

DATA SHEET

MAFR-000663-000001: 1930-1995 MHz Single Junction Robust Lead Circulator

Applications

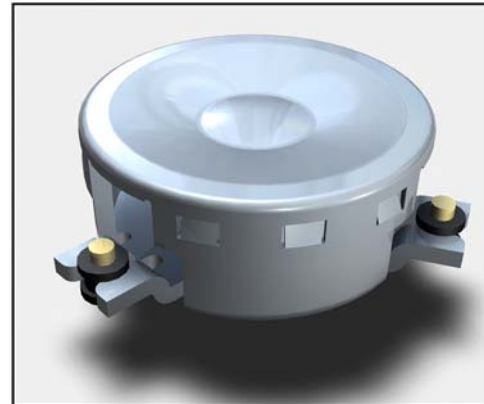
- Wireless infrastructure

Features

- BeO free
- Small, surface mount package
- Operating frequency range: 1930 MHz to 1995 MHz
- Insertion loss: 0.23 dB
- Isolation: 22 dB
- Return loss: 22 dB
- Shipped 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 MAFR-000663-000001 is a single-junction circulator designed for wireless infrastructure applications. It operates over the frequency range of 1930 MHz to 1995 MHz. Insertion loss is less than 0.23 dB over an operating temperature range of $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$.

The MAFR-000663-000001 comes in an industry-standard surface mount package and is designed for automated SMT placement.

A block diagram of the MAFR-000663-000001 is shown in Figure 1. The absolute maximum ratings of the MAFR-000663-000001 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 and recommended PCB footprint. Tape and reel dimensions are provided in Figure 3.

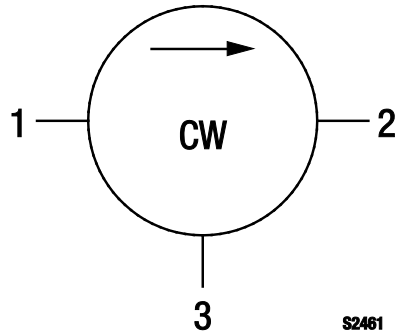


Figure 1. MAFR-000663-000001 Block Diagram

Table 1. MAFR-000663-000001 Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Average power	P _{AVG}		80	W
Peak power	P _{PEAK}		500	W
Operating temperature	T _{OP}	-40	+85	°C
Storage temperature	T _{ST}	-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-000663-000001 Electrical Specifications (Note 1)

(T_{OP} = -40 °C to +85 °C)

Parameter	Symbol	Test Condition	Min	Typical	Max	Units
Frequency range	f		1930		1995	MHz
Impedance				50		Ω
Insertion loss	IL			0.23	0.29	dB
Insertion loss	IL	@ 25 °C		0.20		dB
Isolation	Iso		20	22		dB
Return loss	RL		20	22		dB
3 rd Order Intermodulation Distortion (Note 2)	IMD3	2 x 25 W CW tones, 1 MHz spacing		-70	-65	dBc

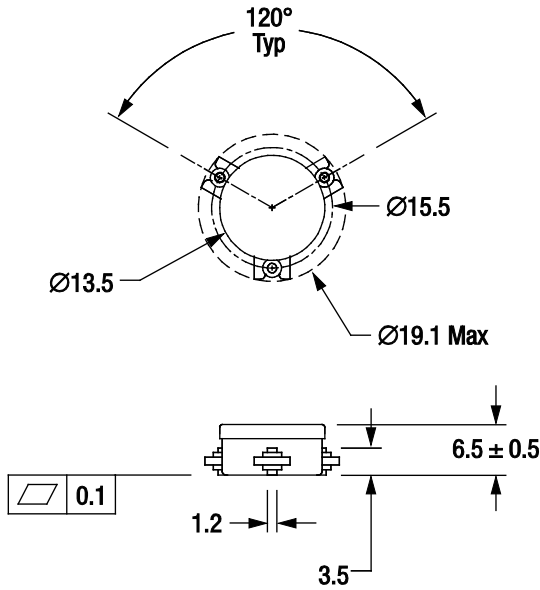
Note 1: Performance is guaranteed only under the conditions listed in this Table.

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

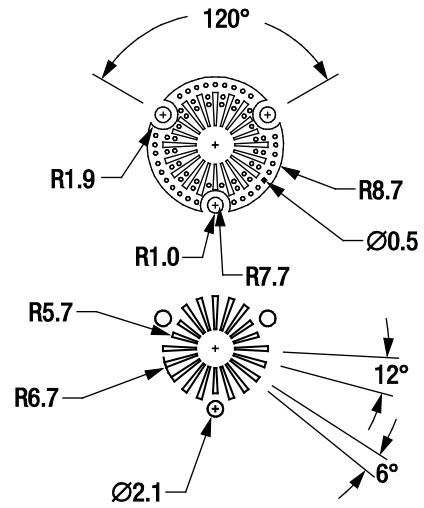
Table 3. MAFR-000663-000001 Plating

Section	Material	Plating
Leads	Bronze	Gold
Housing	Steel	Silver

Note: Nickel barrier underneath: 2.5 μm to 5.0 μm thick.



Package Dimensions

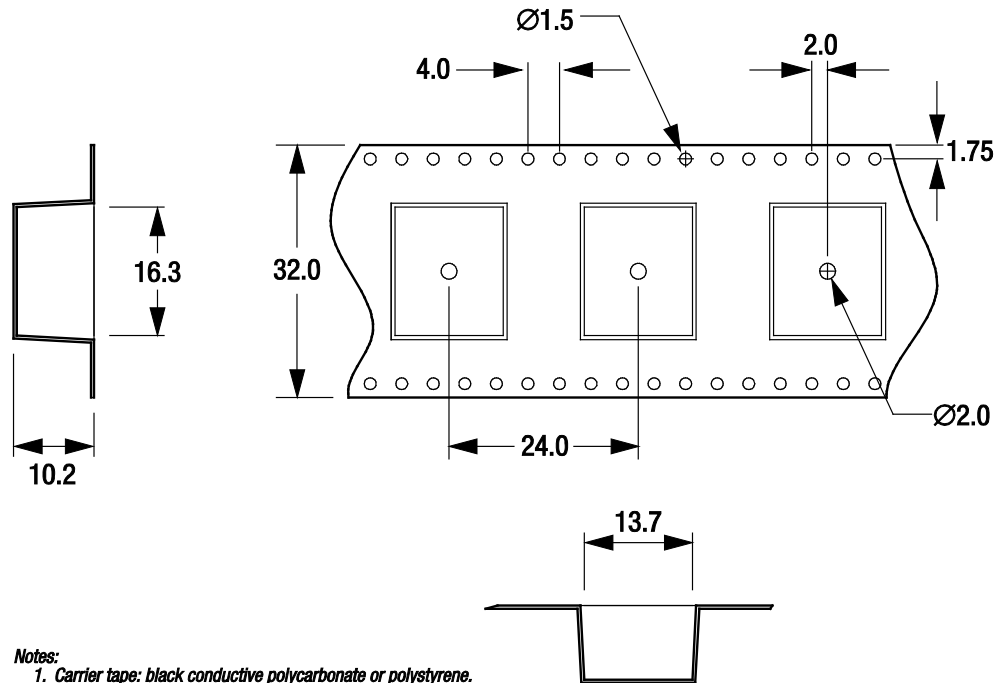


Recommended Footprint

All measurements are in millimeters.
 Tolerance: ± 0.2 mm unless otherwise noted.
 Flatness specification is 0.1 mm maximum.
 Model number, lot code, and port designation printed on top side of device.

S2462

Figure 2. MAFR-000663-000001 Package Dimensions and PCB Footprint



Notes:
 1. Carrier tape: black conductive polycarbonate or polystyrene.
 2. All measurements are in millimeters.

S2454

Figure 3. MAFR-000663-000001 Tape and Reel Dimensions

Ordering Information

Model Name	Manufacturing Part Number	Evaluation Board Part Number
MAFR-000663-000001 Single Junction Lead Circulator	MAFR-000663-000001	MAFX-000015-RL00FR

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