

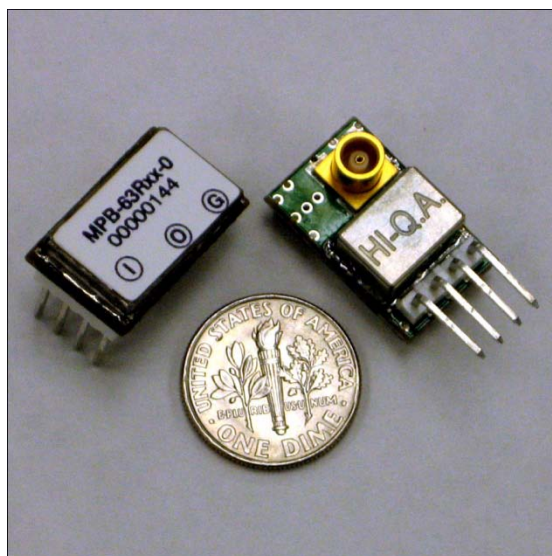
MPA/MPB series

MRI Preamp

- Low Noise Figure
- Low Input Impedance

General Description:

This device was designed specifically as an MRI preamp to be used in modern phased-array coil applications. Characteristics such as low input impedance, low noise figure and exceptional stability were designed into a small physical package for use in multi-element array coils.



**Manufactured in an
ISO certified facility**

This preamp is offered in two versions:

MPA is a fixed-tuned preamp with a gain of 27dB and an input tuned to real $\pm j0.2$ ohms. This would be a good choice where field-replaceable parts must be identical.

MPB is similar to the MPA, but allows the coil builder to vary the gain and input reactance of the preamp. This adjustable reactance means that an adjustable inductor on the input matching of the coil may not be necessary. This results in fewer coil matching network components, lower cost and easier manufacturing and preamp blocking adjustments.

MPA-123R20-90

Series	Frequency (MHz)	Input orientation
MPA	63R60	0 - straight
	63R86	90 - right-angle
	123R20	
	127R73	

MPA-123R20-90 would be an MPA series preamp tuned to 123.2MHz with a right-angle input connector

MPA series specifications					
	MPA-63R60-XX	MPA-63R86-XX	MPA-123R20-XX	MPA-127R73-XX	
	Siemens 1.5T	G.E. 1.5T	Siemens 3T	G.E. 3T	Unit
Center Frequency	63.6	63.86	123.2	127.73	MHz
3dB Bandwidth	16±1	16±1	31±2	31±2	MHz
Phase Throughput	113±6	113±6	93±6	93±6	Degrees
Gain (S21)	27±0.1	27±0.1	27±0.1	27±0.1	dB
Real Input Z (S11)	1.4 (typ) 1.6 (max)	1.4 (typ) 1.6 (max)	1.4 (typ) 1.6 (max)	1.4 (typ) 1.6 (max)	Ohm
Reactive Input Z (S11)	j0±j0.2	j0±j0.2	j0±j0.2	j0±j0.2	Ohm (reactive)
Output Return Loss (S22)	<18	<18	<15	<15	dB
Reverse Isolation (S12)	<70	<70	<70	<70	dB
Noise Figure	0.5 (typ) 0.57(max)	0.5 (typ) 0.57(max)	0.5 (typ) 0.55(max)	0.5 (typ) 0.55(max)	dB
O/P 1dB Compression Point	>+1	>+1	>+1	>+1	dBm
O/P 3rd Order Intercept Point*	>+12	>+12	>+13	>+13	dBm
Current Consumption	<8	<8	<8	<8	mA
Supply Voltage	10 ± 1	10 ± 1	10 ± 1	10 ± 1	VDC
Maximum RF Input Power **	+30	+30	+30	+30	dBm

* Two-tone test with 1MHz separation

** +30dBm CW for 5 minutes

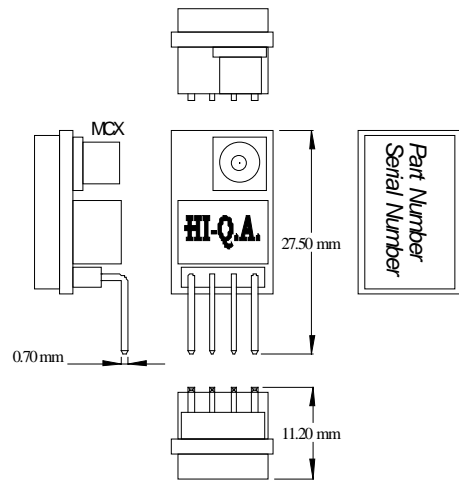
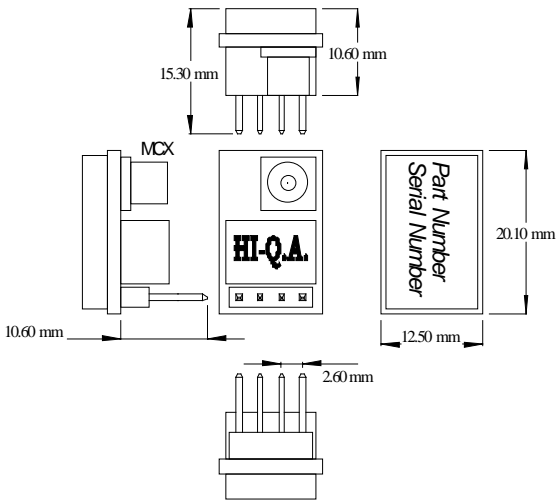
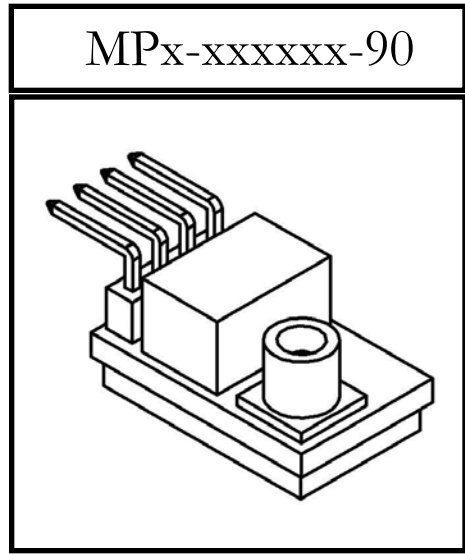
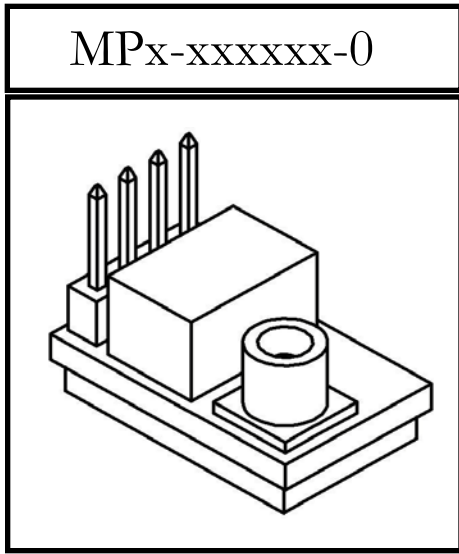
MPB-123R20-90

Series	Frequency (MHz)	Input orientation
MPB	63RXX	0 - straight
	123R20	90 - right-angle
	127R73	

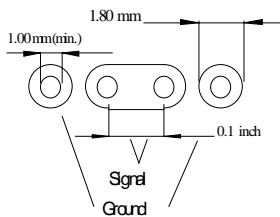
MPB series specifications				
Preamps are factory adjusted to the default settings of +j20±j0.2 (3T) and +j15±j0.2 (1.5T) input reactance and 27±0.1dB gain. Specifications are measured at this setting.				
	MPA-63Rxx-XX	MPA-123R20-XX	MPA-127R73-XX	
	Siemens or G.E. 1.5T	Siemens 3T	G.E. 3T	Unit
Center Frequency	63.7	123.2	127.73	MHz
3dB Bandwidth	16±1	31±2	31±2	MHz
Phase Throughput	113±6	93±6	93±6	Degrees
Adjustable gain range (S21)	26 (min) to 32 (max)	25 (min) to 32 (max)	25 (min) to 32 (max)	dB
Input Z - Real (S11)	1.4 (typ) 1.7 (max)	1.4 (typ) 1.6 (max)	1.4 (typ) 1.6 (max)	Ohm
Input Z - Reactive Range (S11)	-j2 to +j28	+j3 to +j32	+j12 to +j37	Inductive Z
Output Return Loss (S22)	<18	<15	<15	dB
Reverse Isolation (S12)	<70	<70	<70	dB
Noise Figure	0.5 (typ) 0.57(max)	0.5 (typ) 0.55(max)	0.5 (typ) 0.55(max)	dB
O/P 1dB Compression Point	>+1	>+1	>+1	dBm
O/P 3rd Order Intercept Point*	>+12	>+13	>+13	dBm
Current Consumption	<8	<8	<8	mA
Supply Voltage	10 ± 1	10 ± 1	10 ± 1	VDC
Maximum RF Input Power **	+30	+30	+30	dBm

* Two-tone test with 1MHz separation

** +30dBm CW for 5 minutes



PCB pads on coil



Electrical schematic

