

BC141: Bidirectional Coupler 2.45 GHz for 7-16 Coaxial Line

General Description

BC141 (Fig. 1) is a dual directional (bidirectional) coupler intended for simultaneous sampling of the powers of both incident and reflected waves in high-power 2.45 GHz industrial applications using the main coaxial line with 7-16 DIN connectors.

The coupling mechanism involves two probes (antennas) inserted into the main transmission line, outputs of which are appropriately combined and distributed to the two output connectors.

The coupler integrates two attenuators to isolate the internal coupling structure from the coupled port loads, and to improve the coupled port match.

The coupling factor is -50 dB, allowing the maximal main line input power 2 kW.



Fig. 1. Bidirectional coupler BC141.

Specifications

Frequency range	2425 – 2475 MHz
Main line characteristic impedance	50 Ω
Main line connectors	7-16 DIN male – 7-16 DIN female
Coupling factor/Max input power	-50 dB / 2 kW
Coupling factor uncertainty limits (3- σ deviation)	± 1 dB
Directivity	25 dB min
Coupled ports characteristic impedance	50 Ω
Coupled ports connectors	BC141N: N-female (Nf) BC141S: SMA-female (SMAf)
Surface finish	E-CLPS 4600
Mass	420 g
Dimensions (L x W x H)	BC141N: 112.4 mm \times 60.7 mm \times 40 mm BC141S: 112.4 mm \times 49.5 mm \times 40 mm
Operating temperature range	-10 to +65 $^{\circ}$ C
Storage temperature range	-20 to +80 $^{\circ}$ C

Typical Coupling Factor and Directivity

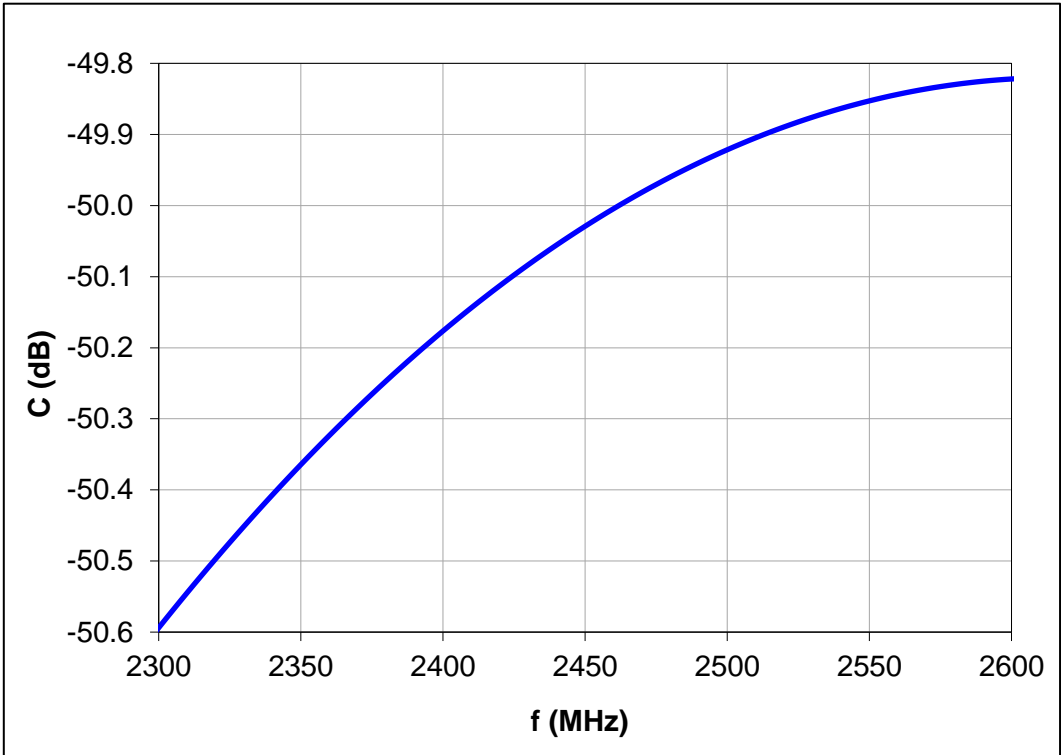


Fig. 2. Typical BC141 coupling factor (both directions).

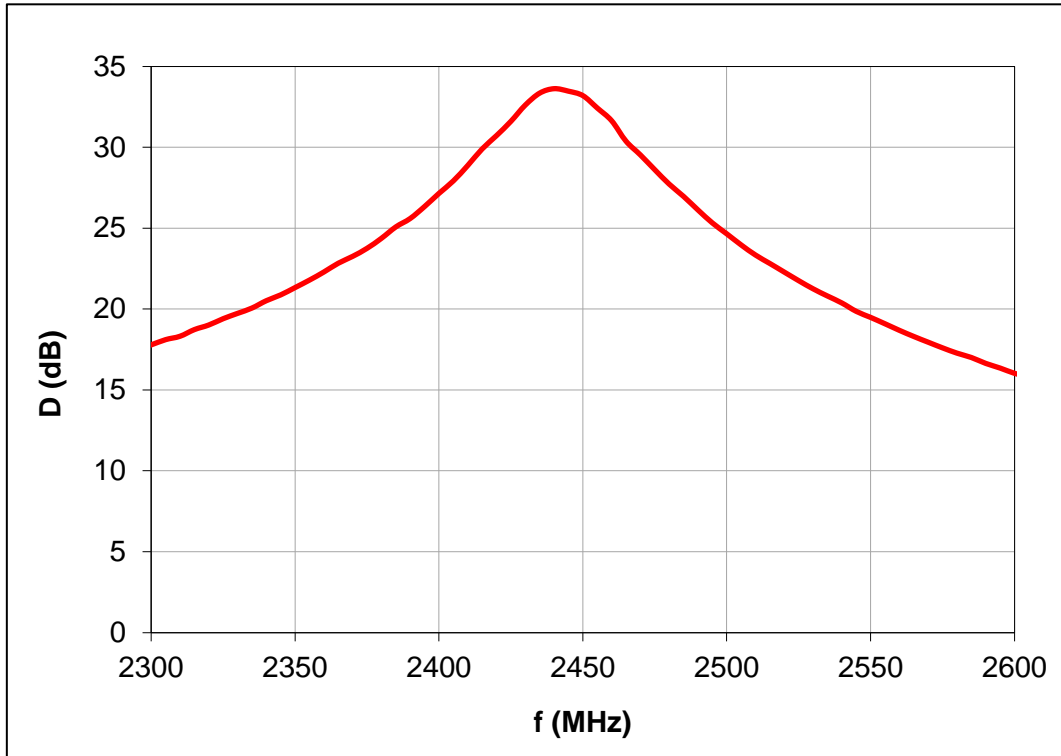


Fig. 3. Typical BC141 directivity (both directions).

Dimensional Drawings

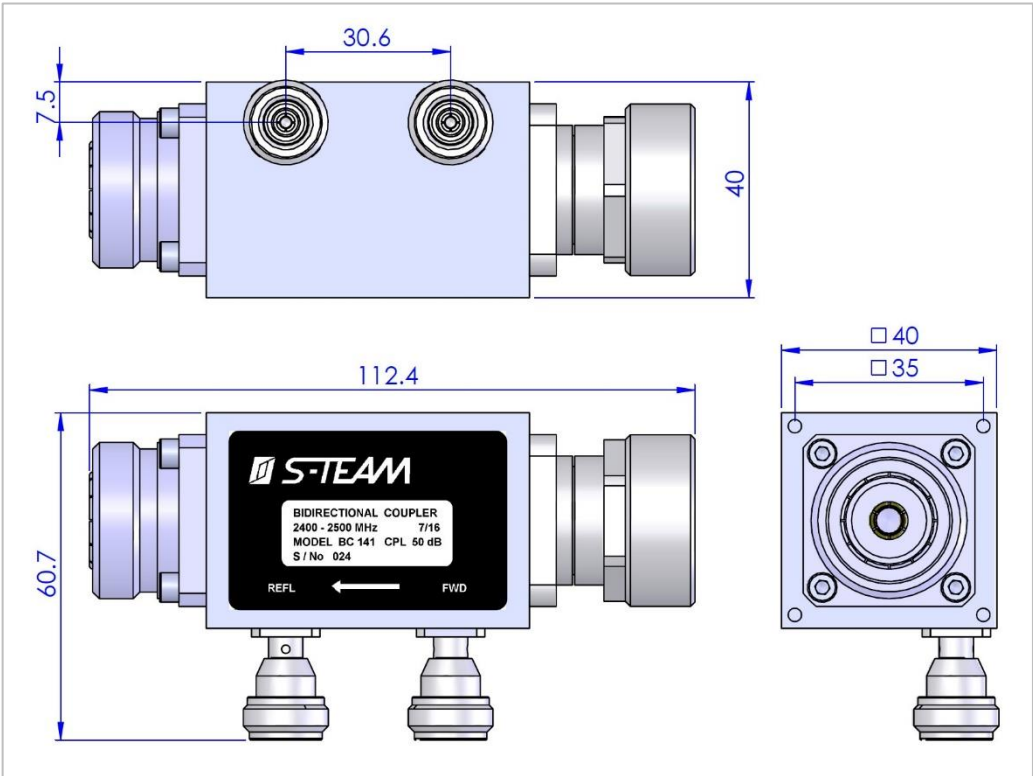


Fig. 4. Basic BC141N dimensions in millimeters.

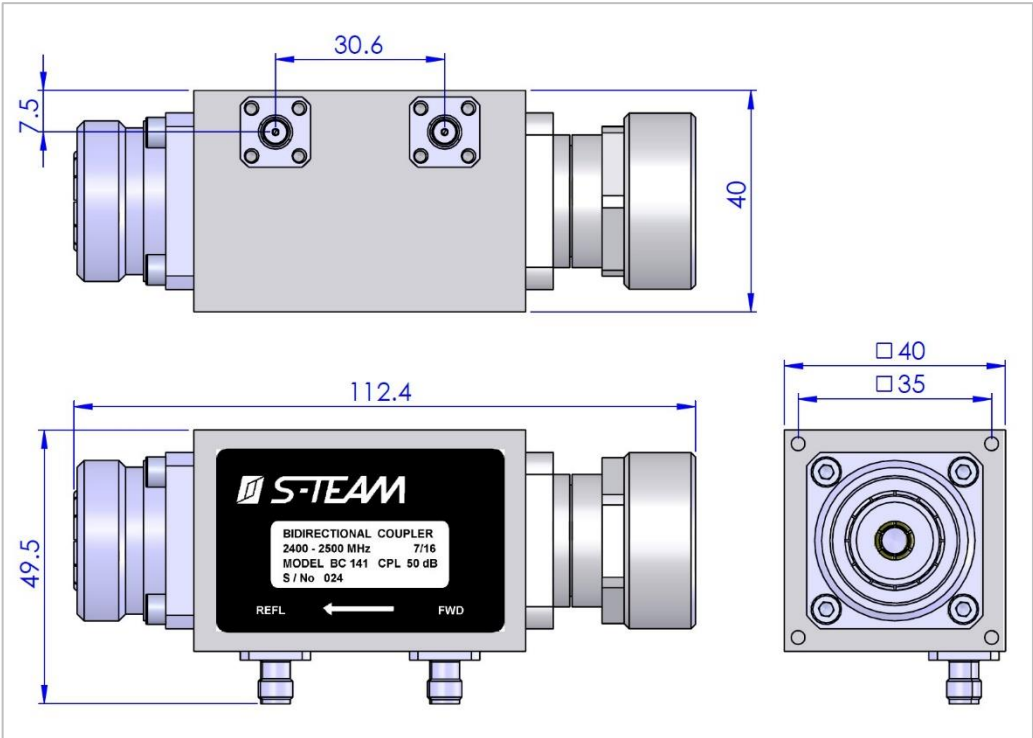


Fig. 5. Basic BC141S dimensions in millimeters.