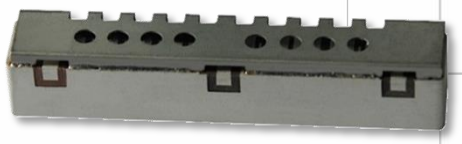
USD159A - Preliminary

1518-1558 / 1616-1675MHz USD Series Duplexer

Features

- Low Loss with High Rejection
- Superior power handling and reliability
- Universal footprint across all FDD frequency bands



Part Dimensions: 61.0 × 9.4 × 11.0 mm • 22.1 g
Materials: Ag plated ceramic block with tin plated brass shield

Applications

- Developed for use in InMarSat Infrastructure applications.

Description

Surface mount ceramic duplexer supports a universal footprint across all FDD frequency bands enabling the use of a common system PCB. Provides superior rejection, insertion loss, reliability, as well as both peak and average power handling compared to other duplexer technologies.

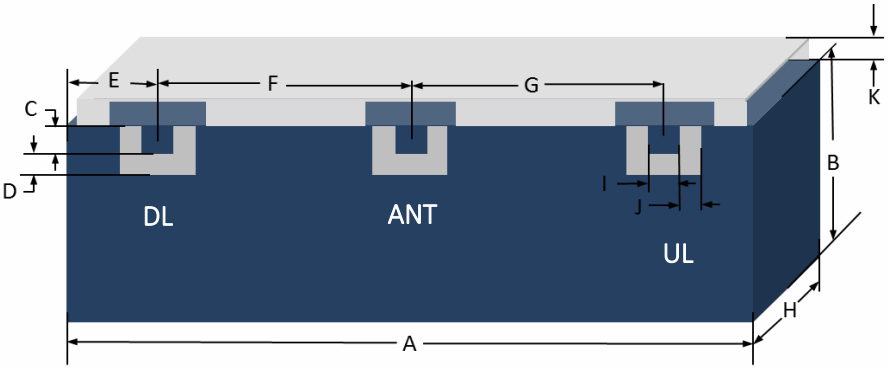
Electrical Specifications

Parameter	Frequency (MHz)	Typical at 25°C	Spec. at 25°C	Spec. over -40°C to +85°C
Nominal Impedance	-	50 ohms	-	-
Average Input Power	-	-	-	5.0 Watt max
Peak Input Power	-	-	-	50 Watt max
RX Response				
Passband Insertion Loss	1518 - 1559	1.1 dB	1.3 dB max	1.4 dB max
Passband Ripple	1518 - 1559	0.4 dB	0.6 dB max	0.7 dB max
Passband Return Loss	1518 - 1559	14 dB	12 dB min	12 dB min
Attenuation:	1616 - 1675	58 dB	55 dB min	55 dB min
TX Response				
Passband Insertion Loss	1616 - 1675	1.5 dB	1.6 dB max	1.7 dB max
Passband Ripple	1616 - 1675	0.5 dB	0.7 dB max	0.8 dB max
Passband Return Loss	1616 - 1675	14 dB	12 dB min	12 dB min
Attenuation:	1518 - 1559	63 dB	60 dB min	60 dB min
	1575	61 dB	60 dB min	60 dB min
TX to RX Response				
Attenuation for UL band	1518 - 1559	63 dB	60 dB min	60 dB min
Attenuation for Transition band	1575	61	60 dB min	60 dB min
Attenuation for DL band	1616 - 1675	58 dB	55 dB min	55 dB min

Note: CTS tests each unit to the critical specifications above. Subsequent audits may deviate due to repeatability among different test systems which shall not exceed these allowances.

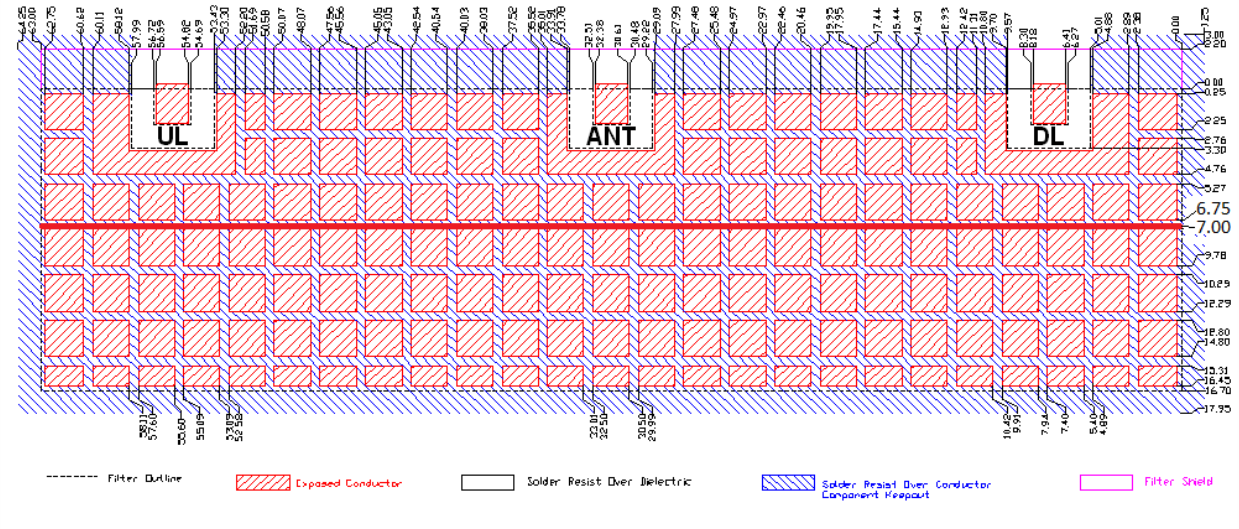
Specification Allowance	
Insertion Loss	0.1 dB
Return Loss	1.0 dB
Attenuation	1.0 dB

Mechanical Drawing

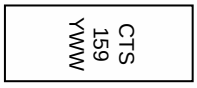


Dim.	Nominal (mm)	Tolerance (±mm or Max)
A	61.00	Max
B	6.70	0.30
C	2.03	0.13
D	1.27	0.13
E	5.99	0.20
F	24.21	0.13
G	24.21	0.13
H	11.00	Max
I	2.03	0.13
J	1.27	0.13
K	2.20	0.20

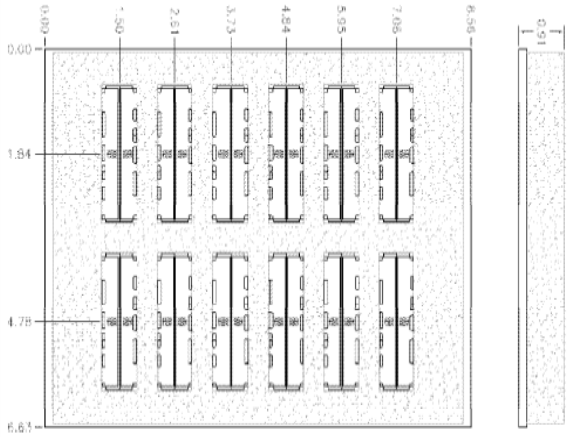
PCB Layout



Packaging and Marking



Product is shipped in Pre-formed foam trays



The trays have 12 slots each with 2 filters per slot. Boxes are packed with 5 Trays per box for a total of 120 filters per box.

Electrical Response

Marker	1	2	3	4	5	6
Freq[MHz]	1518	1559	1575	1616	1626.5	1675
S11[dB](1	-19.7	-44.2	-20	-42.5	-23.2	-21.3
S21[dB](1	-0.625	-0.904	-1.5	-64.9	-62.7	-66
S22[dB](1	-20.5	-30	-17.1	-0.269	-0.206	-0.095
S31[dB](1	-67.8	-63.5	-63	-1.31	-1.08	-0.982
S33[dB](1	-0.0492	-0.141	-0.276	-35.5	-21.2	-19.5