

# System Products

## Isolators/Circulators

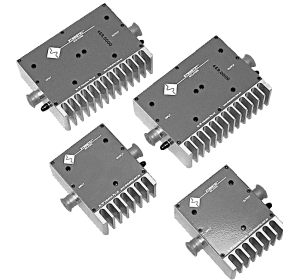


Circulators allow the directional control of signal paths between respective ports of the device. In particular configurations, with one port terminated with a dummy load, a Circulator is also known as an Isolator.

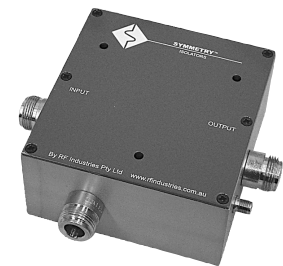
Two or more units may be cascaded in a design to enhance performance characteristics. Models are available for applications across the frequency range 50-2500MHz and beyond.

### Features:

- Isolating and protecting Transmitter Outputs from high VSWR
- Separating Transmit and Receive signal paths in Simplex Multicoupling Applications
- Controlling the direction of signal flow in some combining applications



Mounting Style - Isolators



Mounting Style - Circulators

A Circulator is typically a three port device that allows signals to flow between two adjacent ports, but in only one direction. This feature can be particularly useful in isolating signals from each other in particular applications.

When one port is terminated with a dummy load, a Circulator can be used to isolate a transmitter from reverse power created by a mismatched termination. In this application a Circulator is known as an Isolator, and prevents returned signals caused by the high VSWR from being returned to the transmitter power amplifier, where it can mix with other signals causing intermodulation products and possible interference.

Models are available in different frequency bands and with different power ratings to suit a variety of applications.

## Extra Reading

For some additional information on the use of Isolators and Circulators, please read the following Seminar Subjects papers - An Elementary Introduction to Ferrite Isolators, Circulators and RF Loads.

This document can be found on our web site, or contact us to organize a copy to be sent out to you.

Typical models are shown. Other models are available upon request. Please contact your nearest RFI Sales office for further details.

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## Isolators/Circulators



### Electrical

Model	Frequency Bands Coupled (MHz)	Typ. Loss (dB)	Typ. Isolation (dB)	Return Loss/ VSWR	Power Rating (W)	Impedance (Ohms)	Load Rating (W)
Single Circulators				<1.22:1	150		None fitted Note 1.
SP0608-3100-11	66-88	0.45	30				
SP1013-3100-11	108-136	0.30	35				
SP1317-3100-11	132-174	0.30	35				
SP2225-3100-11	220-250	0.30	35				
SP3337-3100-11	330-370	0.30	35				
SP3640-3100-11	360-400	0.30	35				
SP4044-3100-11	400-440	0.30	35				
SP4448-3100-11	440-480	0.30	35				
SP4852-3100-11	480-520	0.30	35				
SP5256-3100-11	520-560	0.30	35				
SP8287-3100-11	820-870	0.25	35				
SP8792-3100-11	870-920	0.25	35				
SP9296-3100-11	920-960	0.25	35				
Single Isolators					150	50	250
SP0608-3115-11	66-88	0.45	30				
SP1013-3115-11	108-136	0.30	35				
SP1317-3115-11	132-174	0.30	35				
SP2225-3105-11	220-250	0.30	35				
SP3336-3115-11	330-370	0.30	35				
SP3640-3115-11	360-400	0.30	35				
SP4044-3115-11	400-440	0.30	35				
SP4448-3115-11	440-480	0.30	35				
SP4852-3115-11	480-520	0.30	35				
SP5256-3115-11	520-560	0.30	35				
SP8287-3115-11	820-870	0.25	35				
SP8792-3115-11	870-920	0.25	35				
SP9296-3115-11	920-960	0.25	35				
Dual Isolators				150		250	
SP0608-3215-11	66-88	0.45	30				
SP0708-3215-11	77-88	0.60	70				
SP1113-3215-11	108-136	0.60	70				
SP1317-3215-11	132-174	0.60	70				
SP2225-3205-11	220-250	0.60	70				
SP3336-3215-11	330-370	0.60	70				
SP3640-3215-11	360-400	0.60	70				
SP4044-3215-11	400-440	0.60	70				
SP4448-3215-11	440-480	0.60	70				
SP4852-3215-11	480-520	0.60	70				
SP5256-3215-11	520-560	0.60	70				
SP8287-3215-11	820-870	0.50	70				
SP8792-3215-11	870-920	0.50	70				
SP9296-3215-11	920-960	0.50	70				

**Notes:**

- 150 watt rated isolator units are fitted with internal 250 watt termination(s). All other models fitted with external loads.
- Dual and Triple Circulators may be created by cascading multiple single models.

Please consult dedicated Product Briefs for detailed specifications.

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## Isolators/Circulators



### Mechanical

Model	Dimensions HxWxL approx (mm / inch)		Temp. Range	Weight (kg / lb)	Connectors
<b>Single Circulators</b>					
SP0608-3100-11	115 / 4.5	110 / 4.33	-40° to 70° C -40° to 160° F	0.98 / 2.15	"N" female (Input / Output)  SMA Female (Sampling Ports)
SP1113-3100-11					
SP1317-3100-11					
SP2225-3100-11					
SP3337-3100-11					
SP3640-3100-11					
SP4044-3100-11					
SP4448-3100-11					
SP4852-3100-11					
SP5256-3100-11					
SP8287-3100-11					
SP8792-3100-11					
SP9296-3100-11					
<b>Single Isolators</b>					
SP0608-3115-11	43 / 1.7		-40° to 70° C -40° to 160° F	0.98 / 2.15	"N" female (Input / Output)  SMA Female (Sampling Ports)
SP1113-3115-11					
SP1317-3115-11					
SP2225-3105-11					
SP3336-3115-11					
SP3640-3115-11					
SP4044-3115-11					
SP4448-3115-11					
SP4852-3115-11					
SP5256-3115-11					
SP8287-3115-11					
SP8792-3115-11					
SP9296-3115-11					
<b>Dual Isolators</b>					
SP0608-3215-11	176 / 6.93	110 / 4.33		1.65 / 3.63	
SP0708-3215-11					
SP1113-3215-11					
SP1317-3215-11					
SP2225-3205-11					
SP3336-3215-11					
SP3640-3215-11					
SP4044-3215-11					
SP4448-3215-11					
SP4852-3215-11					
SP5256-3215-11					
SP8287-3215-11					
SP8792-3215-11					
SP9296-3215-11					