DATA SHEET

SKYFR-001505: 1880 to 2025 MHz Single-Junction Robust Lead Circulator

Applications

- Wireless infrastructure
- Power amplifiers

Features

- Very small surface-mount package
- Operating frequency range: 1880 MHz to 2025 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.

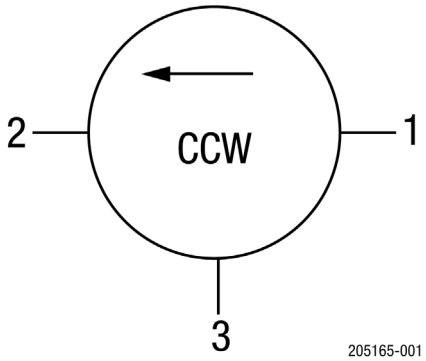
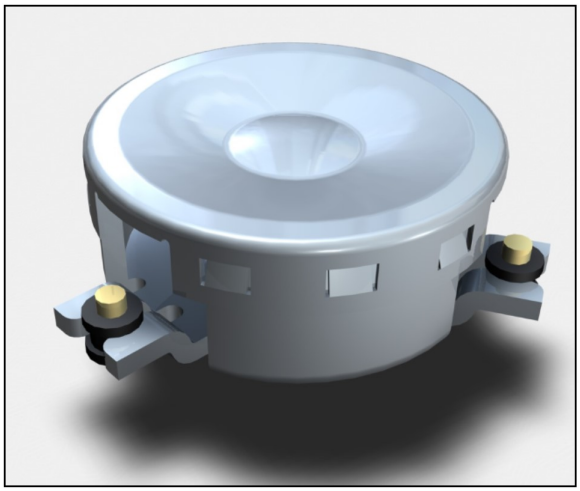


Figure 1. SKYFR-001505 Block Diagram



Description

The SKYFR-001505 is a single-junction, surface-mount circulator designed for wireless infrastructure and power-amplifier applications. It operates over the frequency range of 1880 MHz to 2025 MHz with an operating temperature range of -40 °C to +105 °C.

The SKYFR-001505 comes in an industry-standard surface-mount package and is designed for automated SMT placement.

A block diagram of the SKYFR-001505 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-001505 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-001505 Absolute Maximum Ratings[1]

Parameter	Symbol	Minimum	Maximum	Units
Average power	P_{AVG}		70	W
Peak power	P_{PK}		500	W
Operating temperature	T_{OP}	-40	+105	°C
Storage temperature	T_{STOR}	-55	+150	°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-001505 Electrical Specifications[1]

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Frequency range	f		1880		2025	MHz
Impedance				50		Ω
Input impedance, real			45.5	50	54.5	Ω
Input impedance, imaginary			-4.5		+4.5	Ω
Insertion loss[2]	IL				0.30	dB
Isolation[2]	ISO		21			dB
Isolation[2]	ISO	1730 to 2175 MHz	15			dB
Return loss[2]	RL		22			dB
Group delay					2.0	ns
2nd harmonic attenuation			15			dB
3rd harmonic attenuation			5			dB
Out-of-band resonance point			>300			MHz
Intermodulation distortion[3]	IMD	2 x 20 W CW tones, 1 MHz spacing, -40 °C to +110 °C	60			dBc

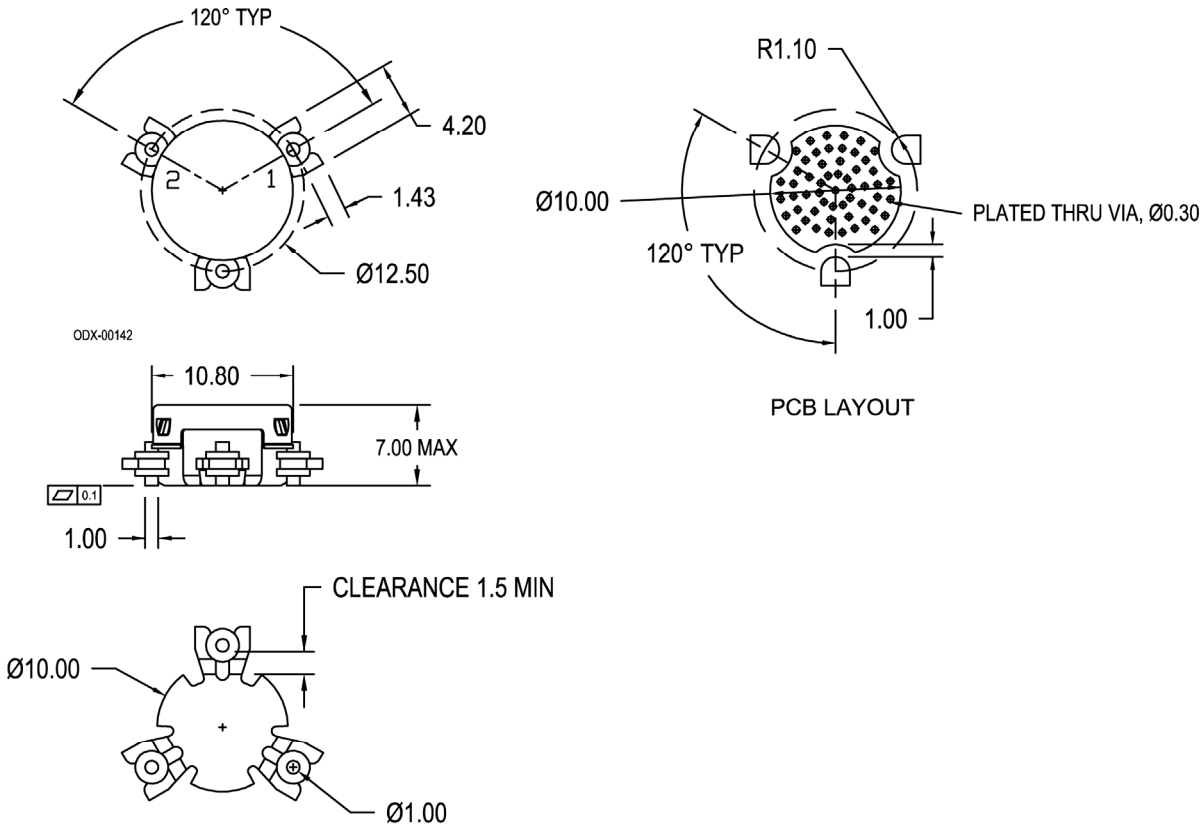
1 Performance is guaranteed under the conditions listed in this table and over the operating temperature range.

2 Return Loss and Isolation performance will not degrade by >10% at operating temperature up to +130 °C. Insertion loss will not degrade by >20% up to +130 °C.

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

Table 3. SKYFR-001505 Plating Specification

Section	Base Material	Plating
Pins	Brass	Silver
Housing	Steel	Silver



Notes:

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

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Figure 2. SKYFR-001505 Package Dimensions and PCB Footprint

Ordering Information

Part Number	Product Description	Evaluation Board Part Number
SKYFR-001505	1880 to 2025 MHz Single-Junction Robust Lead Circulator	TFX-00237