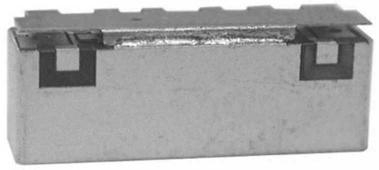
USB365B - Preliminary

3.5-3.8GHz USB Series TDD Bandpass Filter

Features

- Low Loss with High Rejection and Low Ripple
- Support for 3GPP Receive Blocker specification
- Universal footprint across family for all TDD bands



Part Dimensions: 25.7 × 5.1 × 6.6 mm • 2.5 g
Materials: Ag plated ceramic block with tin plated brass shield

Applications

- Wireless Infrastructure applications
- High-performance carrier-grade single-band TDD Pico-cell basestations for up to 5.0W at the antenna port.

Description

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

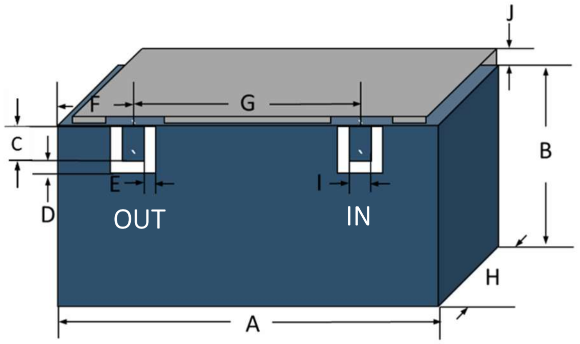
Electrical Specifications

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	-	-	-	8.0 Watt max
Peak Input Power	-	-	-	80 Watt max
Input-Output Response				
Passband Insertion Loss (100 MHz avg)	3500-3800	1.3 dB	1.4 dB max	1.5 dB max
Passband Insertion Loss (20 MHz avg)	3500-3800	1.7 dB	1.8 dB max	2.0 dB max
Passband Ripple (20MHz)	3500-3800	1.0 dB	1.2 dB max	1.4 dB max
Passband Return Loss	3500-3800	14 dB	12 dB min	12 dB min
Attenuation:	1-2700	47 dB	43 dB min	43 dB min
	2701-3200	40 dB	36 dB min	36 dB min
	3201-3300	35 dB	33 dB min	33 dB min
	3301-3460	16 dB	13 dB min	12 dB min
	3461-3480	6.0 dB	4.5 dB min	4.0 dB min
	3820-3839	6.0 dB	4.5 dB min	4.0 dB min
	3840-3999	17 dB	13 dB min	12 dB min
	4000-4199	35 dB	30 dB min	30 dB min
	4200-5950	40 dB	38 dB min	38 dB min
	5951-7600	25-30 dB	20-25 dB min	20-25 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.

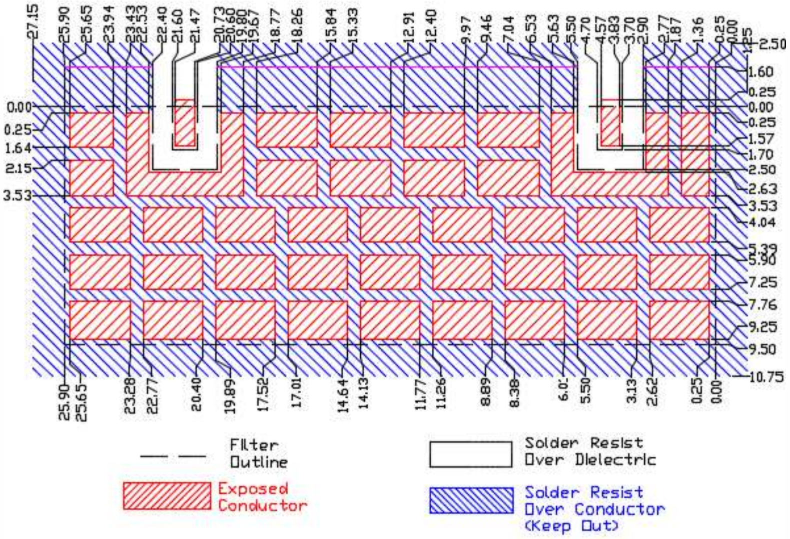
Specification Allowance	
Insertion Loss	0.1 dB
Return Loss	1.0 dB
Attenuation	1.0 dB

Mechanical Drawing



Dim.	Nominal (mm)	Tolerance (±mm or Max)
A	25.40	0.30
B	3.90	0.30
C	1.70	0.13
D	0.80	0.13
E	0.80	0.13
F	4.20	0.13
G	16.90	0.13
H	6.40	0.20
I	1.00	0.13
J	0.70	0.20

PCB Layout



IMPORTANT: Please assure >=30mils (0.75mm) thickness of dielectric beneath the I/O Pads and the surrounding clearance zone down to the ground plane.

Please assure sufficient ground vias between the top metal ground plane and the primary ground plane.

Recommended solder: 4-6 mils of SAC305 with reflow including 120s of soak at 217°C, and up to 30 sec peak at 241°C.

NOTE: The width of 9.50mm is necessary to support frequencies as low as 1885MHz for Band 39. If only higher frequency TDD bands are supported, then a smaller space can be allocated on the layout.

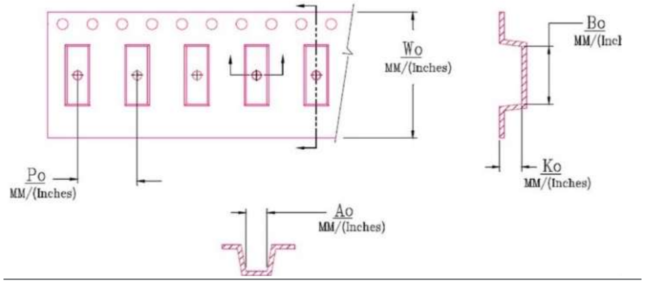
Packaging and Marking

Dimension	Units	Spec.
Reel Diameter	mm	330
Reel Weight	kg	5.5
Reel Quantity	ea.	500

Product Marking

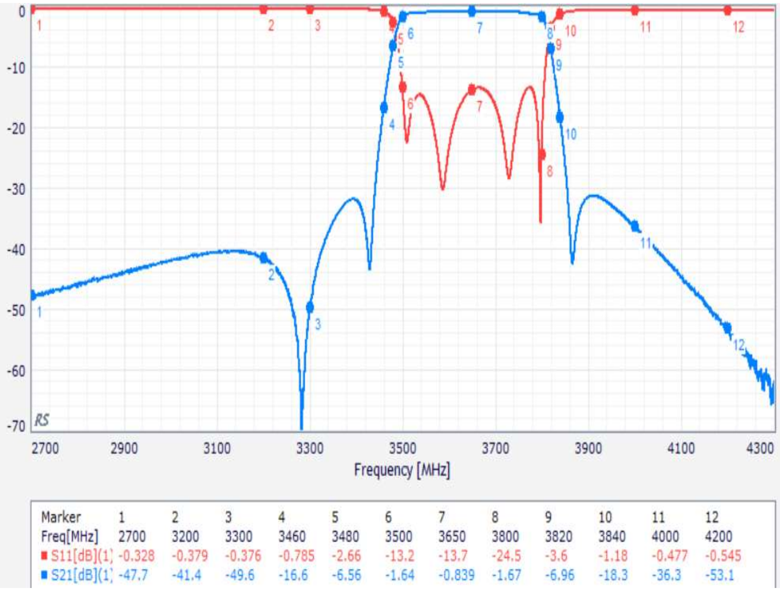
CTS
65B
YWW

Customer Feed Direction → → →



W_o	A_o	B_o	K_o	P_o
1.732 in 44.0 mm	0.209 in 5.30 mm	1.028 in 26.10 mm	0.283 in 7.20 mm	0.472 in 12.0 mm

Electrical Response



Marker	1	2	3	4	5	6	7	8	9	10	11	12
Freq[MHz]	2700	3200	3300	3460	3480	3500	3650	3800	3820	3840	4000	4200
🟥 S11[dB](1	-0.328	-0.379	-0.376	-0.785	-2.66	-13.2	-13.7	-24.5	-3.6	-1.18	-0.477	-0.545
🟦 S21[dB](1	-47.7	-41.4	-49.6	-16.6	-6.56	-1.64	-0.839	-1.67	-6.96	-18.3	-36.3	-53.1