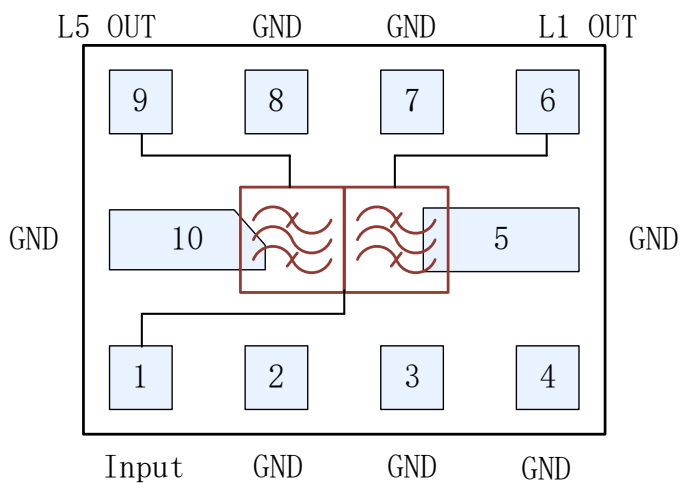
The NSV80115A is a high performance, Surface Acoustic Wave (SAW) technology based Dual RX filter with extremely low loss, and roll-off features. The 1 in 2 out design makes the board design easy and simple.

The NSV80115A uses Chip Scale Packaging (CSP) techniques to achieve the industry standard 1.5 x 1.1 mm footprint.

Applications

- GNSS L1 & L5 Application

Functional Block Diagram



Product Features

- Low Insertion Loss
- Standard Size: 1.5 x 1.1 mm
- Operating Temperature -40 to +105°C
- Single Ended Operation
- RoHS2.0 Compliant, Halogen Free
Pb-free Module Package, MSL2
- AEC-Q200 qualified component family

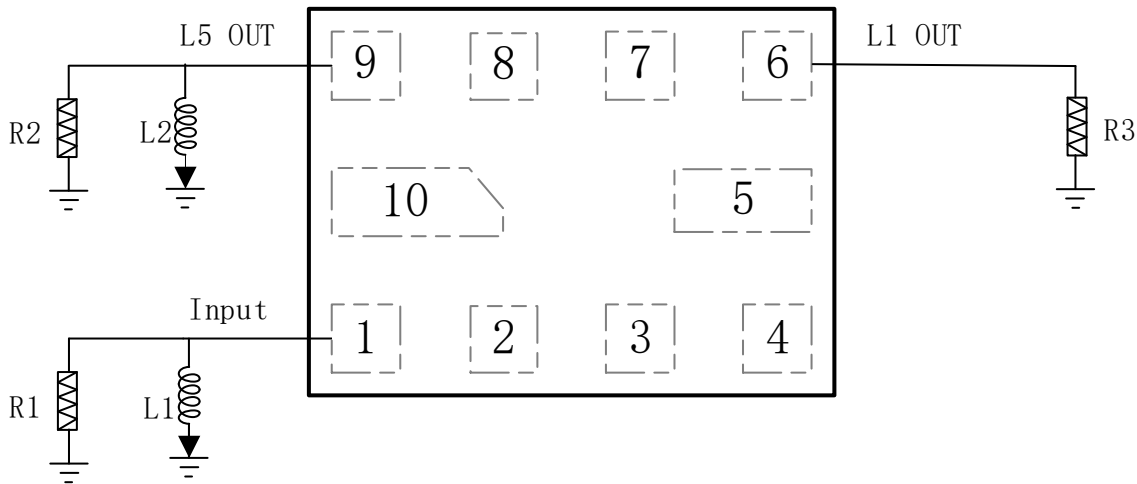
Ordering Information

Part No.	Description
NSV80115A	Packaged Part
NSV80115A-EVB	Evaluation Board

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40°C ~ +105°C
Operating Temperature	-40°C ~ +105°C
RF Input Power	+15dBm, +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	6.2 nH (LQP03HQ6N2J02)
L2	9.1 nH (LQP03HQ9N1J02)
Pin 1	Input
Pin 6	L1 Out
Pin 9	L5 Out
Pin 2/3/4/5/7/8/10	GND

Electrical Specifications (GNSS L5)

Temperature Range for Specification: $T_c = -40 \sim +105^\circ\text{C}$

Input Terminating Condition: $Z_{IN} = 50\text{ ohm} // 6.2\text{ nH}$

L5 Out Terminating Condition: $Z_{OUT} = 50\text{ ohm} // 9.1\text{ nH}$

Parameter	Frequency	Min.	Typ. ^[a]	Max.	Unit	Note
		-40°C to +105°C				
Insertion Loss	1166.22 to 1186.68 MHz		1.5	2.3	dB	GPS L5
	1205.09 to 1209.19 MHz		1.7	2.3	dB	BD B2
	1226.58 to 1228.62 MHz		1.4	2.3	dB	GPS L2
Ripple ^[b]	1166.22 to 1228.62 MHz		0.7	1.3	dB	
Group Delay ripple	1166.22 to 1186.68 MHz		13	30	ns	GPS L5
	1205.09 to 1209.19 MHz		3	25	ns	BD B2
	1226.58 to 1228.62 MHz		3	25	ns	GPS L2
VSWR_INPUT	1166.22 to 1186.68 MHz		1.5	2.0		GPS L5
	1205.09 to 1209.19 MHz		2.0	2.2		BD B2
	1226.58 to 1228.62 MHz		1.5	2.0		GPS L2
VSWR_L5 OUT	1166.22 to 1186.68 MHz		1.6	2.0		GPS L5
	1205.09 to 1209.19 MHz		2.1	2.3		BD B2
	1226.58 to 1228.62 MHz		1.6	2.0		GPS L2
Attenuation	10 to 748 MHz	33	44		dB	
	777 to 798 MHz	30	43		dB	
	807 to 915 MHz	30	40		dB	
	925 to 960 MHz	25	33		dB	B8RX
	1427 to 1463 MHz	25	31		dB	B11TX,B21TX
	1626.5 to 1660.5 MHz	25	32		dB	B24TX
	1695 to 1785 MHz	28	39		dB	
	1850 to 2025 MHz	34	38		dB	
	2300 to 2400 MHz	32	35		dB	B40
	2400 to 2483 MHz	32	34		dB	ISM2.4G
	2496 to 2690 MHz	30	34		dB	B41
	3400 to 3800 MHz	27	30		dB	B42,B43
	4400 to 4900 MHz	25	28		dB	
	5150 to 5925 MHz	23	25		dB	ISM5G

[a]. Typical data is the worst value of the parameter over the indicated band at $+25^\circ\text{C}$.

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

Electrical Specifications (GNSS L1)

Temperature Range for Specification: $T_c = -40 \sim +105^\circ\text{C}$

Input Terminating Condition: $Z_{IN} = 50\text{ ohm} // 6.2\text{ nH}$

L1 Out Terminating Condition: $Z_{OUT} = 50\text{ ohm}$

Parameter	Frequency	Min.	Typ. ^[a]	Max.	Unit	Note
		-40°C to +105°C				
Insertion Loss	1574.39 to 1576.45 MHz		1.6	2.0	dB	GPS L1
	1559.05 to 1563.15 MHz		1.8	2.3	dB	BD B1
	1597.55 to 1605.89 MHz		2.0	2.3	dB	GNSS L1
Ripple ^[b]	1559.05 to 1605.89 MHz		0.5	0.8	dB	
Group Delay ripple	1574.39 to 1576.45 MHz		3	30	ns	GPS L1
	1559.05 to 1563.15 MHz		6	30	ns	BD B1
	1597.55 to 1605.89 MHz		4	30	ns	GNSS L1
VSWR_INPUT	1574.39 to 1576.45 MHz		1.4	2.0		GPS L1
	1559.05 to 1563.15 MHz		1.3	2.0		BD B1
	1597.55 to 1605.89 MHz		1.6	2.0		GNSS L1
VSWR_L1 OUT	1574.39 to 1576.45 MHz		1.7	2.0		GPS L1
	1559.05 to 1563.15 MHz		1.3	2.0		BD B1
	1597.55 to 1605.89 MHz		1.5	2.0		GNSS L1
Attenuation	10 to 698 MHz	39	48		dB	
	698 to 748 MHz	38	47		dB	
	777 to 798 MHz	35	45		dB	
	807 to 915 MHz	34	44		dB	
	925 to 960 MHz	33	41		dB	
	1427 to 1463 MHz	32	40		dB	
	1710 to 1800 MHz	35	39		dB	
	1850 to 1910 MHz	34	37		dB	
	1910 to 1980 MHz	35	38		dB	
	2010 to 2025 MHz	37	40		dB	B34TX

	2300 to 2315 MHz	40	47		dB	B30TX
	2401 to 2483 MHz	40	47		dB	ISM2.4G
	2496 to 2690 MHz	40	49		dB	B41
	5150 to 5925 MHz	25	42		dB	ISM5G

- [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.

Typical Transmission Coefficient (GNSS L5, +25°C)

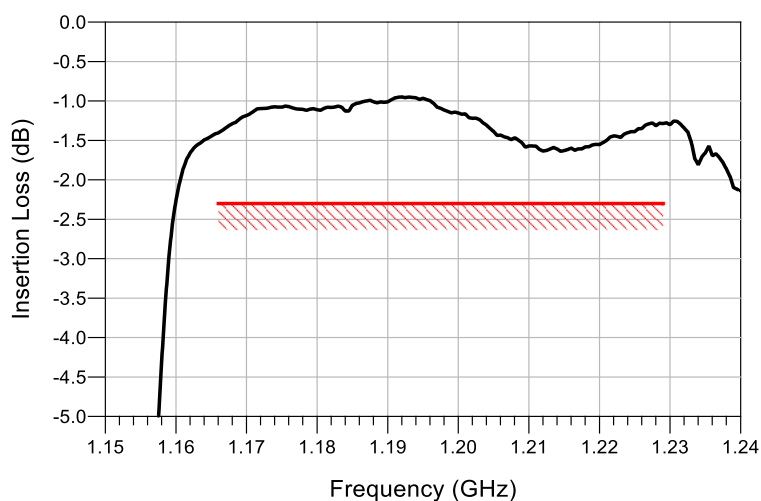


Figure 1. Passband Insertion Loss, 1166 – 1229 MHz

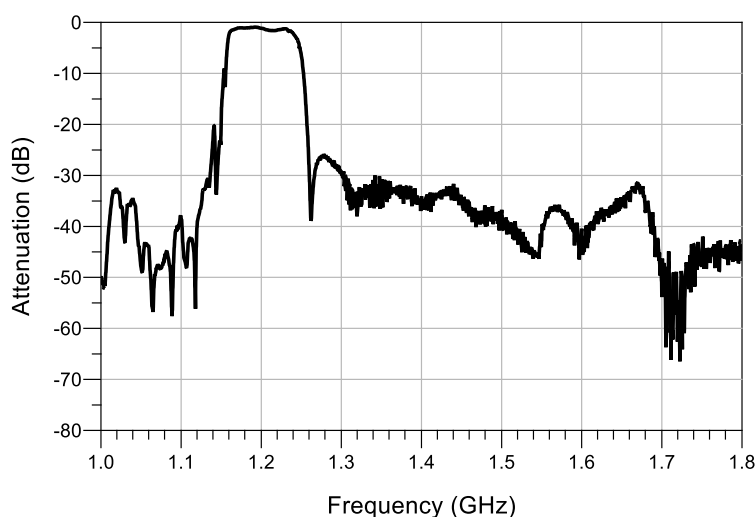


Figure 2. Narrow Band Attenuation, 1000 – 1800 MHz

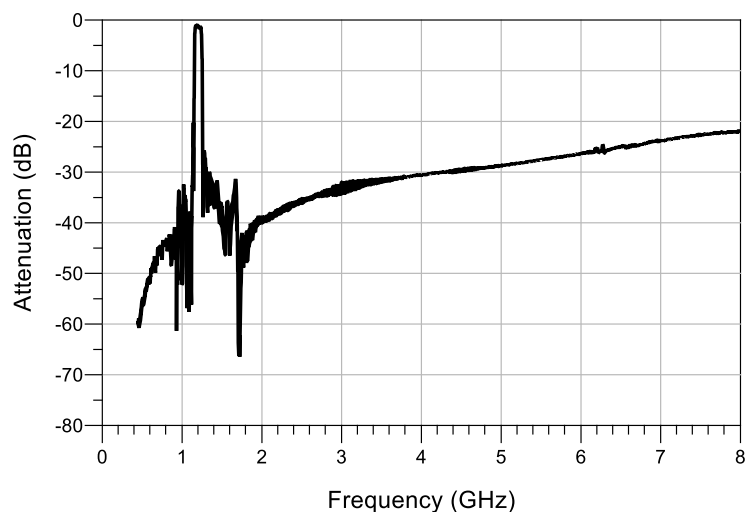


Figure 3. Wide Band Attenuation, 450 – 8000 MHz

Typical Transmission Coefficient (GNSS L1, +25°C)

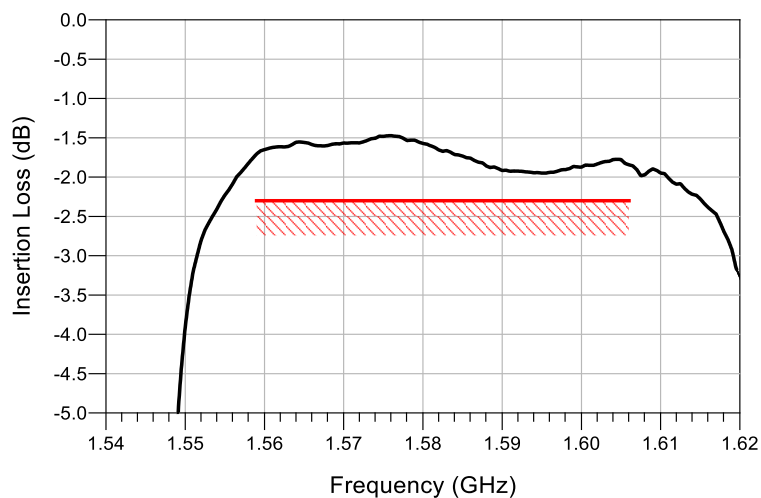


Figure 4. Passband Insertion Loss, 1559 – 1606 MHz

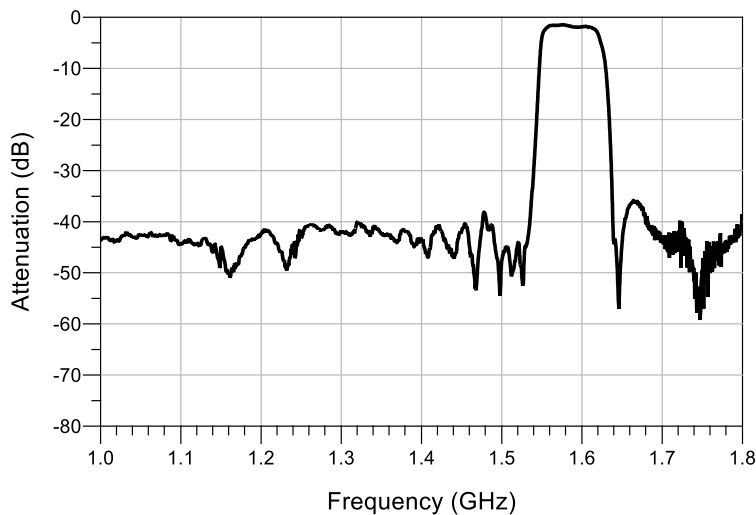


Figure 5. Narrow Band Attenuation, 1000 – 1800 MHz

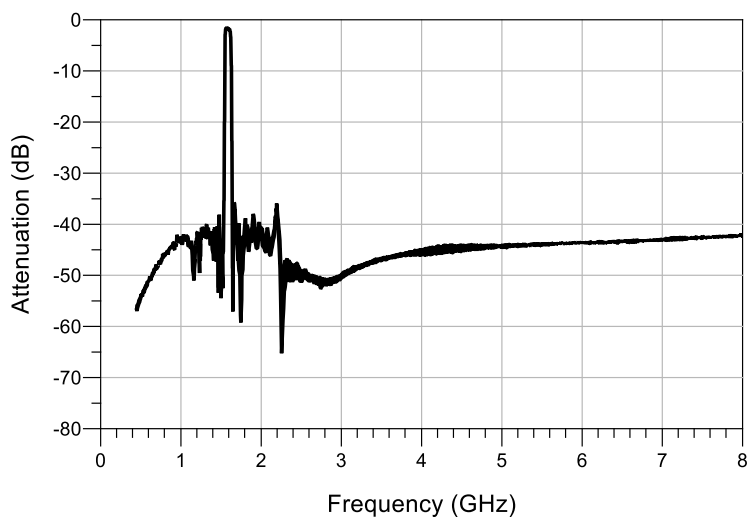
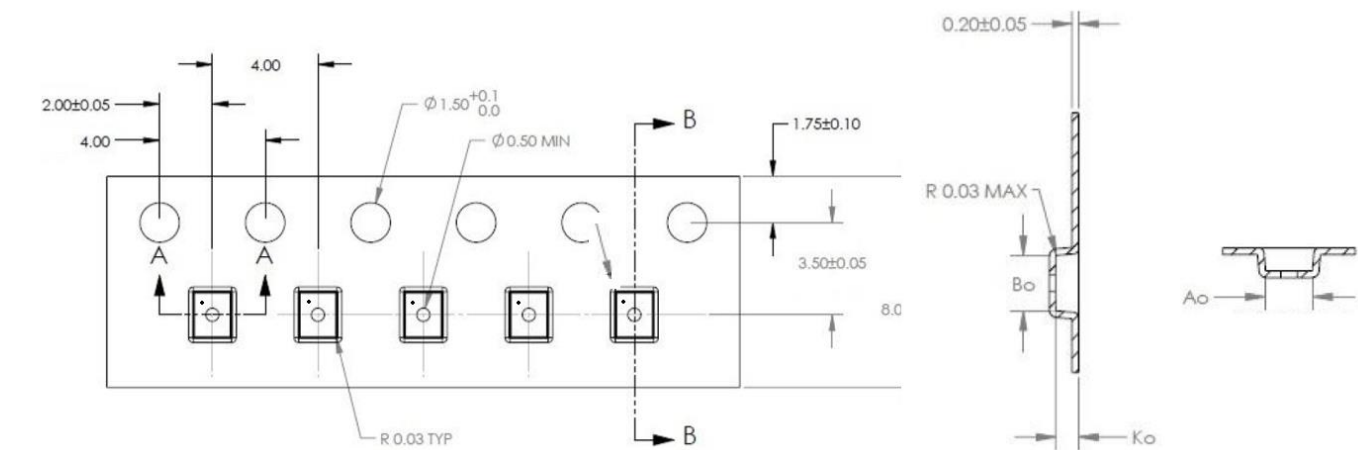


Figure 6. Wide Band Attenuation, 450 – 8000 MHz

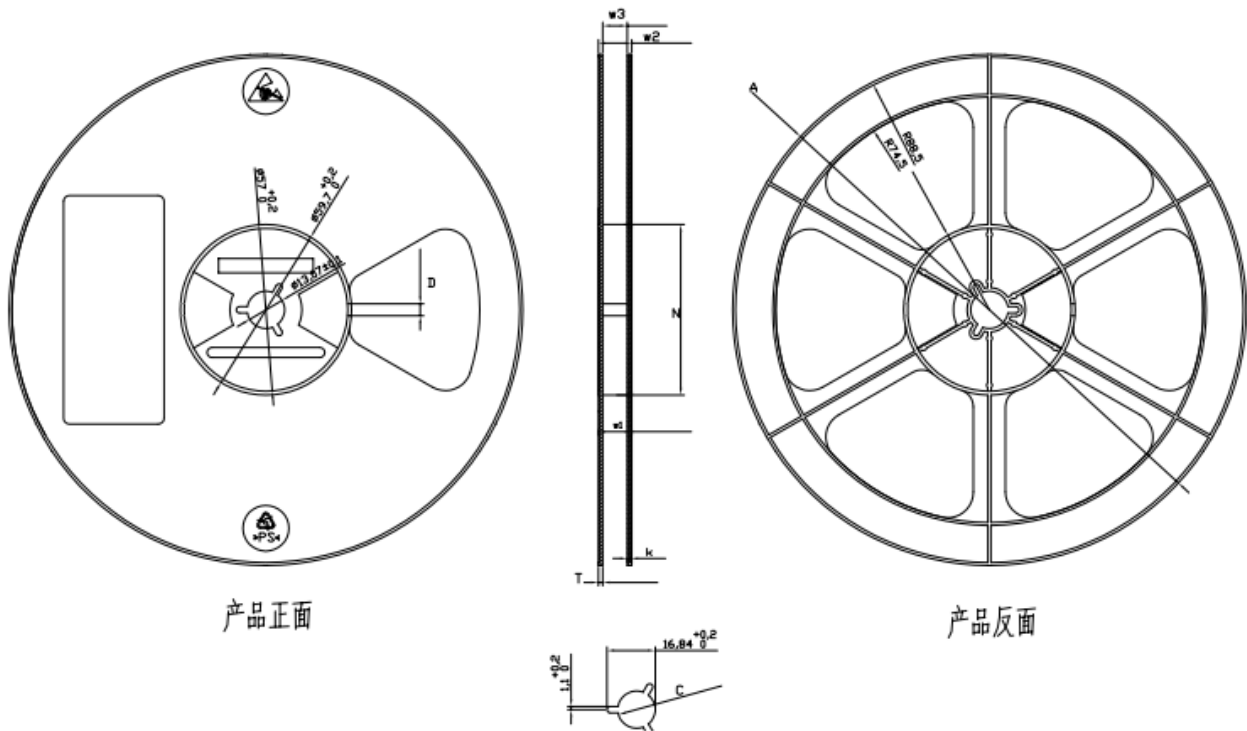
Tape and Reel Information (Unit: mm)



Ao	1.41+/-0.03
Bo	1.71+/-0.03
Ko	0.7+/-0.03

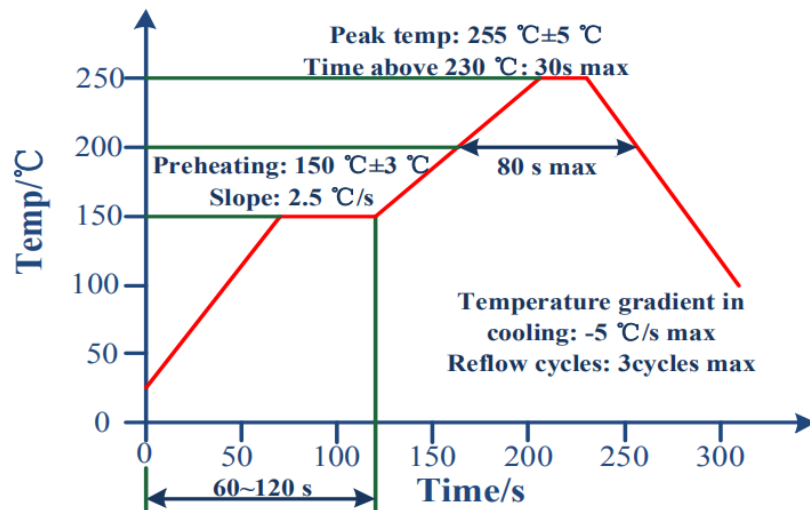
- (1) Black antistatic composite PC.
- (2) Cumulative tolerance of 10 sprocket holes is ± 0.20.
- (3) All dimensions meet EIA-481-E requirements.
- (4) The sector of 250mm straps shall not exceed 2mm.

Reeling Quantity: 5000 PCS/Reel



Type	A	N	C	D	w1	w2	w3	T	k
8mm	$\phi 180^{+2}_{-2}$	$\phi 60^{+1}_{-1}$	$\phi 13.1^{+0.2}_{-0.2}$	$\phi 4.2^{+0.5}_{-0.5}$	8.4^{+1}_{-0}	11.6^{+1}_{-1}	8.75^{+1}_{-1}	$1.5^{+0.15}_{-0.15}$	$1.25^{+0.1}_{-0.05}$

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 NEWSONIC NSV***** series products are for automotive market (automotive Satellite navigation module or other general product). NEWSONIC products are not warranted or authorized for use as critical components in aircraft, plane, medical, life-saving and other types of application environments which can cause severe results such as death.
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