

Miniature Triplexer

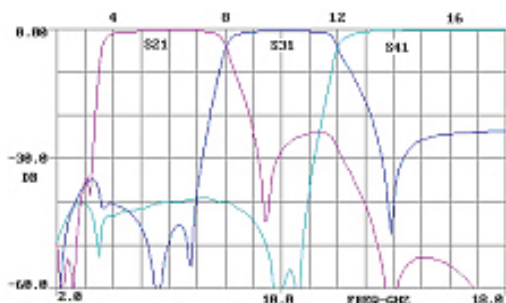
Frequency Range of 4 to 16 GHz

Crossovers at 8 and 12 GHz

Smaller Size

Lighter Weight

Improved Performance



SPECIFICATIONS

Frequency Range

Crossover Frequencies f_{CO}

Passbands

Channel 1 4-8 GHz

Channel 2 8-12 GHz

Channel 3 12-16 GHz

Passband Insertion Loss 0.5 dB

Crossover Insertion Loss 4.25 dB

Crossover Region $\pm 5\%$

Rejection

Channel 1 25 dB

Channel 2 25 dB

Channel 3 25 dB

VSWR 1.8:1 max.

Size (excluding pins) 1.25" L x 1.25" W" x 0.2 H"

Connectors Pins

Weight 0.5 oz.



DESCRIPTION With the ever-increasing demand for smaller size, lighter weight and improved performance filters and multiplexers used aboard UAV's, Microphase Corporation has developed a family of products operating in the frequency range of 500 MHz to 40 GHz to accommodate the need.

ADVANTAGES The Miniature Triplexer which operates over the frequency range of 4 to 16 GHz with crossovers at 8 and 12 GHz. Critical parameters to the performance of this product are minimal Insertion and Crossover Loss while maintaining 25 dB rejection in the absolutely smallest size and weight available.

The size of the unit excluding the pins is 1.25" long by 1.25" wide by 0.25" high. The Triplexer weighs only 0.5 ounces. The plot depicts the filter response of each channel at 10 dB per division making it hard to see the very low 0.5 dB pass band insertion loss and 4.25 dB crossover insertion loss desired for improved receiver sensitivity. You get excellent electrical performance, mechanical reliability and environmental stability. These units can be adapted for custom configurations. Compact and very rugged, all of our products are 100% tested, and readily available.

Multiplexers



587 Connecticut Avenue • Norwalk, CT 06854
T: (203) 866-8000 F: (203) 866-6727 • quote@microphase.com

These units can be designed to your specification. Please contact Microphase for your special design requirements.

Narrow Band Series Multiplexers

*Triplexer • Quadruplexer • Cavity Quadruplexer
Multi Design Triplexer*

Multiplexers



Comblin Quadraplexer



Multi Design Triplexer



Comblin Triplexer



Cavity Quadraplexer

Stable and Precise Crossover Frequencies

Narrow Crossover Regions

Ultra Small Size

Extended Stopband Performance

DESCRIPTION The Microphase Narrow Band Multiplexers come with a wide range of capabilities and options. These multiplexers have a passband frequency range from 1 to 26 GHz, 2 to 6 channels, channel bandwidths of up to one octave and rejection levels to 90 dB. These multiplexers maintain insertion loss as low as 0.5 dB, VSWR from 1.2:1 to 2.0:1 with a contiguous crossover region of +/-2% and crossover accuracy of +/-0.5%.

ADVANTAGES The Microphase designed and engineered Narrow Band Multiplexers have stable and precise crossover frequencies with narrow crossover regions, ultra small size and extended stopband performance. Other important advantages are their sharp selectivity, low insertion loss and VSWR, with the capability of contiguous or non-contiguous crossovers. You get excellent electrical performance, mechanical reliability and environmental stability. These compact units can be adapted for custom specifications. Lightweight and very rugged, all of our products are 100% tested and readily available.

SPECIFICATIONS

Passband Frequency Range	1 to 26 GHz
Number of Channels	2 to 6
Channel Bandwidths	Up to one octave
Rejection Levels	to 90 dB
VSWR	from 1.2:1 to 2.0:1
Insertion Loss	as low as 0.50 dB
Contiguous Crossover Region	± 2 %
Crossover Accuracy	± 0.5 %



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Quadruplexer

Dual Quadruplexer Phase and Amplitude Tracked

- EW Applications
- Extremely Small Size
- Low Insertion Loss
- Superior Tracking



Multiplexers

DESCRIPTION The Dual Quadruplexer is used to separate two independent 2 to 18 GHz signals into four sub-octave bands while maintaining phase and amplitude tracking.

ADVANTAGES The Microphase designed and engineered Dual Quadruplexer provides low insertion loss, harmonic rejection and superior phase and amplitude tracking in an extremely small sized package. You get excellent electrical performance, mechanical reliability and environmental stability. These units can be adapted for custom configurations. Compact and very rugged, all of our products are 100% tested, and readily available.

SPECIFICATIONS

Frequency Range	2.0 to 18.0 GHz
Crossover Frequencies f_{CO}	3.464, 6.000, 10.392 GHz \pm 0.5%
Passbands	
Channel 1	2 to 3.290 GHz
Channel 2	3.637 to 5.70 GHz
Channel 3	6.30 to 9.872 GHz
Channel 4	10.912 to 18.0 GHz
Passband Insertion Loss	0.8 dB max.
Crossover Insertion Loss	4.25 dB max.
Crossover Region	$f_{CO} \pm 5\%$
Population Amplitude Tracking	± 0.3 dB
Population Phase Tracking	$\pm 7.5^\circ$
Rejection	20 dB min. $\pm 15\%$ of f_{CO}
Channel 1	3.984 to 18.0 GHz
Channel 2	DC to 2.944, 6.9 to 18.0 GHz
Channel 3	DC to 5.1, 11.95 to 18.0 GHz
Channel 4	DC to 8.833 GHz
VSWR	2.0:1 max.
Size	2.50" Dia. x 0.31" thick



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Triplexer

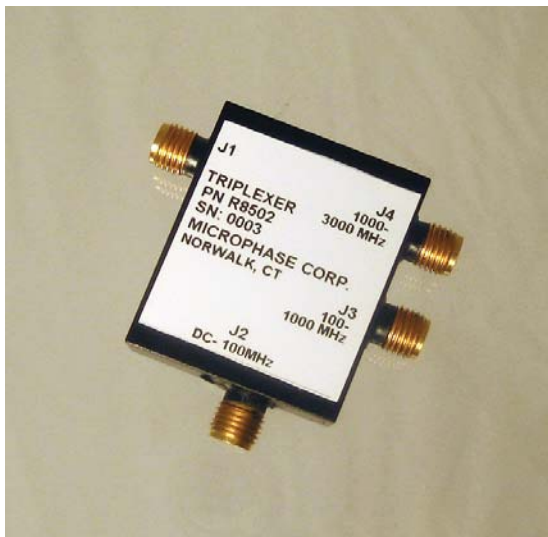
R8502

DC-3 GHz (Crossovers at 100 and 1000 MHz) Triplexer

Smaller Size

Lighter Weight

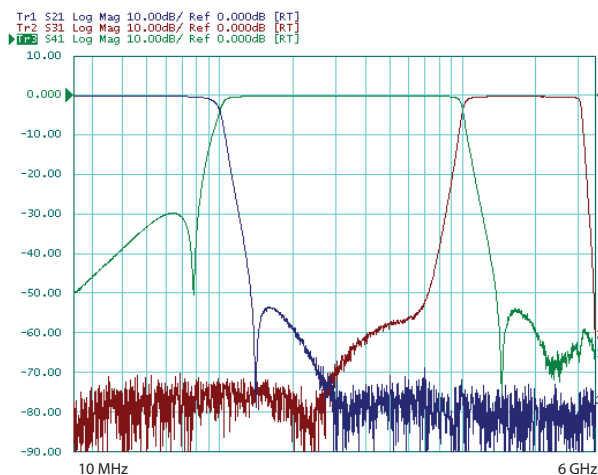
Improved Performance



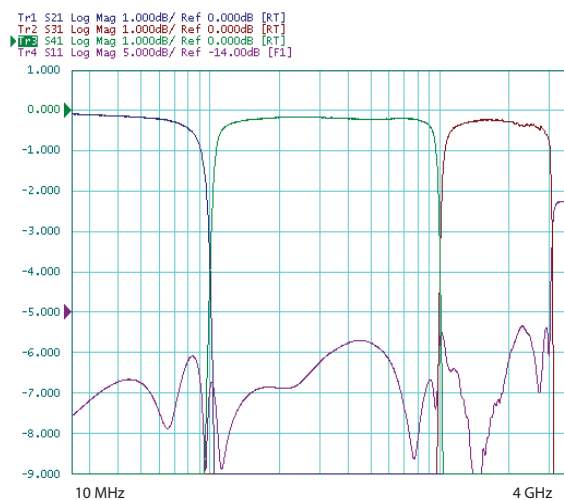
SPECIFICATIONS

Frequency Range	DC - 3GHz
Crossover Frequencies f_{CO}	
Passbands	
Channel 1	DC - 85 MHz
Channel 2	110 - 940 MHz
Channel 3	1070 - 3000 MHz
Passband Insertion Loss	1.0 dB max.
Crossover Insertion Loss	5.0 dB max. (4.0 dB typ.)
Rejection	
Channel 1	50 dB min. 140 - 3000 MHz
Channel 2	25 dB min. DC-60 MHz 50 dB min. 1400-3000 MHz
Channel 3	50 dB min. DC-700 MHz 50 dB min. 3500-7000 MHz
VSWR	1.5:1
Size (excluding connectors)	1.27" W x 1.05" L x 0.45" H
Connectors	SMA female

Triplexer - Rejection



Triplexer - Insertion Loss and Return Loss



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Multiplexers

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Wide Band Multiplexer

0.5 to 40.0 GHz Low Profile, 0.400" Package Height

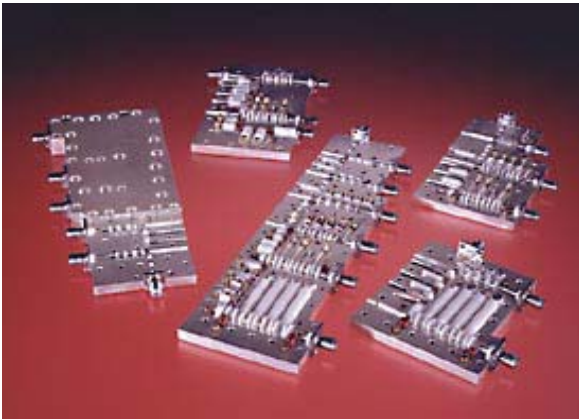
Superior Electrical Performance

Excellent Frequency Stability

Low Insertion Loss

Small Size

"Thin" Package Height



DESCRIPTION The Microphase low profile contiguous channel Wide Band Multiplexer Series is available over the frequency range of 0.5 to 40.0 GHz and offers a number of features. Compact and lightweight, all models are 0.400" high; yet product performance is not compromised.

ADVANTAGES Any combination of twelve standard crossover frequencies from 1 to 34 GHz may be selected to achieve broadband multiplexing as required. With this design flexibility multiplexing is easily achieved for the most popular EW bands from 0.5 to 40.0 GHz. Band edge rejection options are available and all units may be adapted for custom configurations.*

Microphase wide band multiplexers achieve excellent electrical performance, mechanical reliability and environmental stability. Compact and very rugged, all of our products are 100% tested and readily available. These components can be designed to your specifications.

Diplexers
Triplexers
Quadruplexers
Quintaplexers
Sextaplexers

*** Notes:**

- a.** Most multiplexing combinations are available. Some exceptions may apply, for example, when the channel bandwidths are extremely wide (greater than 18:1).
- b.** Whenever a highpass performance is not specified at the low band edge, the channel pass band extends to DC.
- c.** In units where the channel operates to 40.0 GHz, no band end rejection is available.
- d.** Rejection beyond 40 GHz is not provided.
- e.** All connectors are SMA female except in models that have 18-40 GHz channels in which case the common input and the high frequency channels are supplied with Type K female connectors.

Wide Band Multiplexer

These units can be designed to your specification. Please contact Microphase for your special design requirements.

Wide Band Multiplexer

Diplexers • Triplexers • Quadruplexers • Quintaplexers • Sextaplexers

PART NO. DESIGNATION

An alpha-numeric part number identifies the performance characteristics. Thirteen frequencies have been assigned, letters A-M, covering 0.5-40.0 GHz (see examples).

First two letters give the total operating band (low/high)

Second group of letters are crossover frequencies (in low-to-high order) offset by a dash.

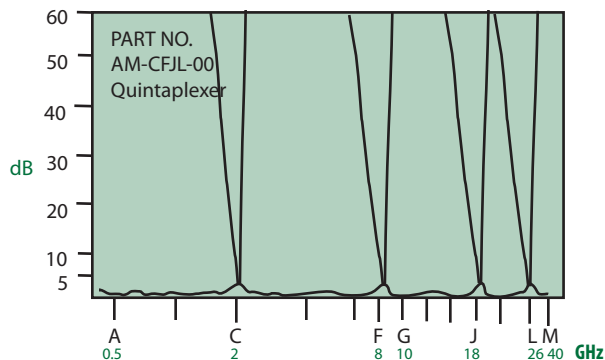
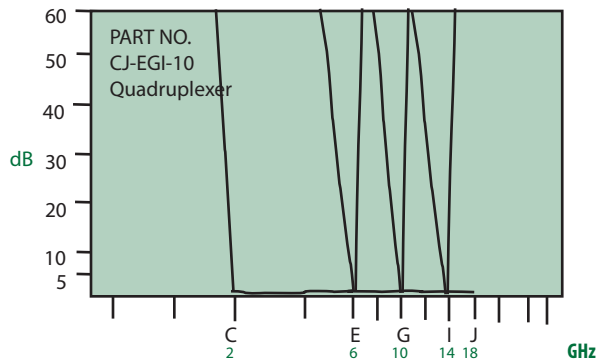
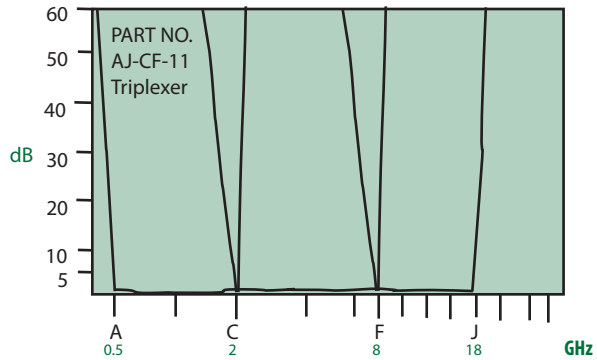
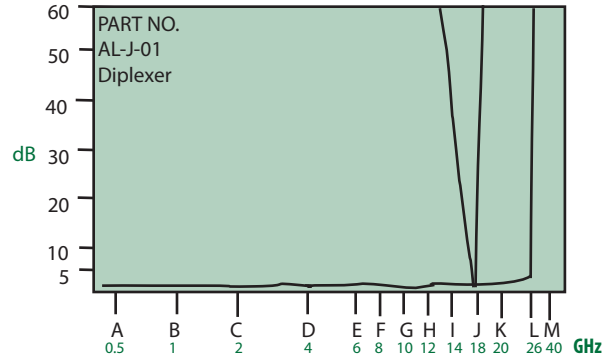
A two number suffix indicates if rejection is required at the end channels. No end channel rejection required, -00; Rejection at low end only, -10; Rejection at high end only, -01; Rejection at both ends, -11

SPECIFICATIONS

Frequency Range	0.5 to 40.0 GHz
Crossover Frequencies	1, 2, 4, 6, 8, 10, 12, 14, 18, 20, 26 and 34 GHz
Crossover Regions	$\pm 4\% f_{CO}$ max. (See Note 1)
Crossover Insertion Loss	4.5 dB max. (See Note 2)
Passband	1.0 dB max. (DC-18 GHz) (See Note 3)
Insertion Loss	1.5 dB max. ((18-40 GHz)
Common Port VSWR	2.0:1 max. (DC-18 GHz) (See Note 4) 2.5:1 max. (18-40 GHz)
Selectivity	60 dB min., $\pm 15\% f_{CO}$ and band ends when specified
Operating Temperature:	-54°C to +85°C

Notes:

1. $\pm 5\%$ 2 GHz and below
2. 5 dB below 2 GHz
3. 1.3 dB below 2 GHz for other than Diplexers
4. Diplexers only. For other multiplexers VSWR 2.2:1 max.



Wide Band Multiplexer



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