

## HL843x Series DC Blocks (20 kHz to 67 GHz)

### Features and Technical Specifications<sup>1</sup> (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.

#### MODELS & OPTIONS

The following models are available:

**HL8435**, 50 GHz

**HL8437**, 67 GHz

The following options are available:

**-M**, matched pair

**-U**, unmatched part(s)

**-JJ**, jack RF 1 and RF 2

**-JP**, jack RF 1, plug RF 2

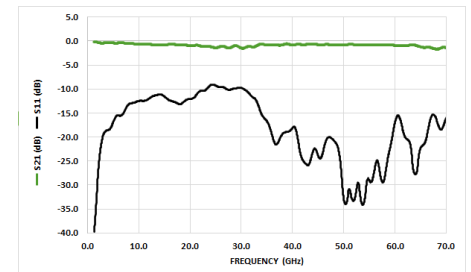
**-PP**, plug RF 1 and RF 2

Bandwidth	20 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

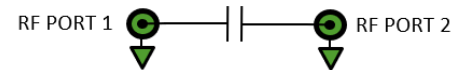
NOTE 1 - Unless otherwise noted, the specifications in this table are typical for Model Number HL8437. Full specifications for this and related models are available on Page 2 of this datasheet.



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	20 kHz	20 kHz	
Amplitude Match See Fig. 5	± 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%	
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 - The values above are typical unless otherwise specified

## HL843x Bandwidth and Insertion Loss

Figure 1 shows the insertion loss and bandwidth of the HL8437 from 10 MHz to 67 MHz.

Figure 2 shows the low-frequency response to 100 Hz.

Other models show similar performance within their respective specified bandwidths.

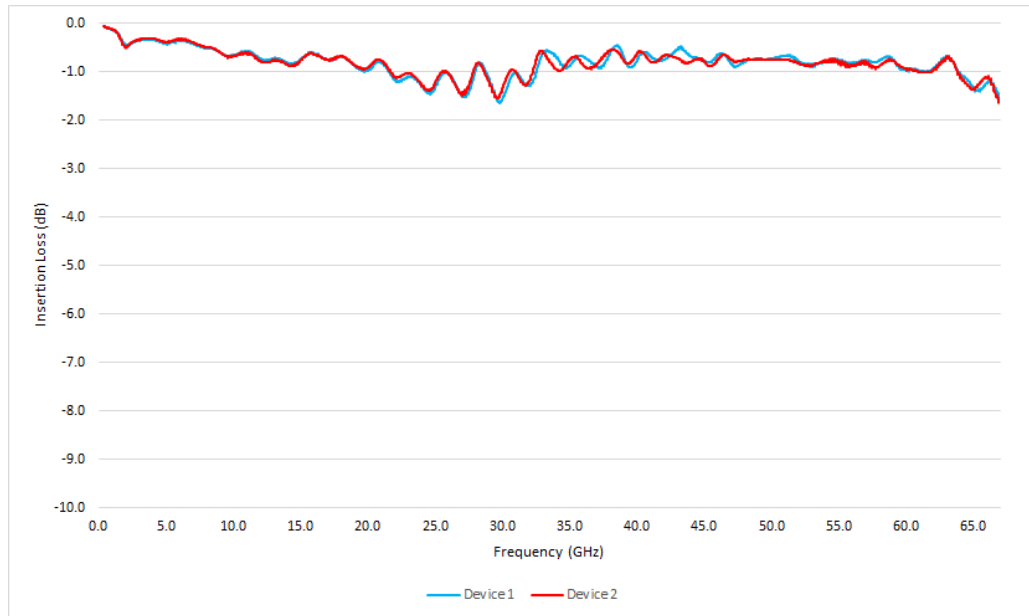


Figure 1: Typical HL8437 Bandwidth and Insertion loss

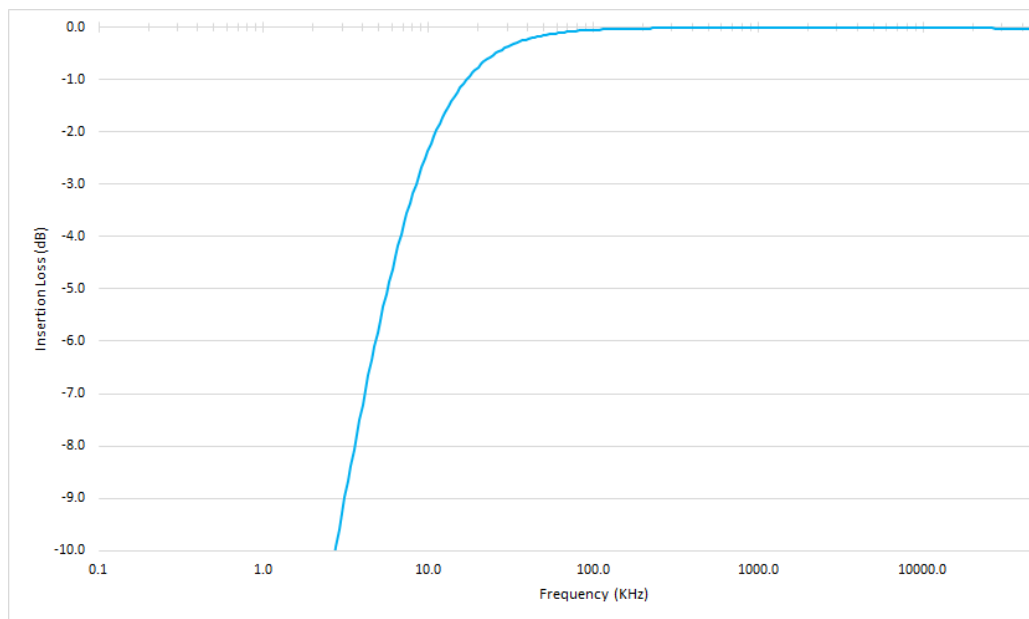


Figure 2: Typical HL8437 Low-frequency Performance

## HL843x Return Loss and Group Delay

Figure 3 shows return loss and Figure 4 shows the typical HL8437 Group Delay from 10 MHz to 67 MHz.

Other models show similar performance within their respective specified bandwidths.

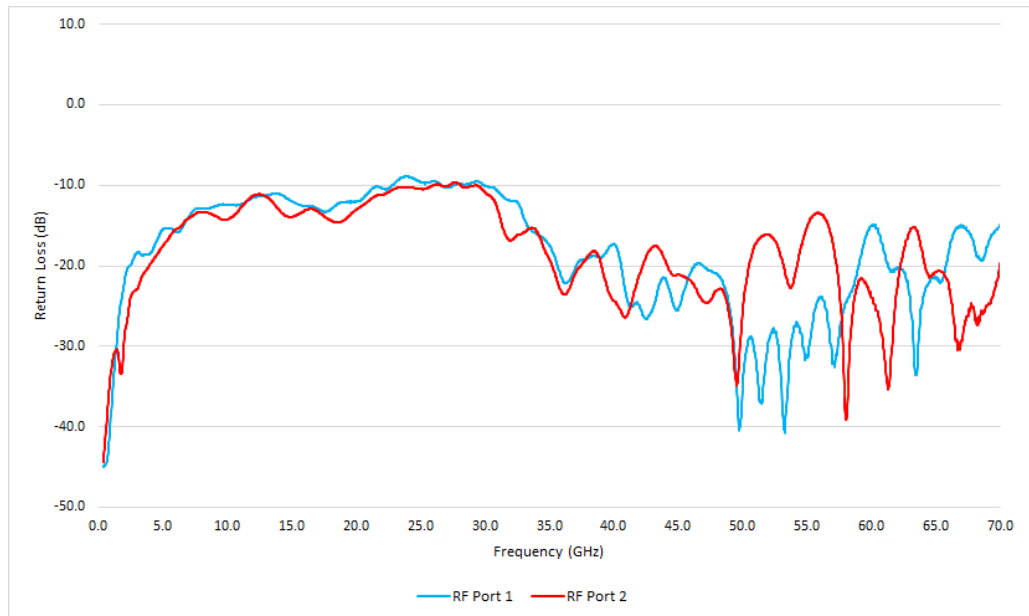


Figure 3: Typical HL8437 Return Loss

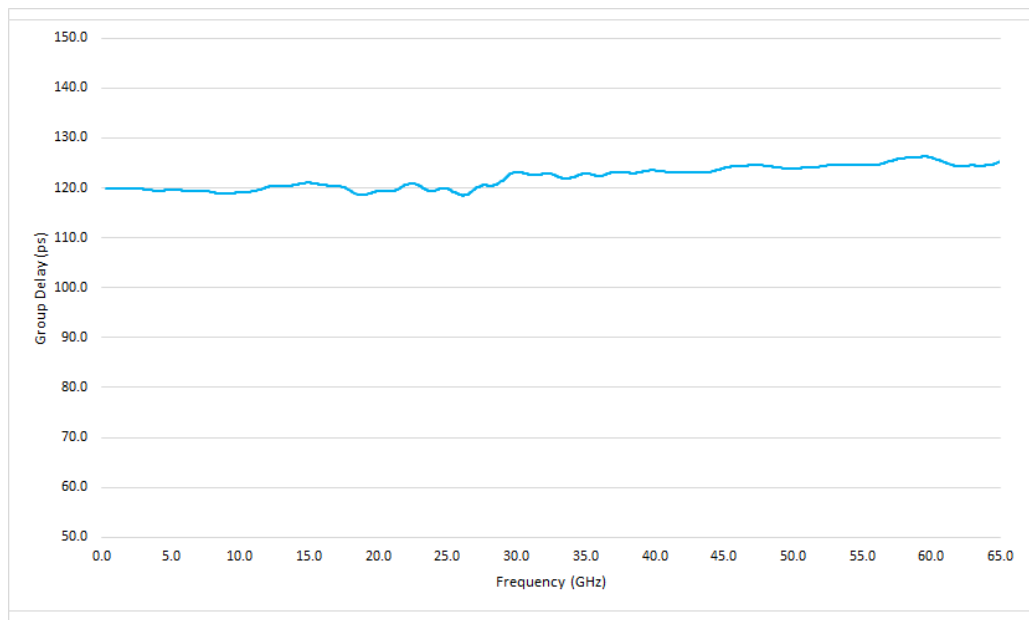


Figure 4: Typical HL8437 Group Delay



## HL843x Matching

Figure 5 shows the typical amplitude match between a matched pair of HL8437 devices from 10 MHz to 67 GHz.

Other models show similar performance within their respective specified bandwidths.

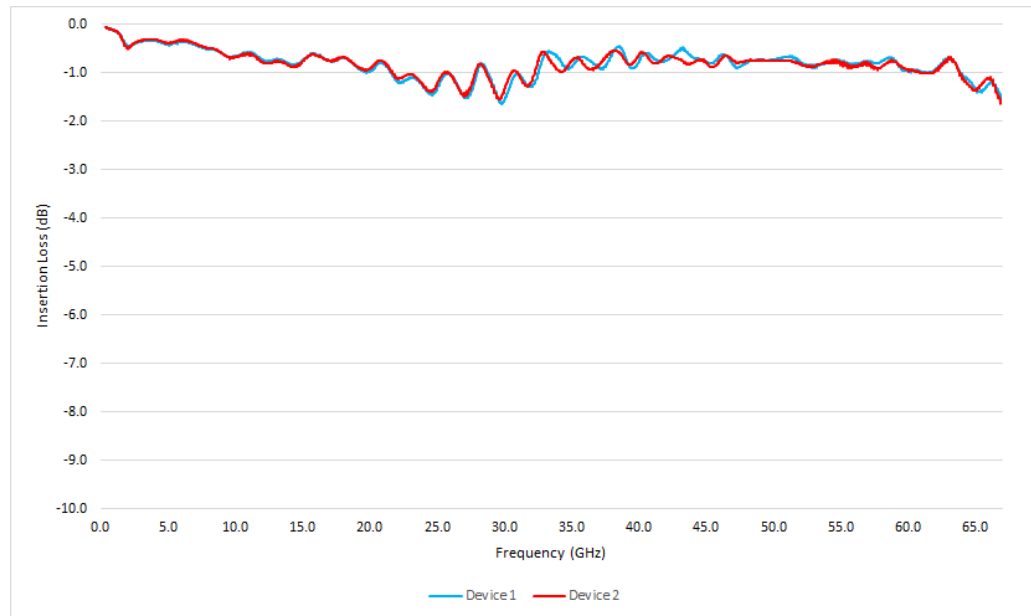


Figure 5: Typical HL8437 Amplitude Matching (opt. -M)

## HL843x Eye Diagrams

The eye diagrams in *Figures 6-7* show a 56 Gbps PRBS11 pattern passed through an HL8437. All plots have an input signal amplitude of 278 mV and are shown at 65 mV/div.

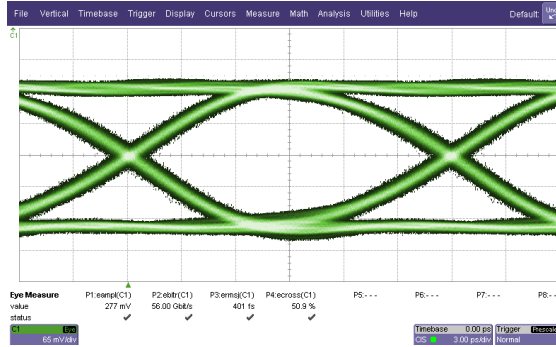


Figure 6: HL8437 56 Gbps PRBS 11, RF Input

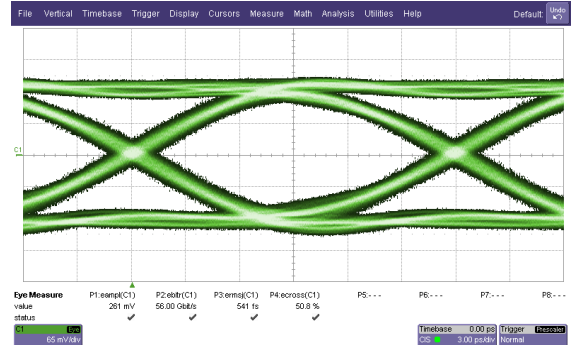


Figure 7: HL8437 56 Gbps PRBS 11, RF Output

## HL843x Dimensional Drawing

Figure 8 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.

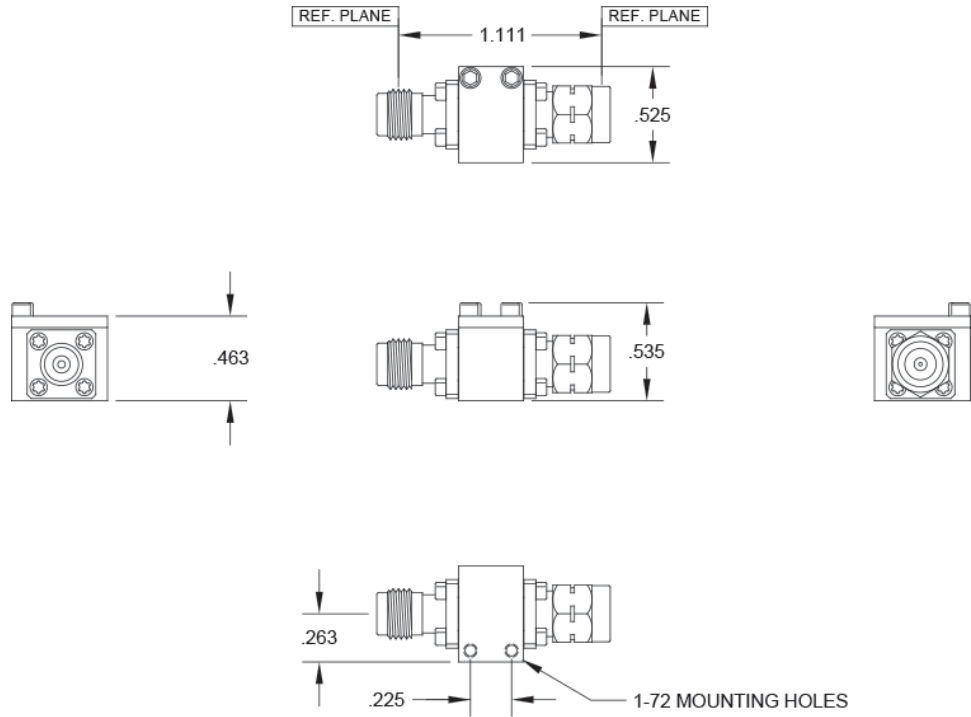


Fig 8: HL8437 Mechanical Drawing