

HL9454 Transition Time Converters (15-28 GHz)

Options and Technical Specifications

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.

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.

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

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)	~145 ps See Fig. 2 below
Max Input Power	1 W (+30 dBm)
Impedance	50 Ω
Connectors	2.92 mm, 1x plug, 1x jack (standard) 2.40 mm, 1x plug, 1x jack (available on request)
Dimensions	1.37" x 0.60" x 0.40" 34.97 x 15.24 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



HL9454 opt. -14 shown



HL9454 Rise Time and Group Delay

Figure 1 shows the 400 mV step response for the HL9454 option -13. Figure 2 shows the group delay (ps) over the operating frequency range of various options.

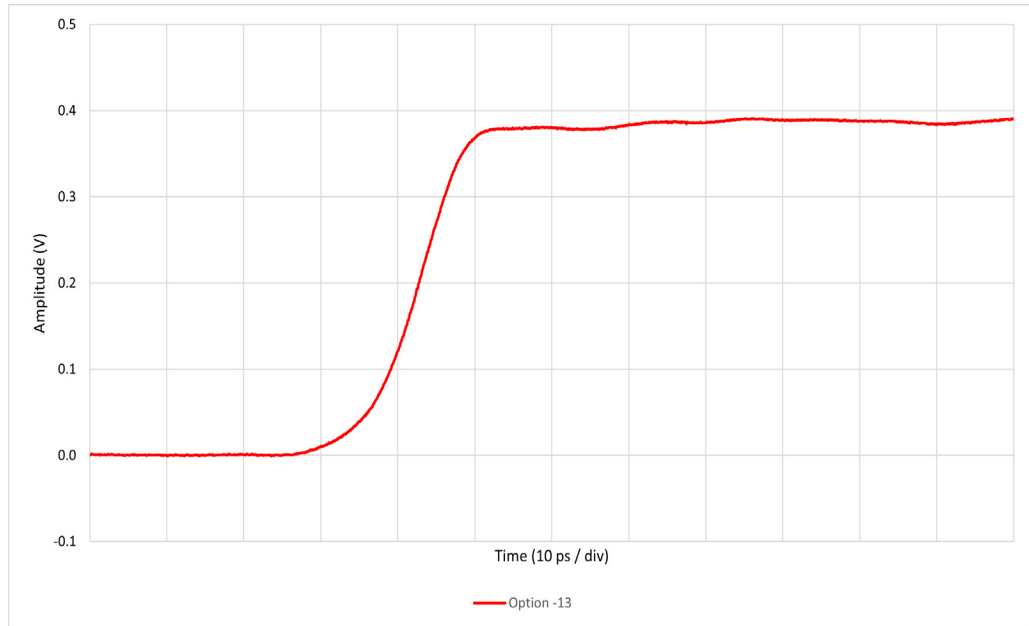


Figure 1: Typical HL9454 step response

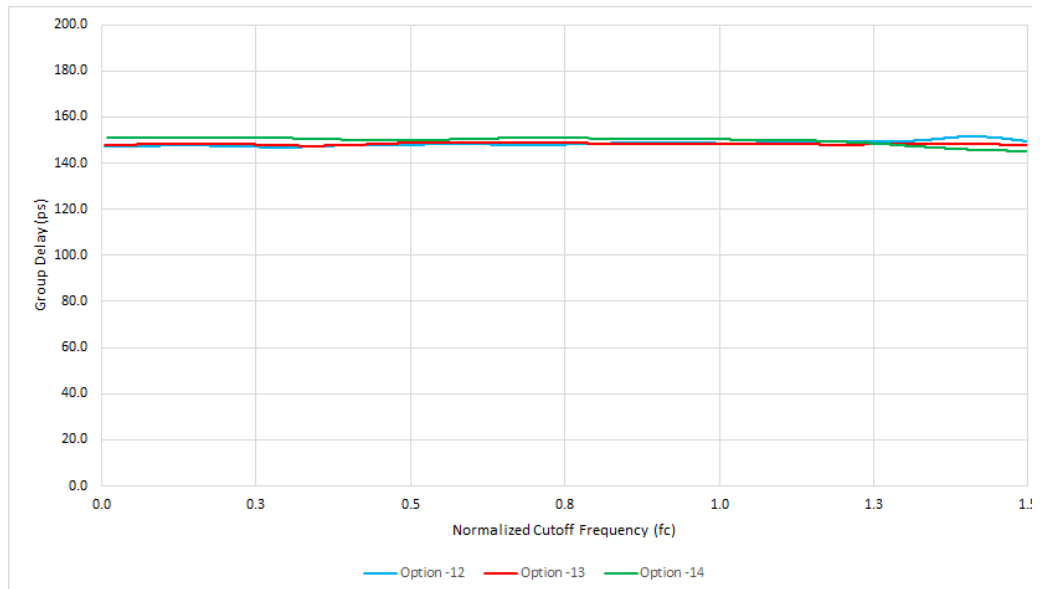


Figure 2: Typical HL9454 group delay, various options



HL9454 Insertion Loss and Return Loss

Figure 3 shows the Insertion Loss and Figure 4 shows the Return Loss on various HL9454 options over the operating frequency range.

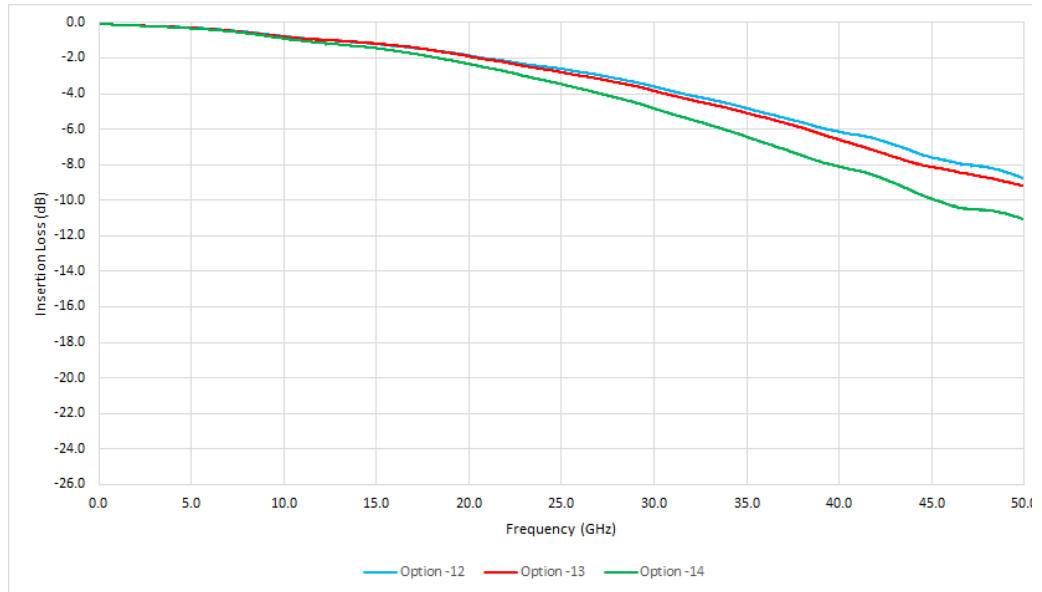


Figure 3: Typical HL9454 insertion loss, various options

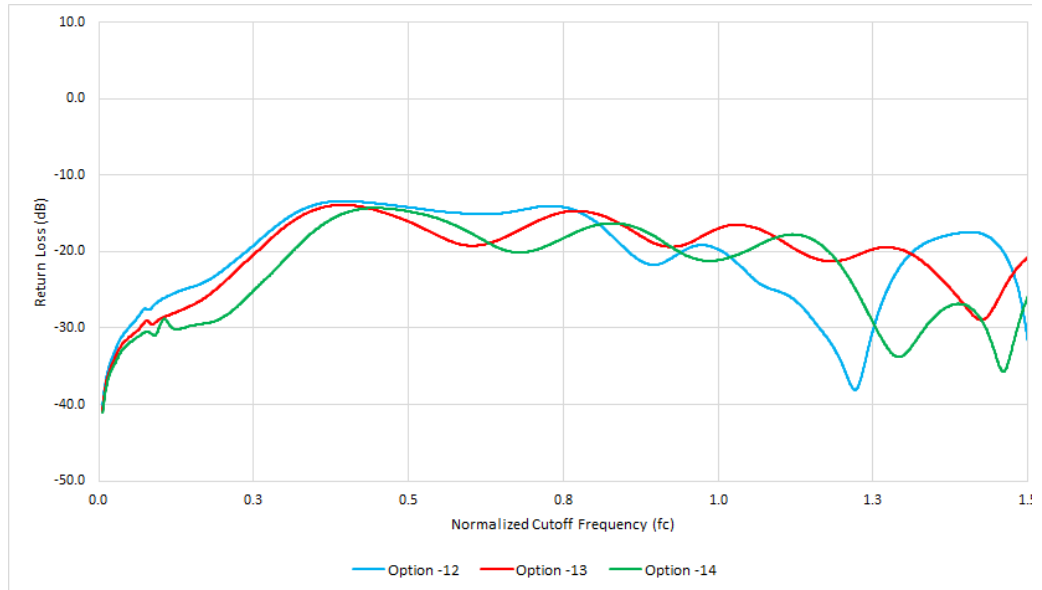


Figure 4: Typical HL9454 return loss, various options

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.

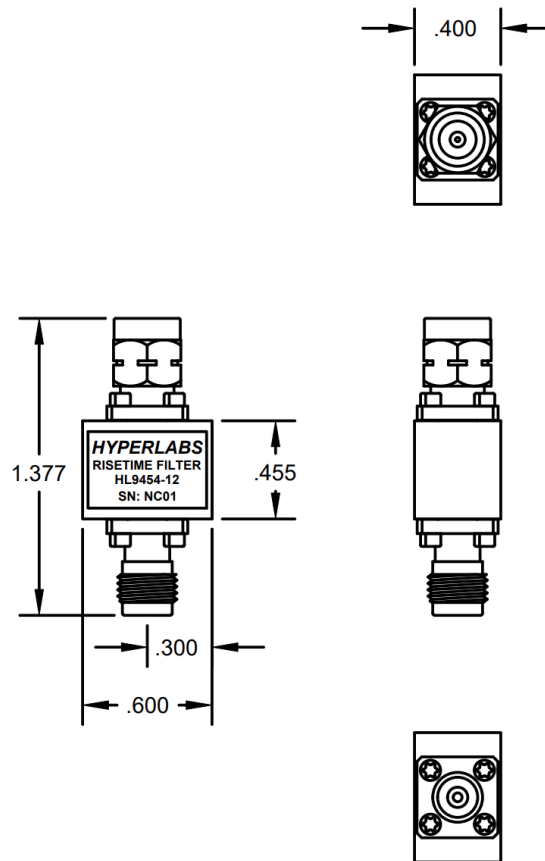


Fig 5: HL9454 Mechanical Drawing