

**DATA SHEET**

# SKYFR-001822: 3300 to 3800 MHz Single-Junction Robust Lead Circulator

## Applications

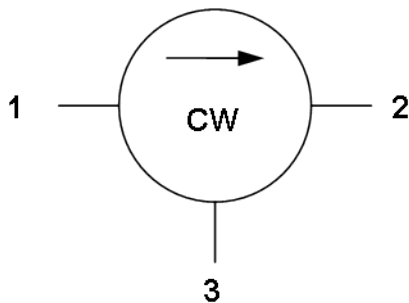
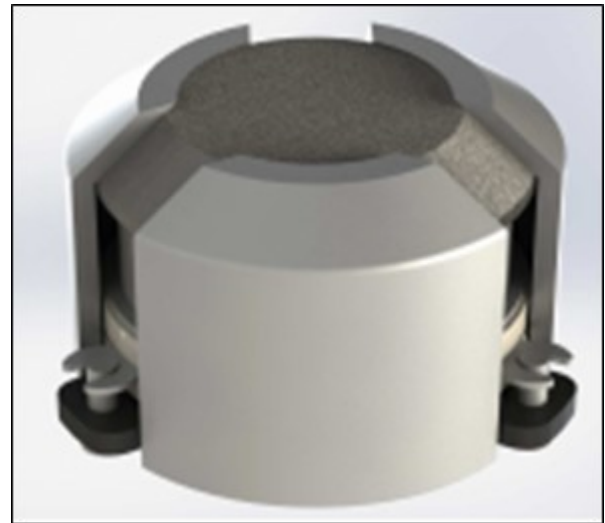
- Wireless infrastructure
- Power amplifiers

## Features

- Small surface-mount package
- Operating frequency range: 3300 MHz to 3800 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-001822 Block Diagram**

## Description

The SKYFR-001822 is a single-junction, surface-mount circulator designed for wireless infrastructure and power-amplifier applications. It operates over the frequency range of 3300 MHz to 3800 MHz with an operating temperature range of -40 °C to +105 °C.

The SKYFR-001822 comes in an industry-standard surface-mount package and is designed for automated SMT placement.

A block diagram of the SKYFR-001822 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-001822 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-001822 Absolute Maximum Ratings<sup>1</sup>**

Parameter	Symbol	Minimum	Maximum	Units
Average power (FWD & REV)	P <sub>AVG</sub>		20	W
Peak power	P <sub>PK</sub>		100	W
Operating temperature <sup>2</sup>	T <sub>OP</sub>	-40	+105	°C
Storage temperature	T <sub>STOR</sub>	-55	+150	°C

<sup>1</sup> 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-001822 Electrical Specifications<sup>1</sup>**

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Frequency range	f		3300		3800	MHz
Impedance				50		Ω
Input Impedance, Real			40		62	Ω
Input Impedance, Imaginary			-j8		+j8	jΩ
Return loss	RL	3.3GHz-3.8GHz	16			dB
Return loss	RL	3.4GHz-3.6GHz	19			dB
Insertion loss	IL	3.3GHz-3.8GHz			0.50	dB
Insertion loss	IL	3.4GHz-3.6GHz			0.35	dB
Isolation	ISO	3.3GHz-3.8GHz	16			dB
Isolation	ISO	3.4GHz-3.6GHz	19			dB
Out of band resonance			3000		4100	Mhz
Intermodulation distortion (Note 2)	IM3	2 x 10W tones, 1MHz spacing	60			dBc
Attenuation		2 x Tx	10			dB
		3 x Tx	5			dB
Group Delay					2.0	nS

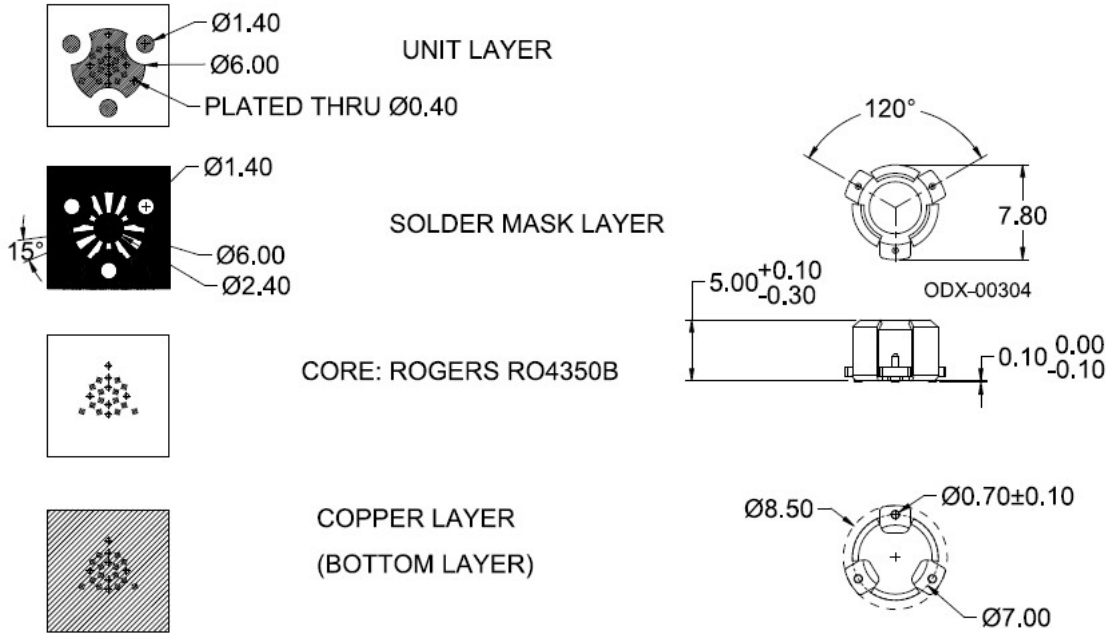
<sup>1</sup> Performance is guaranteed under the conditions listed in this table and over the operating temperature range.

<sup>2</sup> See Skyworks Application Note, *Intermodulation Distortion Measurements of Ferrites*, document number 201537 for further details.

<sup>3</sup> Part tested on 0.508mm Rogers RO4350B, trace width 1.07mm wide, 1oz copper.

**Table 3. SKYFR-001822 Plating Specification**

Section	Base Material	Plating
Pins	Brass	Silver
Housing	Steel	Silver



Notes:

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

Figure 2. SKYFR-001822 Package Dimensions

## Ordering Information

Part Number	Product Description	Evaluation Board Part Number
SKYFR-001822	3300 to 3800 MHz Single-Junction Robust Lead Circulator	PCB-00284

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