

DATA SHEET

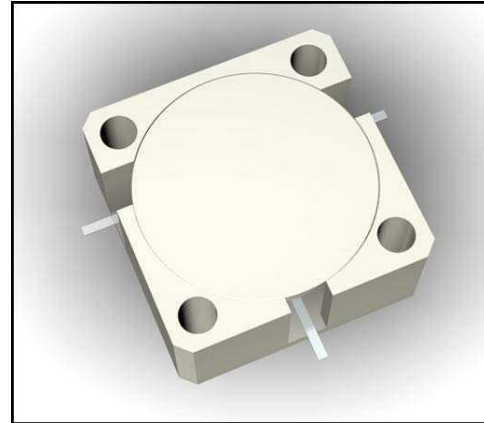
# MAFR-000650-000001: 1930-1995 MHz Single Junction Drop-In Circulator

## Applications

- Wireless infrastructure

## Features

- BeO free
- Operating frequency range: 1930 MHz to 1995 MHz
- Insertion loss: 0.20 dB
- Isolation: 23 dB
- Return loss: 23 dB
- IMD3 (2 × 65 W CW tones, 1 MHz spacing):  
–80 dBc



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 MAFR-000650-000001 is a single-junction circulator designed for wireless infrastructure applications. It operates over the frequency range of 1930 MHz to 1995 MHz. Third Order Intermodulation Distortion (IMD3) is an excellent –80 dBc (2 × 65 W CW tones, 1 MHz spacing). Insertion loss is less than 0.25 dB over an operating temperature range of –40 °C to +90 °C.

The MAFR-000650-000001 comes in an industry-recognized package designed for drop-in assembly.

A block diagram of the MAFR-000650-000001 is shown in Figure 1. The absolute maximum ratings of the MAFR-000650-000001 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.

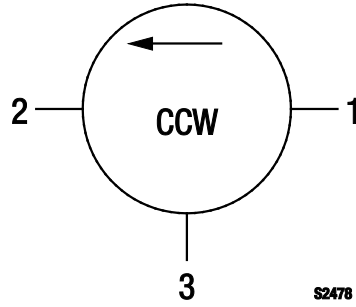


Figure 1. MAFR-000650-000001 Block Diagram

Table 1. MAFR-000650-000001 Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Average power	P <sub>AVG</sub>		250	W
Peak power	P <sub>PEAK</sub>		1200	W
Operating temperature	T <sub>OP</sub>	-40	+90	°C
Storage temperature	T <sub>ST</sub>	-55	+125	°C

**Note:** 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. MAFR-000650-000001 Electrical Specifications (Note 1)

(T<sub>OP</sub> = -40 °C to +90 °C)

Parameter	Symbol	Test Condition	Min	Typical	Max	Units
Frequency range	f		1930		1995	MHz
Impedance				50		Ω
Insertion loss	IL			0.20	0.30	dB
Isolation	Iso	1930-1995 MHz	20	23		dB
		1870-2055 MHz	18	20		dB
Return loss	RL		20	23		dB
Group delay					2	ns
3 <sup>rd</sup> Order Intermodulation Distortion (Note 2)	IMD3	2 x 65 W CW tones, 1 MHz spacing			-80	dBc

**Note 1:** Performance is guaranteed only under the conditions listed in this Table.

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

Table 3. MAFR-000650-000001 Plating

Section	Material	Plating
Leads	Copper	Silver
Housing	Steel	Silver



## Ordering Information

Model Name	Manufacturing Part Number	Evaluation Board Part Number
MAFR-000650-000001 Single Junction Drop-In Circulator	MAFR-000650-000001	MAFX-999999-000PPR

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