

DATA SHEET

SKYFR-002153: 1805 to 1880 MHz Single-Junction Robust Lead Circulator

Applications

- Wireless infrastructure
- Power amplifiers

Features

- Small surface-mount package
- Operating frequency range: 1805 MHz to 1880 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-002153 is a single-junction, surface-mount circulator designed for wireless infrastructure and power-amplifier applications. It operates over the frequency range of 1805 MHz to 1880 MHz with an operating temperature range of -40 °C to +105 °C.

The SKYFR-002153 comes in an industry-standard surface-mount package and is designed for automated SMT placement.

A block diagram of the SKYFR-002153 is shown in Figure 1.

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

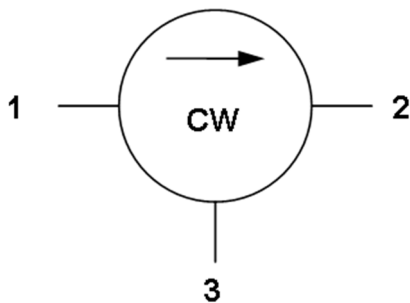


Figure 1. SKYFR-002153 Block Diagram

Electrical and Mechanical Specifications

The absolute maximum ratings of the SKYFR-002153 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-002153 Absolute Maximum Ratings¹

Parameter	Symbol	Minimum	Maximum	Units
Average power (FWD & REV)	P _{AVG}		20	W
Peak power	P _{PK}		100	W
Operating temperature ²	T _{OP}	-40	+105	°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-002153 Electrical Specifications¹

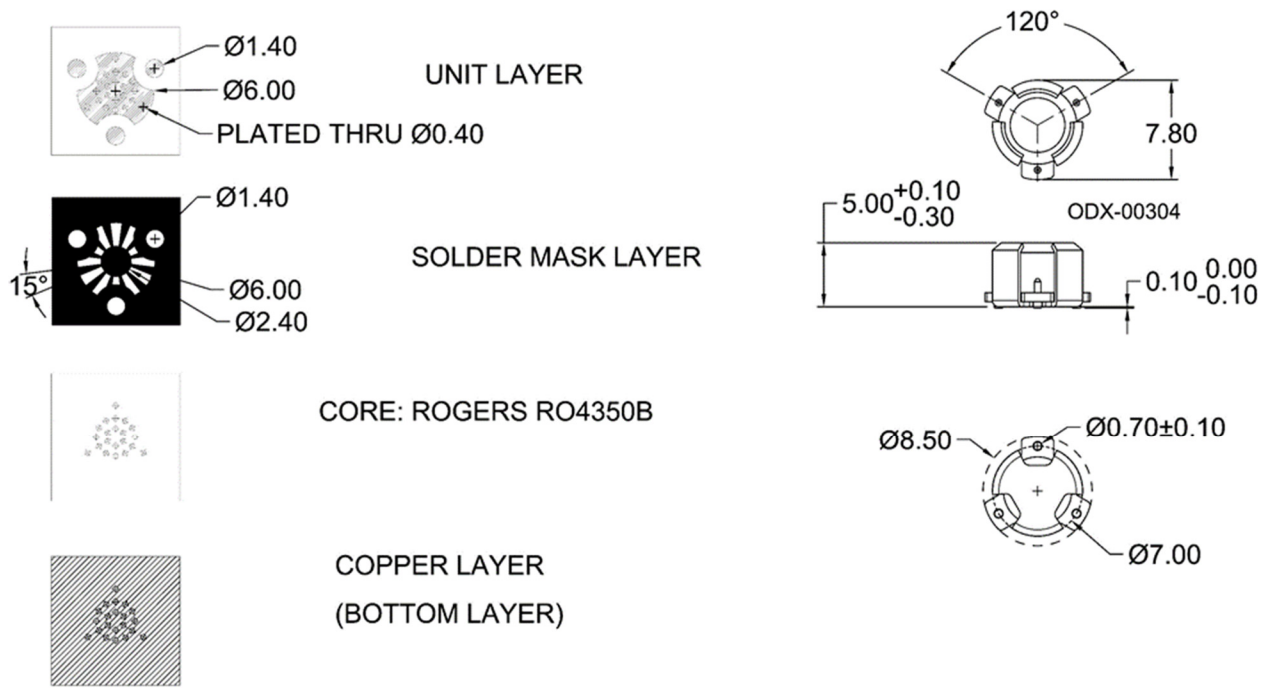
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Frequency range	f		1805		1880	MHz
Impedance				50		Ω
Insertion loss	IL			0.3	0.45	dB
Isolation	ISO			20		dB
Isolation @ -40 °C	ISO			18		dB
Return Loss	RL			20		dB
Return Loss @ -40 °C	RL			18		dB
Attenuation		2 x Tx	15			dB
		3 x Tx	10			dB
		n x Tx	5			dB
Intermodulation distortion (Note 2)	IM3	2 x 5 W tones, 1 MHz spacing		55		dBc
Group Delay			0.4		2.0	nS

¹ See Skyworks Application Note, *Intermodulation Distortion Measurements of Ferrites*, document number 201537 for further details.

² Part tested on 0.508 mm Rogers R04350B, trace width 1.07 mm wide, 1 oz copper.

Table 3. SKYFR-002153 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-002153 Package Dimensions

Ordering Information

Part Number	Product Description	Evaluation Board Part Number
SKYFR-002153	1805 to 1880 MHz Single-Junction Robust Lead Circulator	Pcb-00284

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