

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.

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.

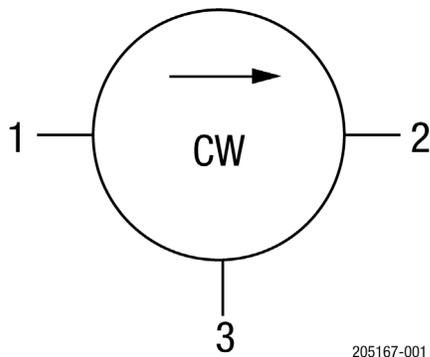


Figure 1. SKYFR-001822 Block Diagram

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 Ratings¹

Parameter	Symbol	Minimum	Maximum	Units
Average power (forward and reverse)	P_{AVG}		20	W
Peak power	P_{PK}		100	W
Operating temperature ²	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-001822 Electrical Specifications^{1, 3}

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	$j\Omega$
Return loss	RL	3.3 GHz to 3.8 GHz	16			dB
Return loss	RL	3.4 GHz to 3.6 GHz	19			dB
Insertion loss	IL	3.3 GHz to 3.8 GHz			0.50	dB
Insertion loss	IL	3.4 GHz to 3.6 GHz			0.35	dB
Isolation	ISO	3.3 GHz to 3.8 GHz	16			dB
Isolation	ISO	3.4 GHz to 3.6 GHz	19			dB
Out-of-band resonance			3000		4100	MHz
Intermodulation distortion ²	IMD	2 x 5W tones, 5 MHz spacing	55			dBc
Attenuation		2 x Tx	10			dB
		3 x Tx	5			dB
Group delay					2.0	nS

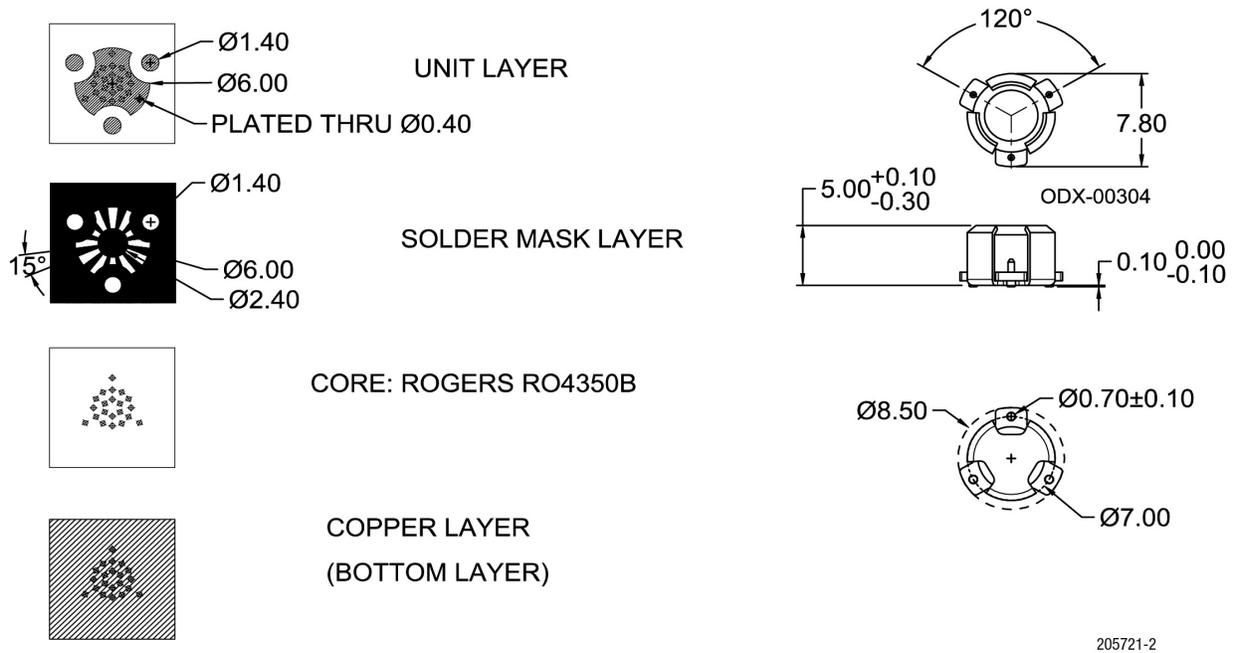
¹ Performance is guaranteed under the conditions listed in this table and over the operating temperature range.

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

³ Part tested on 0.508 mm Rogers R04350B, trace width 1.07 mm 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: ± 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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