DATA SHEET

SKYFR-001705: 4400 to 5000 MHz Single-Junction Robust Lead Circulator

Applications

- Wireless infrastructure
- Power amplifiers

Features

- Very small surface-mount package
- Operating frequency range: 4400 MHz to 5000 MHz
- BeO free
- RoHS compliant
- Parts delivered on tape and reel

Skyworks Green™ products are compliant with all applicable legislation and are halogen-free. For additional information, refer to *Skyworks Definition of Green™*, document number SQ04-0074.

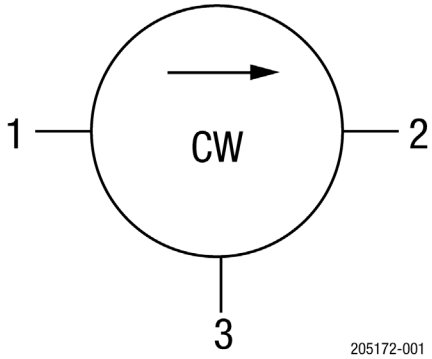
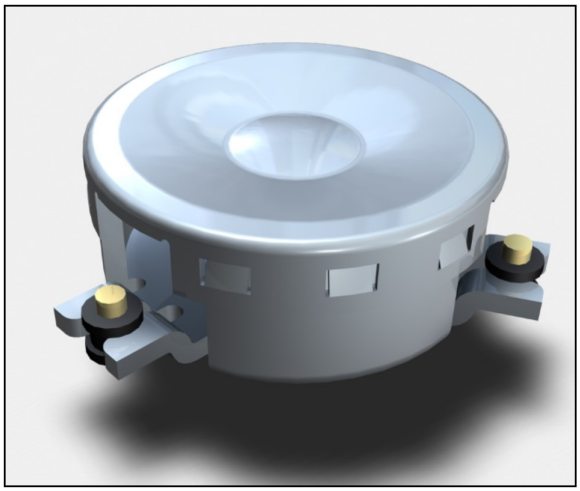


Figure 1. SKYFR-001705 Block Diagram



Description

The SKYFR-001705 is a single-junction, surface-mount circulator designed for wireless infrastructure and power-amplifier applications. It operates over the frequency range of 4400 MHz to 5000 MHz with an operating temperature range of -40 °C to +100 °C.

The SKYFR-001705 comes in an industry-standard surface-mount package and is designed for automated SMT placement.

A block diagram of the SKYFR-001705 is shown in Figure 1.

For tape and reel information, refer to the *Tape and Reel Guidelines for Isolators and Circulators* Application Note.

Electrical and Mechanical Specifications

The absolute maximum ratings of the SKYFR-001705 are provided in Table 1. Electrical specifications are provided in Table 2.

Plating information is shown in Table 3. Figure 2 shows the package dimensions and PCB footprint information.

Table 1. SKYFR-001705 Absolute Maximum Ratings[1]

Parameter	Symbol	Minimum	Maximum	Units
Average power	P_{AVG}		50	W
Peak power	P_{PK}		200	W
Operating temperature	T_{OP}	-40	+100	°C
Storage temperature	T_{STOR}	-55	+125	°C

1 Exposure to maximum rating conditions for extended periods may reduce device reliability. There is no damage to device with only one parameter set at the limit and all other parameters set at or below their nominal value. Exceeding any of the limits listed here may result in permanent damage to the device.

Table 2. SKYFR-001705 Electrical Specifications[1,2,3]

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Frequency range	f		4400		5000	MHz
Impedance				50		Ω
Input impedance, real			44		56	Ω
Input impedance, imaginary			-7.5		7.5	jΩ
Insertion loss	IL				0.35	dB
Isolation	ISO		21			dB
Harmonic attenuation, 2nd			5			dB
Harmonic attenuation, 3rd			4			dB
Return loss	RL		21			dB
Group delay					2.0	ns
Out of band resonance frequency		>500 MHz away from inband	<4400		>5000	MHz
Intermodulation distortion[4]	IMD	2 x 20 W CW tones, 1 MHz spacing	60			dBc

1 Performance is guaranteed under the conditions listed in this table and over the operating temperature range.

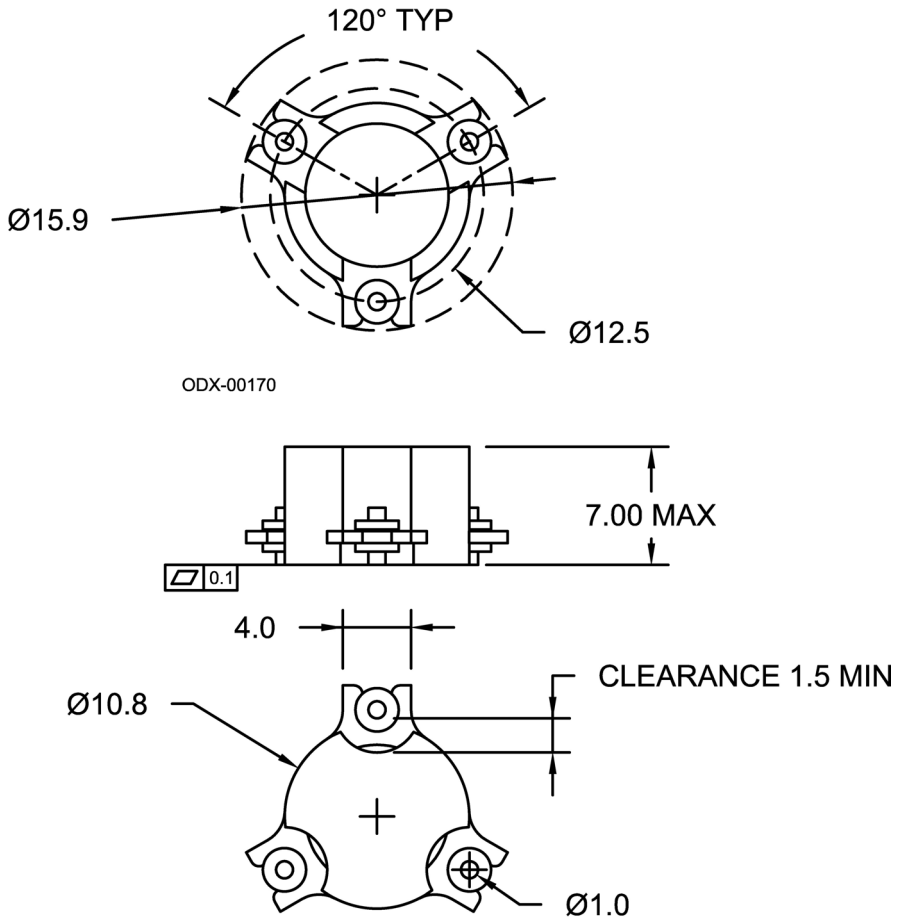
2 Performance will not degrade by > 10% with an operating temperature of up to 110°C.

3 Tested on PCB-00243, 0.508 mm Rogers RO4350B, trace width 1.05 mm wide, 2 oz copper.

4 See Skyworks Application Note, *Intermodulation Distortion Measurements of Ferrites*, document number 201537 for further details.

Table 3. SKYFR-001705 Plating Specification

Section	Base Material	Plating
Pins	Brass	Silver
Housing	Steel	Silver



Notes:

1. *All dimensions in millimeters.*
2. *Tolerance: ±0.2mm unless otherwise specified.*
3. *Coplanarity specification: 0.1mm maximum.*
4. *Model number, lot code, and port designation are printed on the top side of device.*

Figure 2. SKYFR-001705 Package Dimensions and PCB Footprint

Ordering Information

Part Number	Product Description	Evaluation Board Part Number
SKYFR-001705	4400 to 5000 MHz Single-Junction Robust Lead Circulator	TFX-00267