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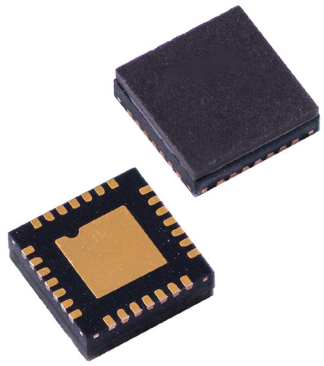
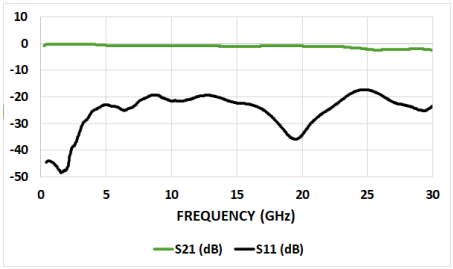
HL704x Surface Mount Bias Tees (35 MHz to 30 GHz)

Features and Technical Specifications

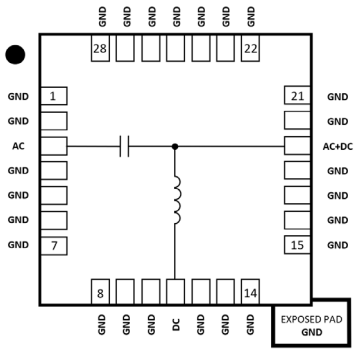
Bandwidth	35 MHz to 30 GHz
Insertion Loss	< 1 dB, f ≤ 20 GHz < 2.5 dB, f > 20 GHz See *Fig. 1*
Return Loss	15 dB f ≤ 18 GHz, all options 10 dB f > 18 GHz, all options See *Fig. 3*
Group Delay	30 ps *See Fig. 4*
Rise Time (10-90%)	12 ps
Breakdown Voltage	30 V
Maximum Current	175 mA
Max. Input Power	28 dBm
Impedance	50 Ω
Reflow Profile	Designed to be compatible with a SAC305 thermal reflow profile: - max reflow time above 217 C is 90 seconds - peak reflow temperature is 245 C, not to be exceeded
Dimensions (W x D x H)	28 lead 4 x 4 mm SMT package; 16 mm^2 *See Fig. 5*
Interface	Solderable pads, Gold ENIG
Temperature Limits	-40° to +85° C, operating
RoHS Compliant	Yes
REACH Compliant	Yes



HL704x , 4 x 4 mm QFN Package, 28 pin



Typical HL704x Insertion and Return Loss



HL7041 Schematic and Port Assignments
See Fig. 8 for HL7042

PRODUCT SUMMARY

he HL704x series is a surface mountable (SMD) bias tee with a maximum insertion loss of 2.5 dB throughout the specified bandwidth range.

The HL704x blocks any existing DC signal and allows for the insertion of a DC bias current into a circuit with minimal perturbation of the impedance of a 50 ohm transmission line.

These devices can be used for biasing amplifiers, lasers, optical modulators, and other devices.

Applications include 64 Gbps PAM4 communications systems, optical communication systems, high-speed data systems, level shifting, cascading, and interfacing between devices with incompatible DC operating points.

DEPLOYMENT NOTES

The HL704x is packaged in a leadless 4 x 4 mm surface mount package in both left-handed and right-handed configurations.

MODELS & OPTIONS

The following models are available:

HL7041, Right-handed SMD package
HL7042, Left-handed SMD package

The following option is available for the HL7041:

-EVAL, Mounted on an evaluation board

HL704x Bandwidth and Insertion Loss

Figure 1 shows the insertion loss and bandwidth of the HL704x from 10 MHz to 30GHz.

Figure 2 shows the low-frequency response down to 10 MHz.

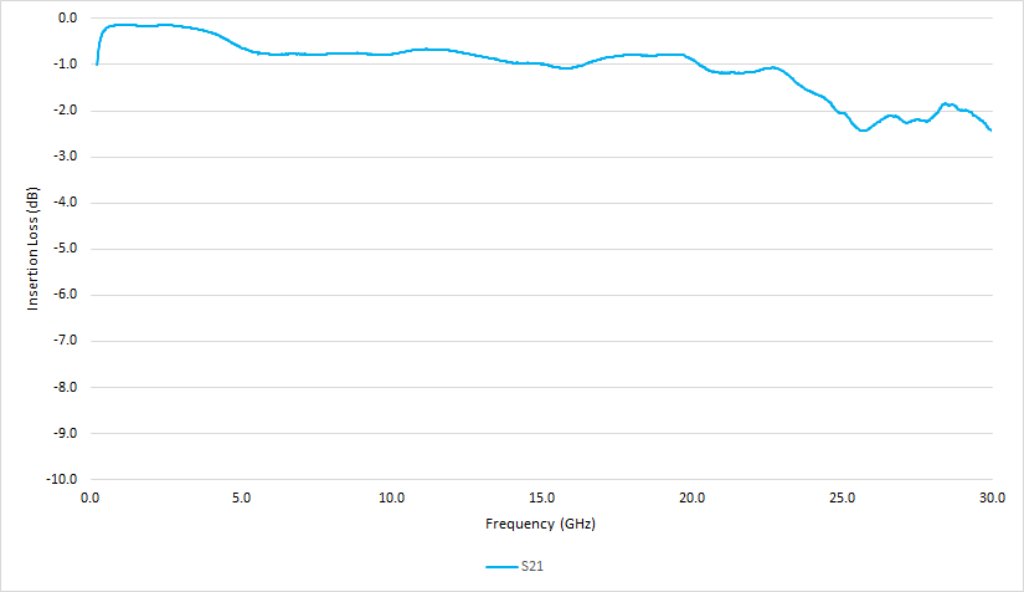


Figure 1: Typical HL704x Bandwidth and Insertion Loss

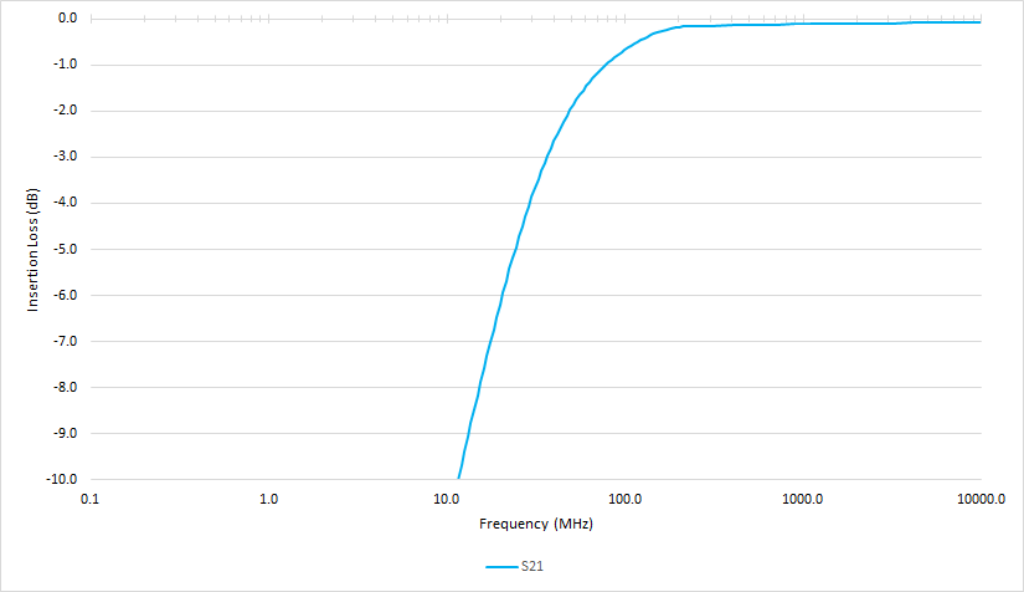


Figure 2: Typical HL704x Low-frequency Performance

HL704x Return Loss and Group Delay

Figure 3 shows Return Loss and Figure 4 shows the Group Delay on a typical HL704x from 10 MHz to 30GHz.

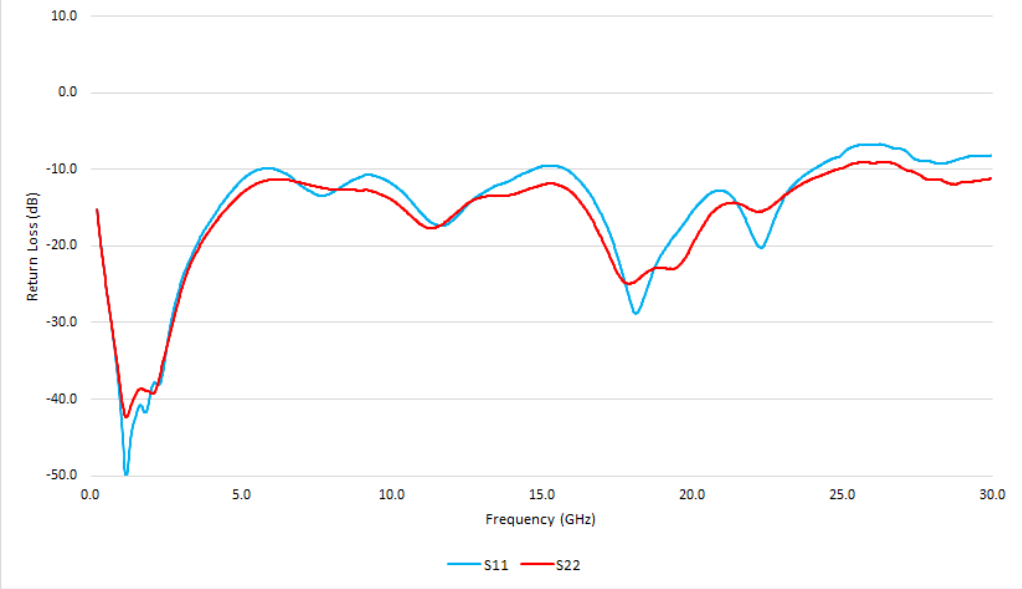


Figure 3: Typical HL704x Return Loss

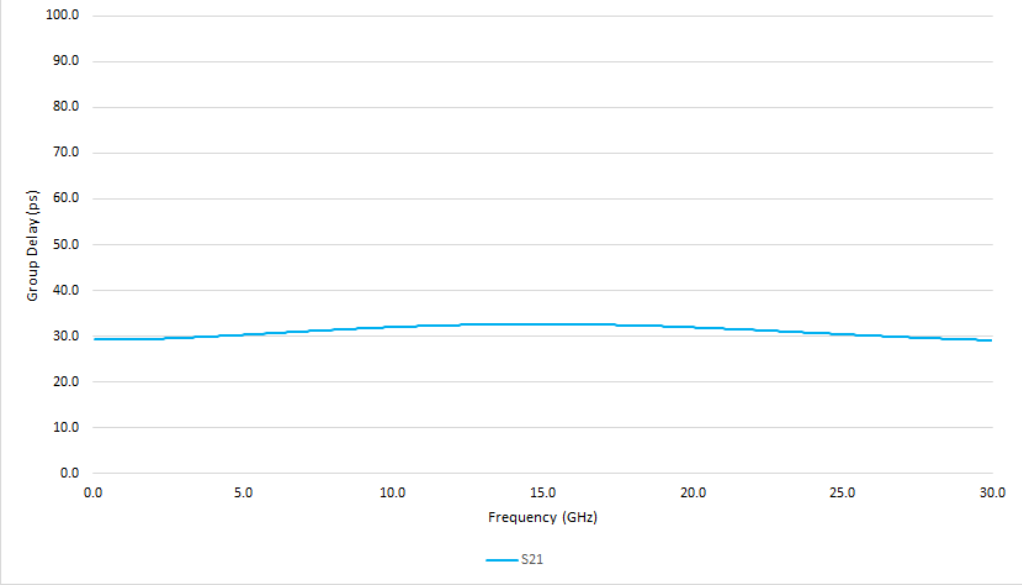


Figure 4: Typical HL704x Group Delay

HL7041 Dimensional Drawing

Figure 5 shows a mechanical drawing of an HL7041 with right-handed package. *Figure 6* shows an HL7041 mounted to the evaluation board. Unless otherwise noted, all units are shown in mm.

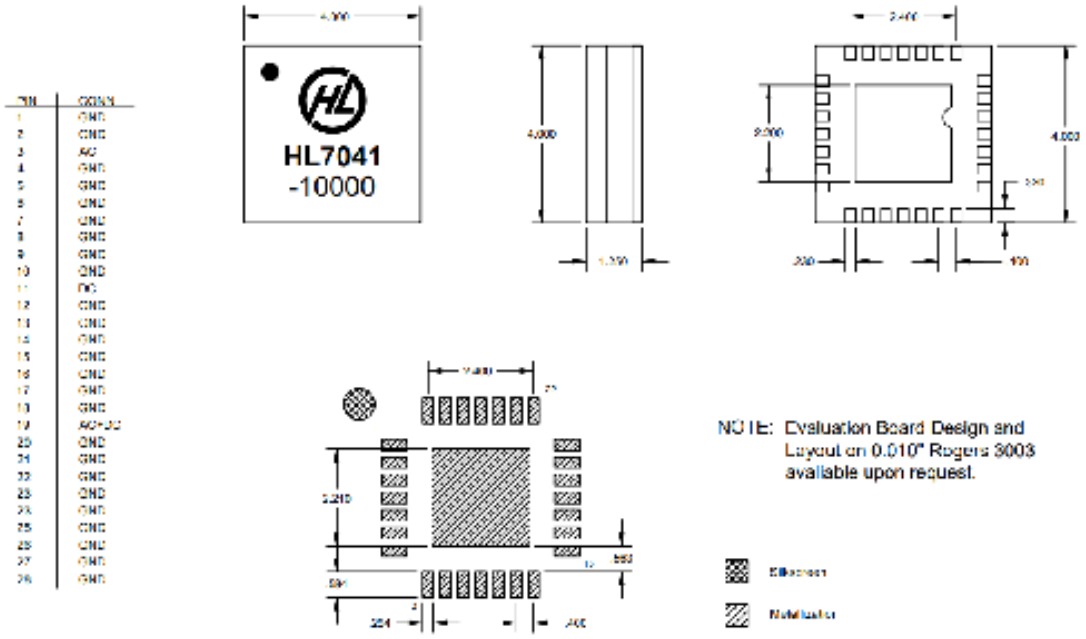


Figure 5: HL7041 Mechanical Drawing

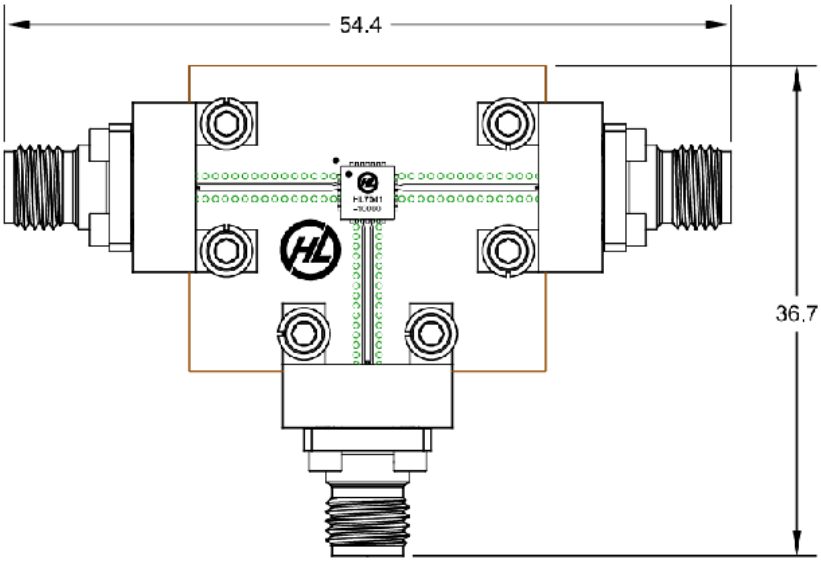


Figure 6: HL7041 Evaluation Board Dimensions

HL7042 Dimensional Drawing

Figure 7 shows a mechanical drawing of an HL7042. Unless otherwise noted, all units are shown in mm. *Figure 8* shows the schematic and port assignments of the HL7042 with left-handed package.

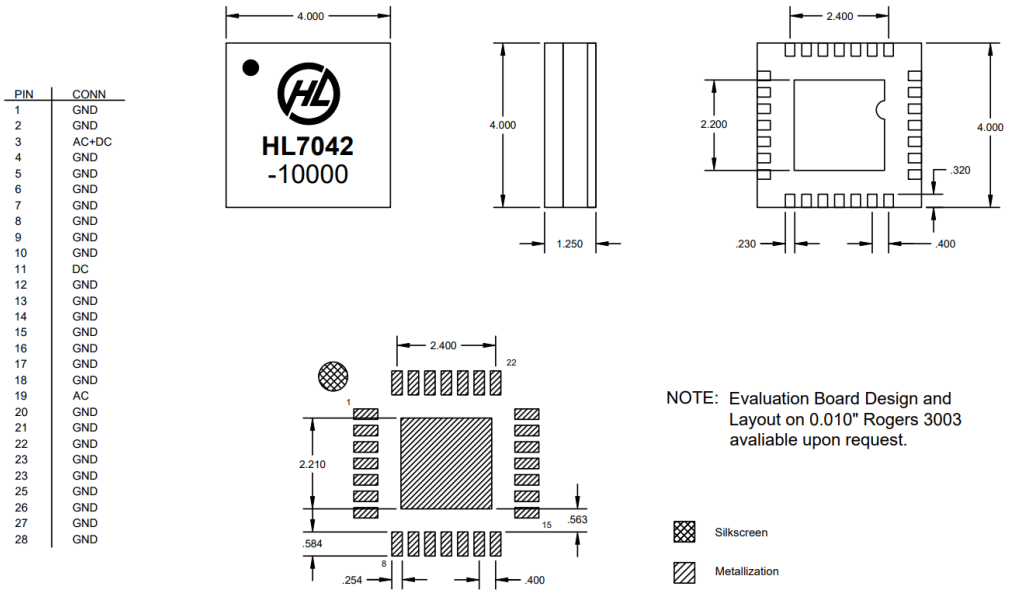


Figure 7: HL7042 Mechanical Drawing

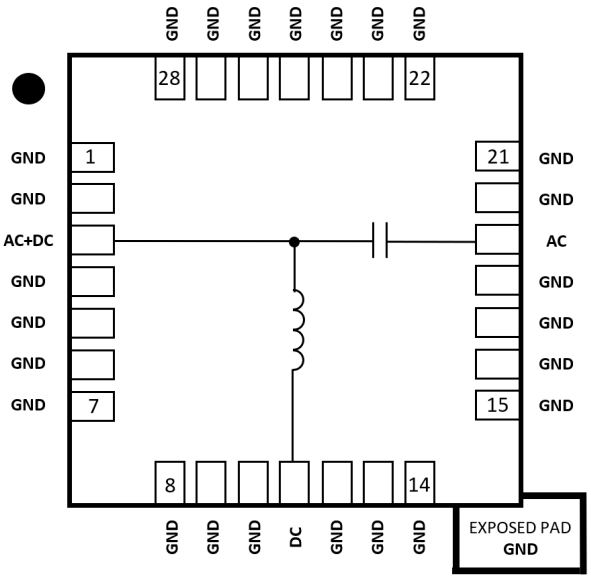


Figure 8: HL7042 Schematic and Port Assignments