

HL9450 Low Pass Rise Time Filter (<1 GHz)

Features and Technical Specifications

PRODUCT SUMMARY

The HL9450 family of low-pass absorptive rise time filters provide superior return loss and flat group delay at frequencies below 1 GHz.

Designed using a proprietary absorptive filtering, these filters offer similar frequency response as 4th order Bessel-Thompson filters.

These filters are suitable for OEM use in high-speed telecom and digital networks, as anti-aliasing filters in digital oscilloscopes, and to limit the RF bandwidth to known values.

DEPLOYMENT NOTES

All specifications contained herein are typical unless otherwise noted.

S-parameter files and higher resolution versions of the plots on the following pages are available on our website.

CUSTOM FILTERS

In addition to the options listed in this datasheet, HYPERLABS offers customers quick-turn custom filter designs up to 45 GHz.

The full-turn service includes design, manufacturing, and assembly and small quantities are typically available within a few weeks.

Please contact us for more information about these custom designs.

Rise Time (10-90%)	373 ps (opt. -373)
	375 ps (opt. -375)
	417 ps (opt. -417)
	439 ps (opt. -439)
	749 ps (opt. -749)
	2.99 ns (opt. -2990)
	9.0 ns (opt. -9000)
	See Fig. 1 below

Bandwidth (-3 dB fc)	938 MHz (opt. -373)
	933 MHz (opt. -375)
	840 MHz (opt. -417)
	797 MHz (opt. -439)
	467 MHz (opt. -749)
	117 MHz (opt. -2990)
	38.9 MHz (opt. -9000)
	See Fig. 3 below

Group Delay (100 MHz to fc)	510 ps (opt. -373)
	510 ps (opt. -375)
	550 ps (opt. -417)
	560 ps (opt. -439)
	920 ps (opt. -749)
	2.7 ns (opt. -2990)
	8.1 ns (opt. -9000)
	See Fig. 2 below

Return Loss (DC to 3 fc)	-15 dB (all options) See Fig. 4 below
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Max Input Power	1 W
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Impedance	50 Ω
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Connectors	SMA, 1x plug, 1x jack
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Dimensions	45.72 x 15.24 x 10.16 mm
	1.80" x 0.60" x 0.40"

Weight	14 g (0.49 oz.)
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Temperature Limits	-40° to +40° C, operating
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RoHS Compliance	RoHS compliant; made with lead-free solder
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HL9450 Rise Time and Group Delay

Figure 1 shows the 1 V step response for various HL9450 options. Figure 2 shows the group delay (ps) over the operating frequency range of these same options.

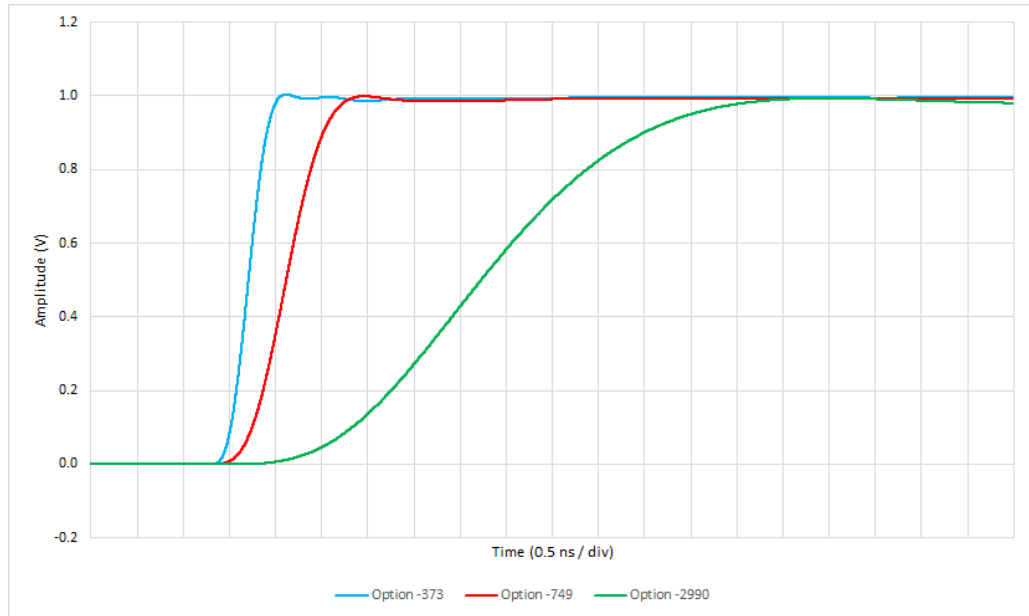


Figure 1: Typical HL9450 step response, various options

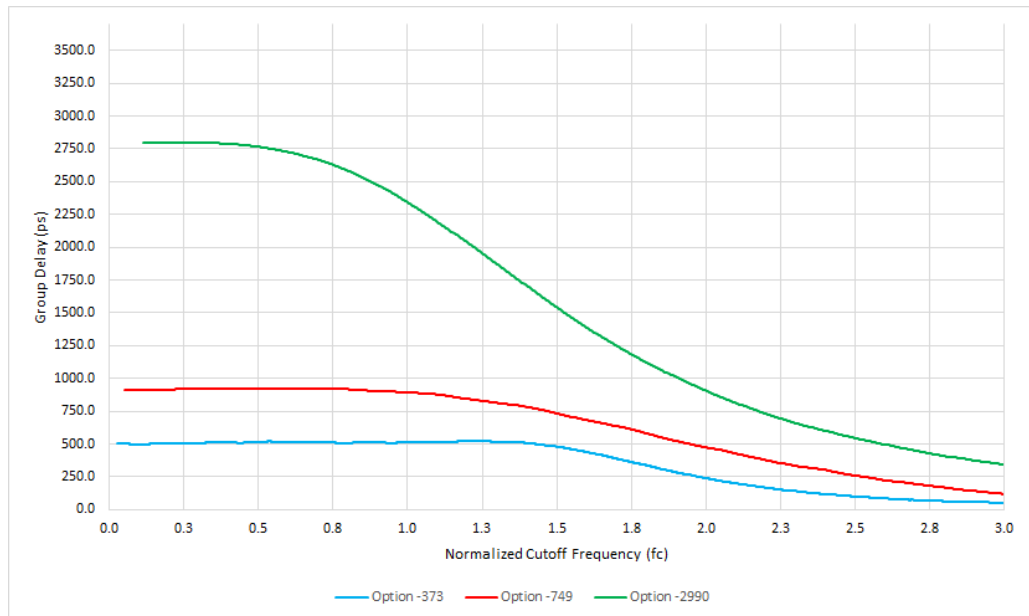


Figure 2: Typical HL9450 group delay, various options



HL9450 Insertion Loss and Return Loss

Figure 3 shows the Insertion Loss and Figure 4 shows the Return Loss on various HL9450 options over the operating frequency range.

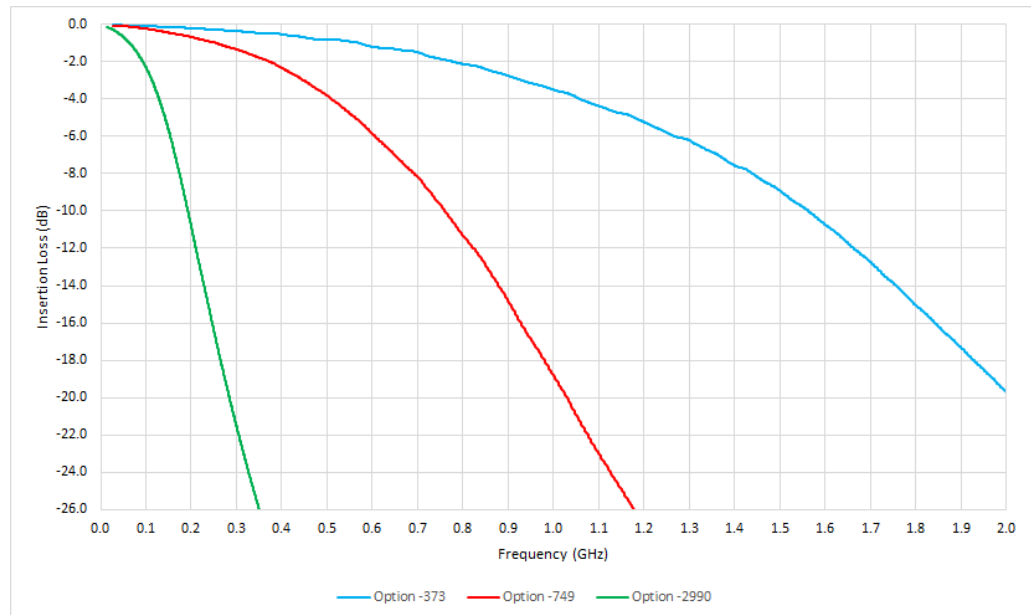


Figure 3: Typical HL9450 insertion loss, various options

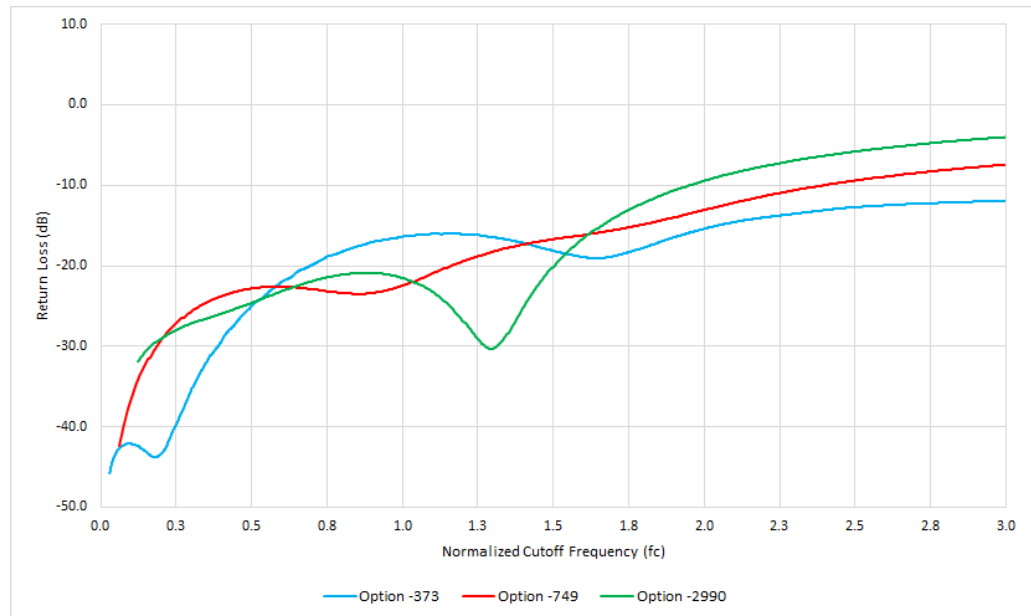


Figure 4: Typical HL9450 return loss, various options