DATA SHEET

SKYFR-001746: 3400 to 3800 MHz Single-Junction Robust Lead Circulator

Applications

- Wireless infrastructure
- Power amplifiers

Features

- Small surface-mount package
- Operating frequency range: 3400 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.

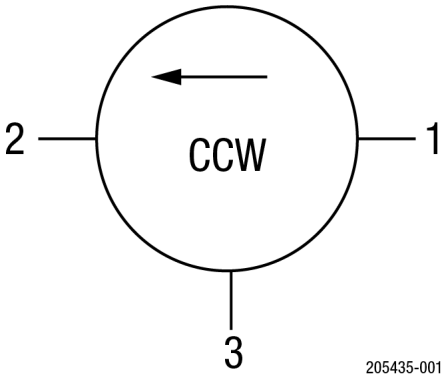

Figure 1. SKYFR-001746 Block Diagram

Figure 2. SKYFR-001746 Circulator

Description

The SKYFR-001746 is a single-junction, surface-mount circulator designed for wireless infrastructure and power-amplifier applications. It operates over the frequency range of 3400 MHz to 3800 MHz with an operating temperature range of -40 °C to +110 °C.

The SKYFR-001746 comes in an industry-standard surface-mount package and is designed for automated SMT placement.

A block diagram of the SKYFR-001746 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-001746 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-001746 Absolute Maximum Ratings[1]

Parameter	Symbol	Minimum	Maximum	Units
Average power	P_{AVG}		20	W
Peak power	P_{PK}		160	W
Operating temperature[2]	T_{OP}	-40	+110	°C
Storage temperature	T_{STOR}	-65	+155	°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.

[2] The power rating and reliability of the device will not degrade with an operating temperature of up to +130° C. Exceeding any of the other limits listed here may result in permanent damage to the device or may reduce device reliability.

Table 2: SKYFR-001746 Electrical Specifications[1]

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Frequency range	f		3400		3800	MHz
Impedance				50		Ω
Input impedance, real		@ 3400 MHz	48	51	54	Ω
Input impedance, imaginary		@ 3400 MHz	-6	-3	0	jΩ
Input impedance, real		@ 3600 MHz	43	46	49	jΩ
Input impedance, imaginary		@ 3600 MHz	-1	2	5	Ω
Input impedance, real		@ 3800 MHz	42.5	45.5	48.5	Ω
Input impedance, imaginary		@ 3800 MHz	0	3	6	jΩ
Insertion loss	IL				0.30	dB
Insertion loss	IL	25 °C			0.25	dB
Isolation	ISO		20			dB
Isolation	ISO	3200 MHz to 4000 MHz	16			dB
Return loss	RL		22			dB
Intermodulation distortion[2]	IMD	2 x 5W CW tones, 5 MHz spacing	60			dBc
Group delay					2.0	ns
2nd harmonic			10			dBc
3rd harmonic			5			dBc
Out of band resonance point			3200		4000	MHz

[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] Performance will not degrade by > 10% (Insertion loss >20%) with an operating temperature of up to 130°C.

Table 3: SKYFR-001746 Plating Specification

Section	Base Material	Plating
Pins	Brass	Silver
Housing	Steel	Silver

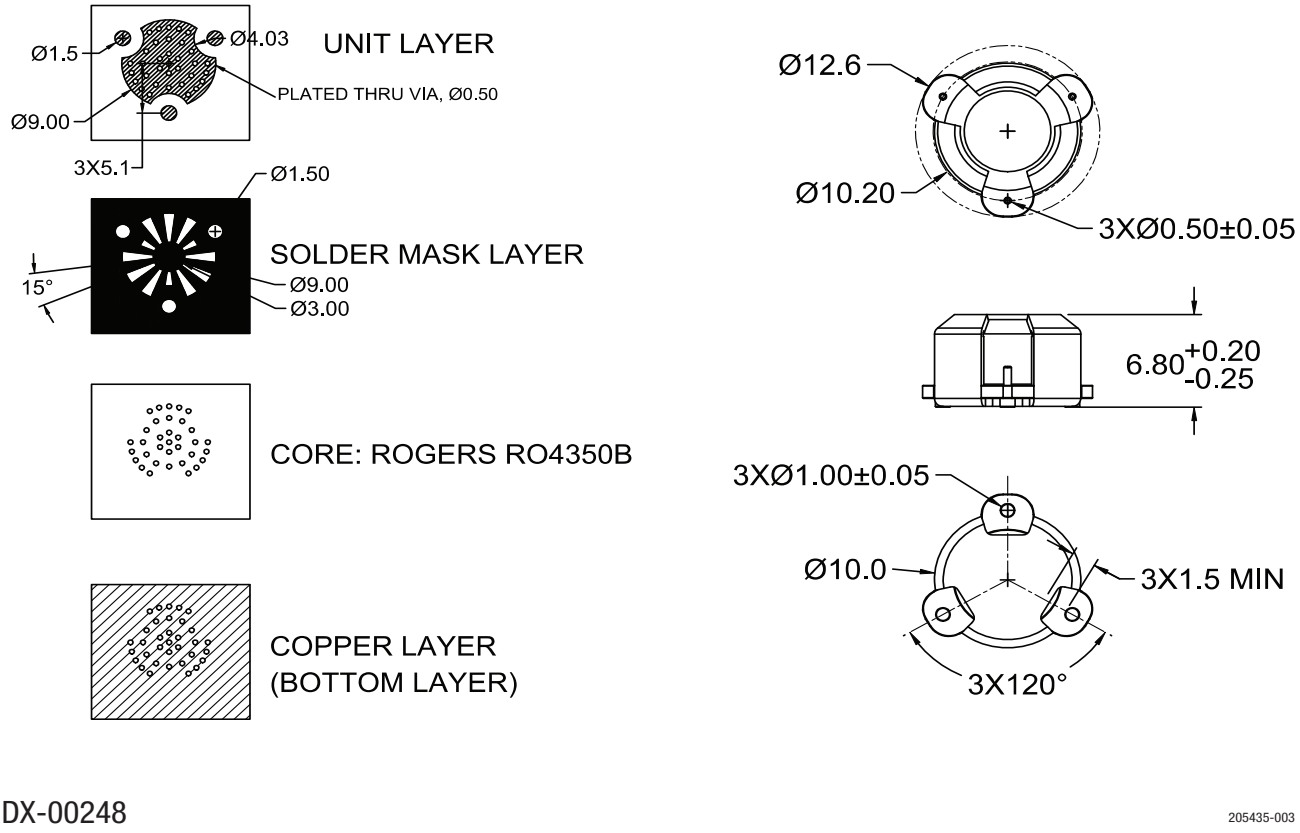

Figure 3. SKYFR-001746 Package Dimensions and PCB Footprint

Ordering Information

Part Number	Part Description	Evaluation Board Part Number
SKYFR-001746	3400 to 3800 MHz Single-Junction Robust Lead Circulator	TFX-00294 / PCB-00263