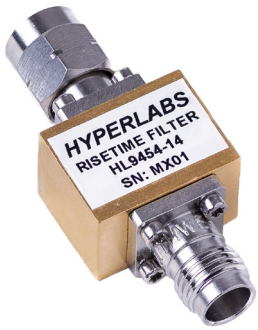
HYPERLABS™
Innovation at Hyperspeed since 1992

HL9454 Transition Time Converters (15-28 GHz)

Options and Technical Specifications

Option	Rise Time	Bandwidth (-3 dB fc)
-12	12.5 ps	28 GHz
-13	13 ps	26.5 GHz
-14	14.5 ps	24 GHz
-22	22 ps	15.9 GHz
-xx	Custom	Custom



HL9454 opt. -14 shown

Common Specifications	
Insertion Loss	0.04 dB, typical See *Fig. 3* below
Return Loss (DC to 1.5 fc)	~13 dB, typical See *Fig. 4* below
Group Delay (100 MHz to fc)	Varies by option See *Fig. 2* below
Max Input Power	1 W (+30 dBm)
Impedance	50 Ω
Connectors	2.92 mm, -JP, Jack/Plug (standard) Other connector sizes (1.85 & 2.4 mm) and configurations available
Dimensions	1.37” x 0.60” x 0.40” 34.97 x15.24 x 10.16 mm
Weight	14 g (0.49 oz.)
Temperature Limits	-40° to +70° C, operating
RoHS Compliance	RoHS compliant; made with lead-free solder
Warranty	1 year, see website

Note: All specifications are based on test results using the standard connector configuration. Specifications may vary slightly for other configurations.

PRODUCT SUMMARY

The HL9454 family of Transition Time Converters is based on HYPERLABS’ proprietary low-pass absorptive filtering technology.

These filters offer frequency response similar to the 4th-order Bessel-Thompson while providing superior return loss and flat group delay to frequencies well beyond the cutoff frequency.

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.

These devices are bidirectional.

ORDERING DETAILS

Please specify rise time and connector options at time of order.

Eg., HL9454-14-JP

CUSTOM FILTERS

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

Please contact us for more information about these custom designs.

HL9454 Plot Diagrams

Figures 1-4 show the typical characteristics for various HL9454 rise time options. Other options show similar performance within their respective specified rise times.

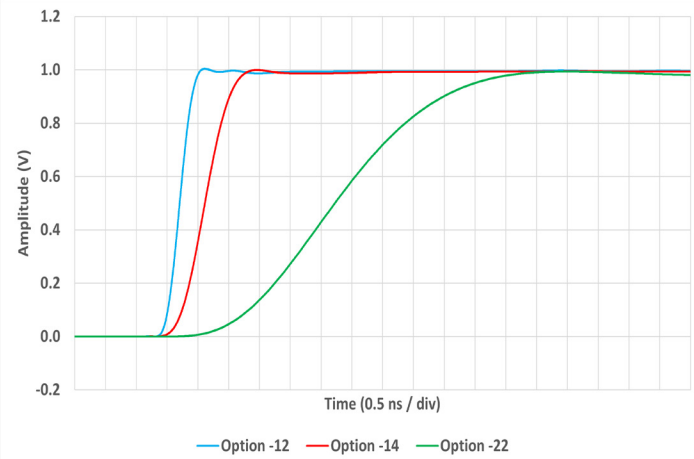


Figure 1: Typical HL9454 step response, various

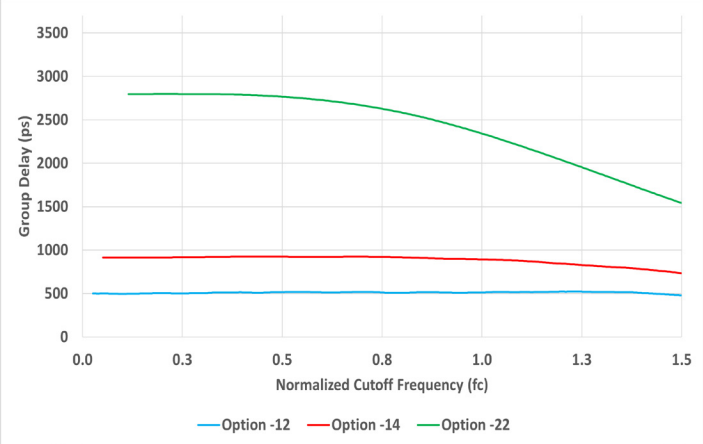


Figure 2: Typical HL9454 group delay, various options

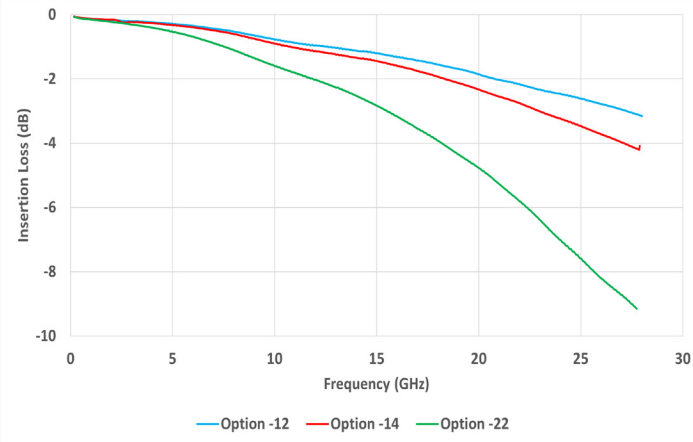


Figure 3: Typical HL9454 insertion loss, various

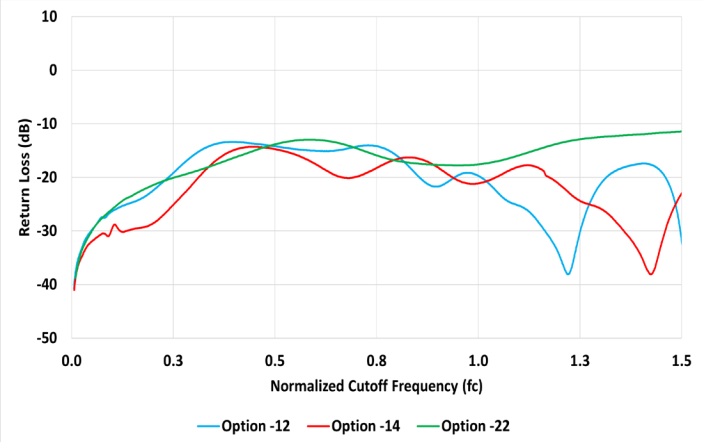


Figure 4: Typical HL9454 return loss, various options

HL9454 Dimensional Drawing

Figure 5 shows a mechanical drawing of an HL9454. Unless otherwise noted, all units are in inches. See page 2 for full dimensions.

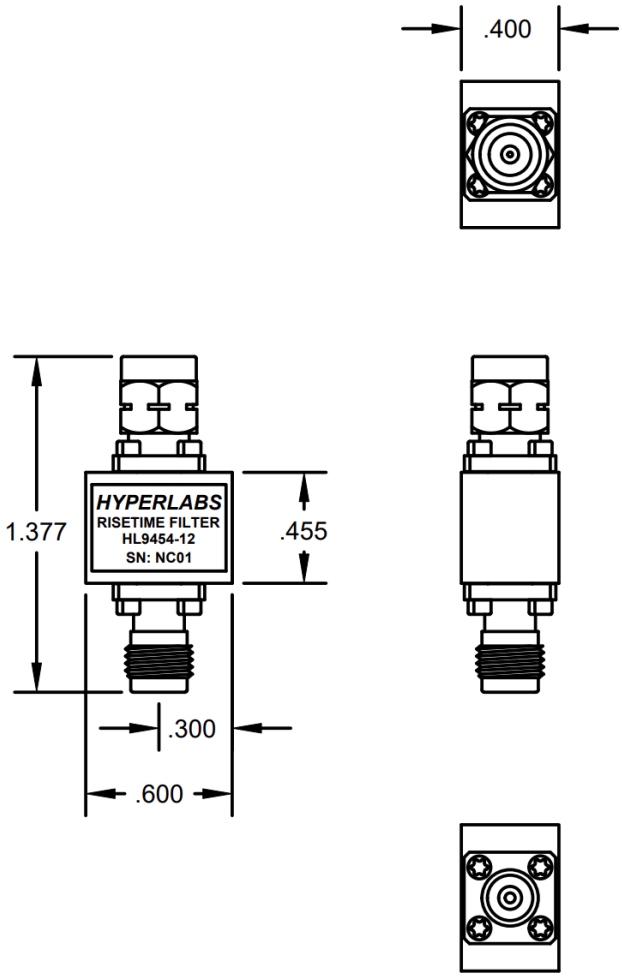


Fig 5: HL9454 Mechanical Drawing