

HL843x Series DC Blocks (20 kHz to 67 GHz)

Features and Technical Specifications¹ (HL8437 shown)

PRODUCT SUMMARY

The HL843x series are ultra-broadband DC Blocks with a typical insertion loss of < 1.5 dB throughout the specified bandwidth range.

The DC block will remove DC bias from the input signal to prevent damage to DC-sensitive devices or equipment.

These devices are suitable for use in 112 Gbps PAM4 communications systems, optical communication systems, high-speed data systems, level shifting, cascading, and interfacing between devices with incompatible DC operating points.

They can also be used to improve RF power measurements when a power meter with DC sensitivities is used.

These DC blocks use ceramic-based capacitors that provide a low frequency cutoff, but with less thermal and voltage stability.

MODELS & OPTIONS

The following models are available:

HL8435, 50 GHz

HL8437, 67 GHz

The following options need to be specified:

-M, matched pair

-U, unmatched part(s)

-220, 220 nF

-JJ, jack RF 1 and RF 2

-JP, jack RF 1, plug RF 2

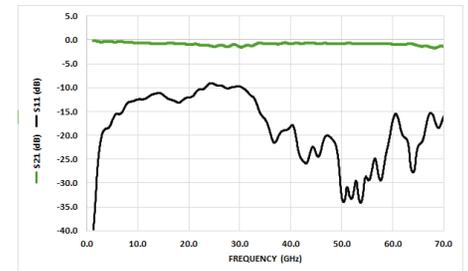
-PP, plug RF 1 and RF 2

Bandwidth	7 kHz to > 67 GHz
Amplitude Match	± 0.1 dB, typ., (opt. -M) See Fig. 1
Phase Match	± 4°, f = 40 GHz (opt. -M)
Insertion Loss	< 1.5 dB See Figs. 1-2
Return Loss	10 dB, f ≤ 35 GHz 15 dB, f > 35 GHz See Fig. 3
Breakdown Voltage	10 V, max
Group Delay	≈ 125 ps See Fig. 4
Rise Time (10-90%)	5 ps, all options
Connectors (PORT 1 / PORT 2)	1.85 mm, jack/jack (opt. -JJ) 1.85 mm, jack/plug (opt. -JP) 1.85 mm, plug/plug (opt. -PP)
Temperature Limits	-40° to +70° C, operating
RoHS Compliant	Yes, assembled with lead-free solder
REACH Compliant	Yes
Warranty	1 year, see website

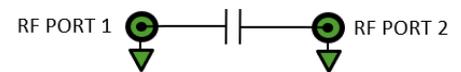
NOTE 1 - Unless otherwise noted, the specifications in this table are typical for Model Number HL8437 using the standard connector configuration (jack/plug). Full specifications for this and related models are available on Page 2 of this datasheet.



HL8437, opt. -M-JP shown



Typical HL8437 Insertion and Return Loss



HL843x Schematic and Port Assignments



HL843x Full Specifications

Parameter	HL8435	HL8437	Comments
Upper Frequency Limit	50 GHz	67 GHz	
Lower Frequency Limit See Fig. 2	7 kHz	7 kHz	
Amplitude Match See Fig. 1	± 0.1 dB	± 0.1 dB	opt. -M
Phase Match	± 4°, f = 40 GHz	± 4°, f = 40 GHz	opt. -M
Insertion Loss See Fig. 1	< 1.5 dB typ, < 2 dB max 20 kHz ≤ f ≤ 50 GHz	< 1.5 dB typ, < 2 dB max 20 kHz ≤ f ≤ 67 GHz	
Return Loss See Fig. 3	10 dB, f ≤ 35 GHz 15 dB, f > 35 GHz	10 dB, f ≤ 35 GHz 15 dB, f > 35 GHz	
Rise Time	7 ps	5 ps	
Group Delay See Fig. 4	100 ps	125 ps	
Breakdown Voltage	10 V, max	10 V, max	
Capacitance	220 nF ± 15%	220 nF ± 15%	Ceramic
Impedance	50 Ω	50 Ω	Input and Output
Maximum Input Power	+30 dBm	+30 dBm	
Connectors (PORT 1 / PORT 2)	2.4 mm, jack-jack 2.4 mm, jack-plug 2.4 mm, plug-plug	1.85 mm, jack-jack 1.85 mm, jack-plug 1.85 mm, plug-plug	According to specified option -JJ, -JP, or -PP
Dimensions (W x D x H)	1.29" x 0.535" x 0.525" 32.8 x 13.59 x 13.34 mm	1.11" x 0.535" x 0.525" 28.2 x 13.59 x 13.34 mm	Package including connectors
Weight	8 g (0.28 oz.)	8 g (0.28 oz.)	
Operating Temperature	-40° to +70° C	-40° to +70° C	Case temperature
RoHS Compliant	Yes, assembled with lead-free solder		
REACH Compliant	Yes		
Warranty	1 year, repair or replacement; see website for details		

NOTE - All specifications are based on test results using the standard connector configuration (-JP, jack/plug). Specifications may vary slightly for other configurations.

HL834x Plot Diagrams

Figures 1-4 show the typical S-parameter characteristics for an HL8347. The eye diagrams in Figures 5-6 show a 56 Gbps PRBS11 pattern passed through an HL8347. Other models show similar performance within their respective specified bandwidths.

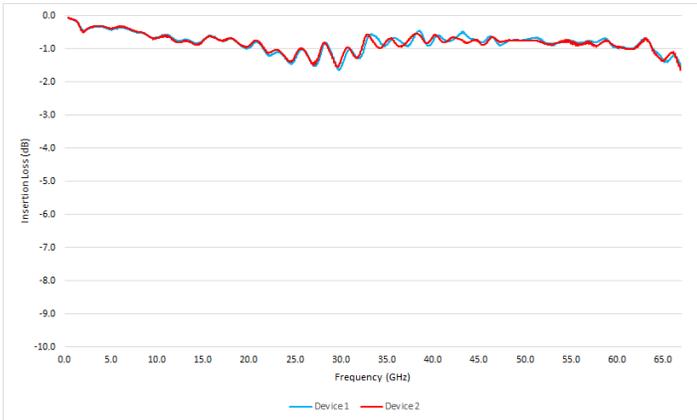


Figure 1: Typical HL8347 Insertion loss and Amplitude Match

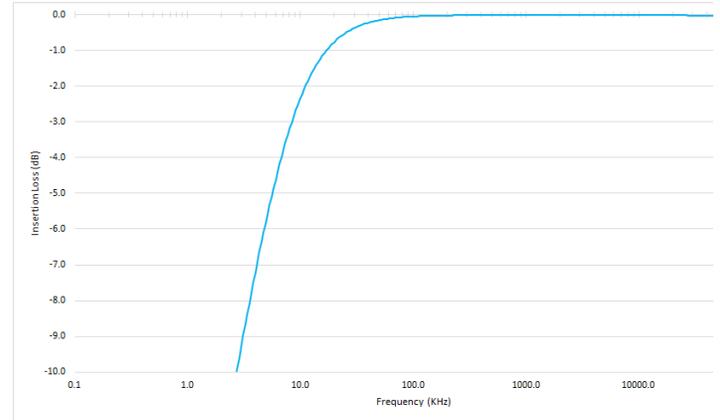


Figure 2: Typical HL8347 Low-frequency Performance

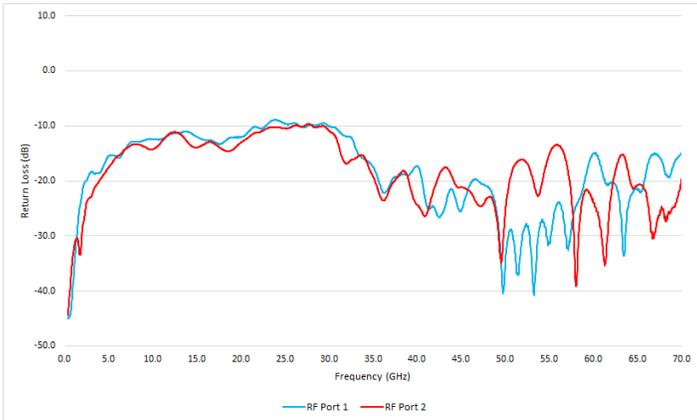


Figure 3: Typical HL8347 Return Loss

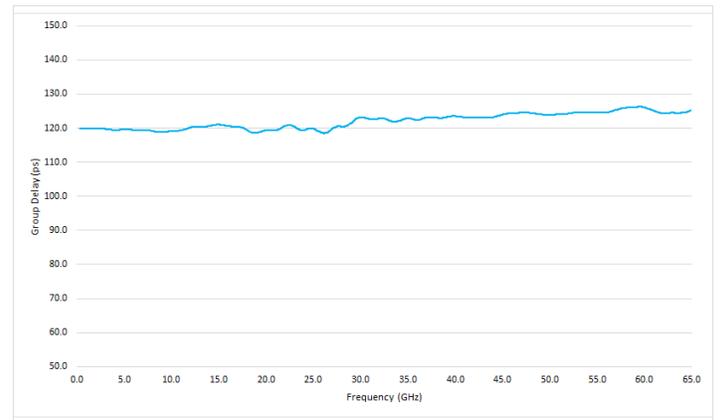


Figure 4: Typical HL8347 Group Delay

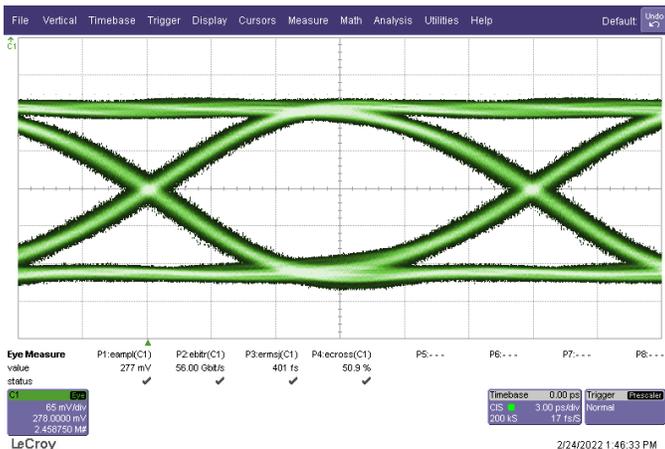


Figure 5: HL8347 56 Gbps PRBS 11, RF Input

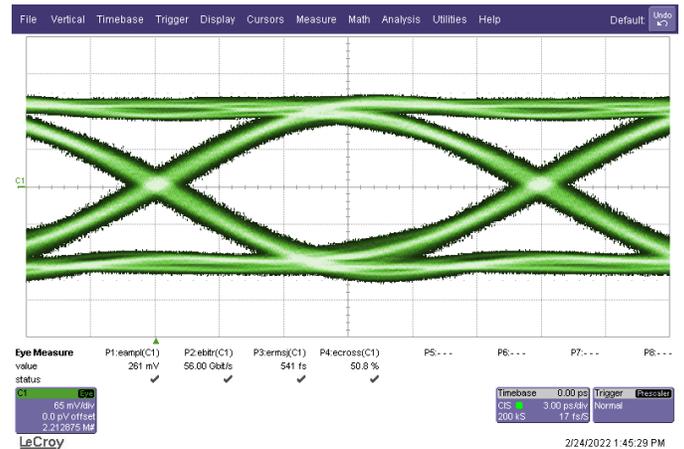


Figure 6: HL8347 56 Gbps PRBS 11, RF Output

HL843x Dimensional Drawing

Figure 7 shows a mechanical drawing of an HL8437. Unless otherwise noted, all units are in inches. Other models vary in width based on connectors. See page 2 for full dimensions.

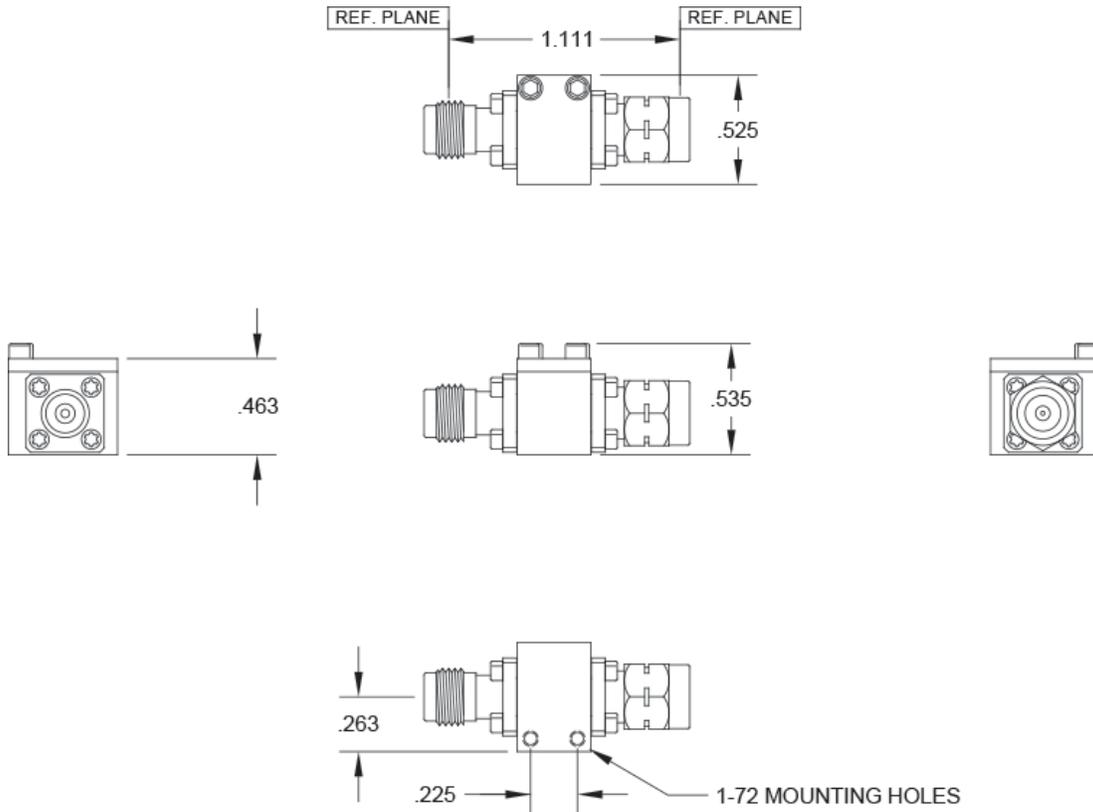


Fig 7: HL8437 Mechanical Drawing