

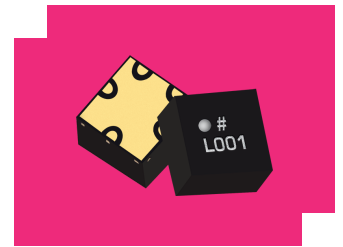
HLM-70CSP2

DC - 70GHz Chip Scale Package Limiter

DEVICE OVERVIEW

General Description

The HLM-70CSP2 is a high-linearity GaAs Schottky diode signal limiter featuring high IP3 over a broad DC - 70GHz bandwidth. It offers low insertion loss and excellent return loss over a wide operating bandwidth. Its small size makes it ideal for protecting sensitive components and for applications requiring high channel counts. It is available as a plastic surface mount chip scale package or as a connectorized evaluation board.



[Download s-parameters here](#)

Features

N/A

Applications

- RF Transceivers
- Test and Measurement Equipment
- SATCOM

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Green Status	Product Lifecycle	Export Classification
HLM-70CSP2	DC - 70GHz Chip Scale Package Limiter	CSP2	REACH RoHS	Released	EAR99
EVB-HLM-70CSP2	DC - 70 GHz Chip Scale Package Limiter	EVB		Released	EAR99

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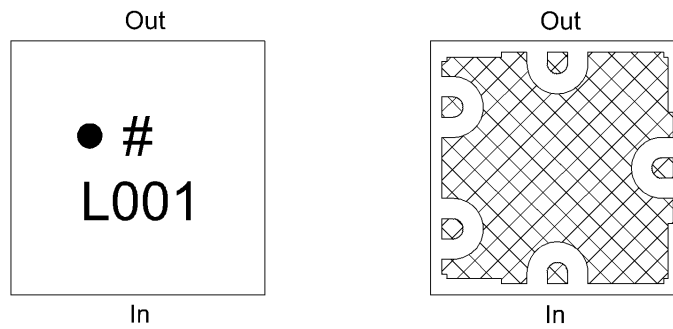
Revision History

Revision Code	Revision Date	Comment
-	2024-06-03	Initial Release
A	2025-04-28	Updated Moisture Sensitivity from MSL3 to MSL1
B	2025-05-05	Added ESD rating




Port Configuration and Functions

Port Diagram

A top-down view of the HLM-70CSP2's CSP2 package outline drawing is shown below. The HLM-70CSP2 has the input and output ports given in Port Functions.



Port Functions

Port	Function	Description	DC Equivalent Circuit
Ground Paddle	Ground	CSP2 package ground path is provided through the ground paddle and should be connected to RF ground	GND 
IN	Input	The input port is diode connected for the CSP2 and EVAL package.	IN 
Output	Output	The output port is diode connected for the CSP2 and EVAL package.	OU 

Specifications

Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded, the device may be inoperable or have a reduced lifetime.

Parameter	Maximum Rating	Unit
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
RF Power Handling , Average	1	W

Package Information

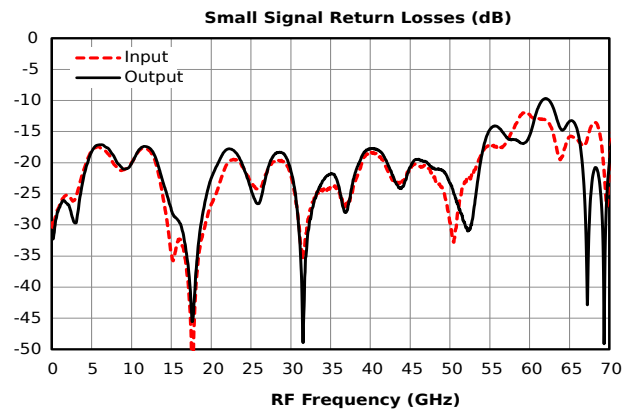
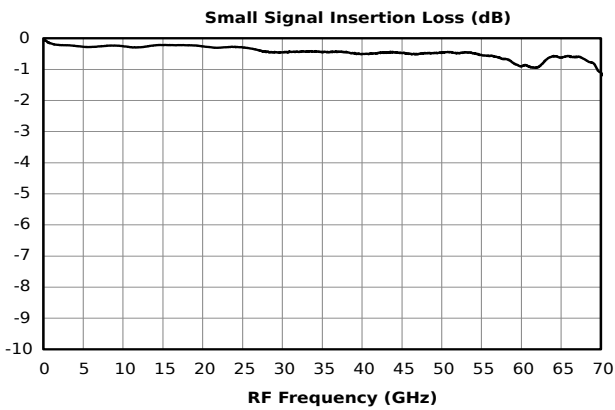
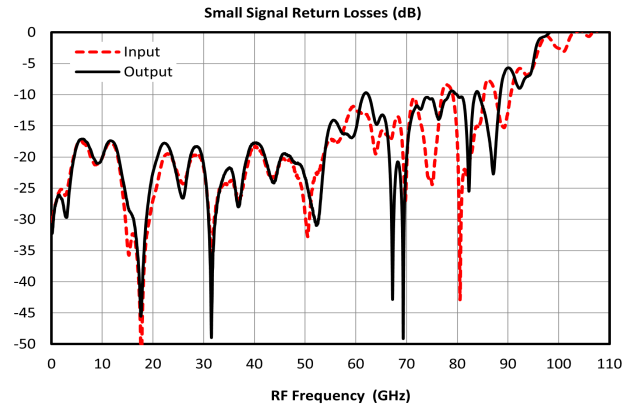
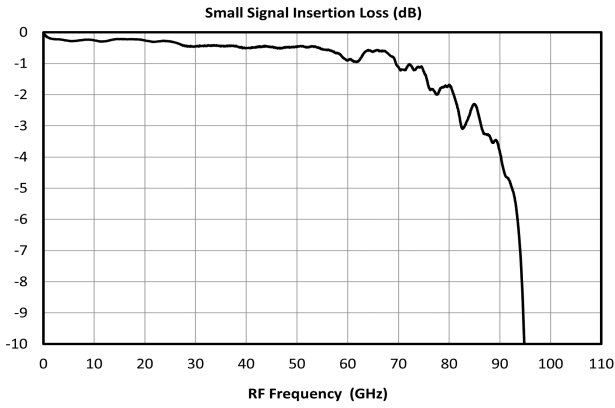
Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	2.50 x 2.50 mm
Moisture Sensitivity Level	-	MSL 1

Electrical Specifications

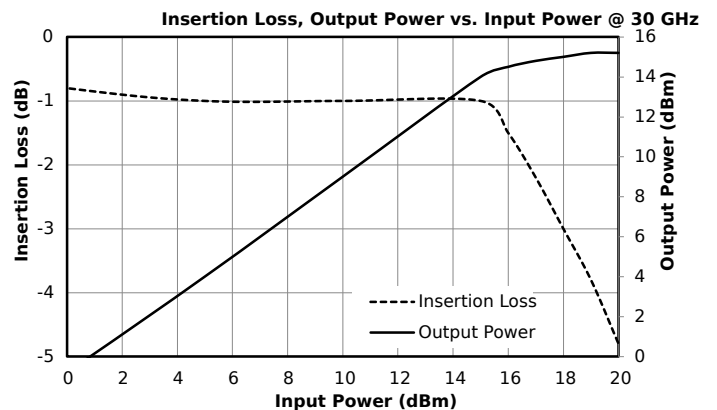
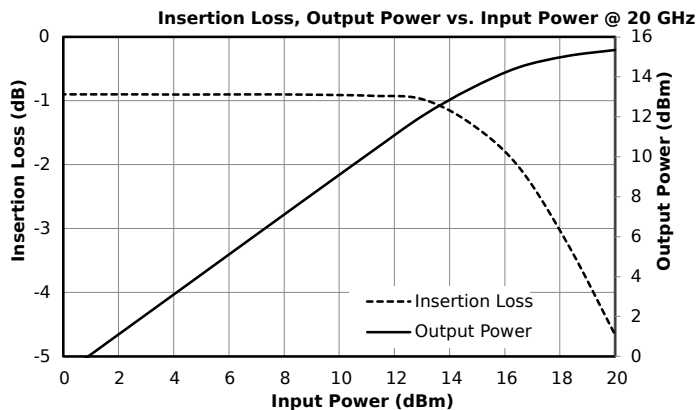
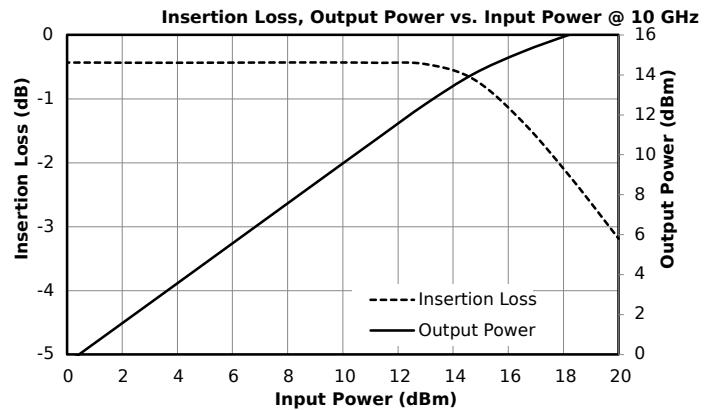
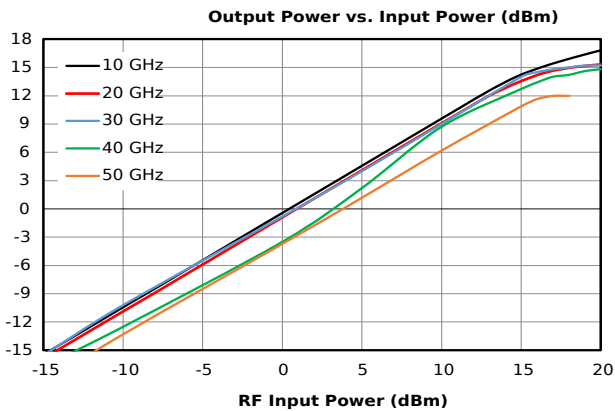
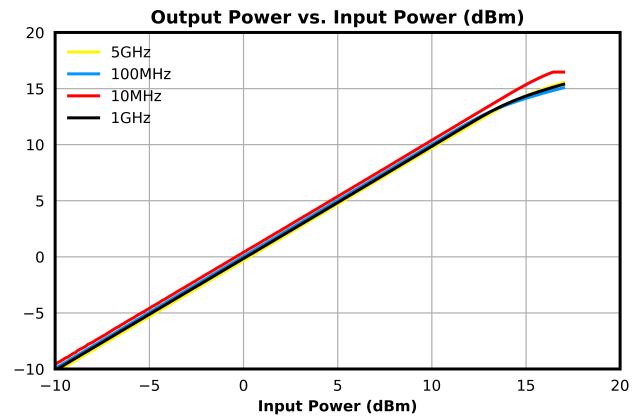
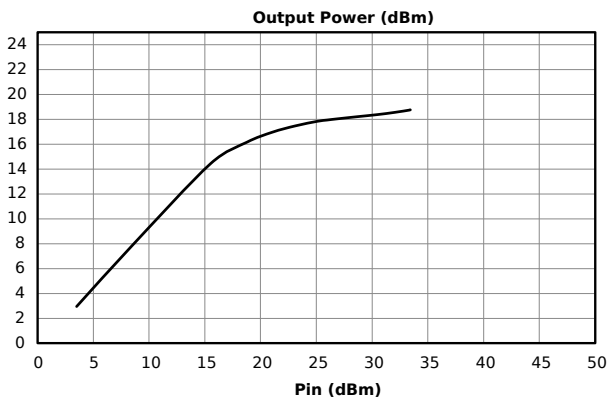
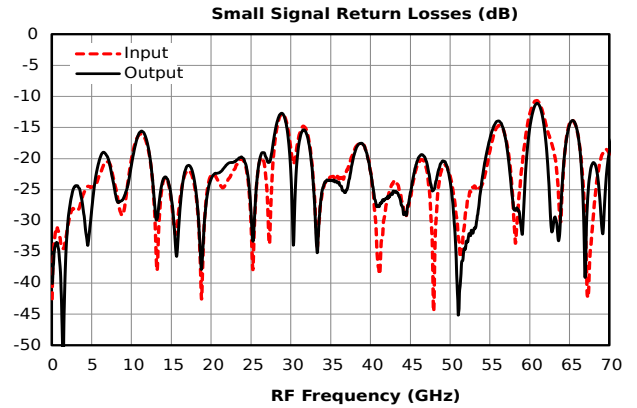
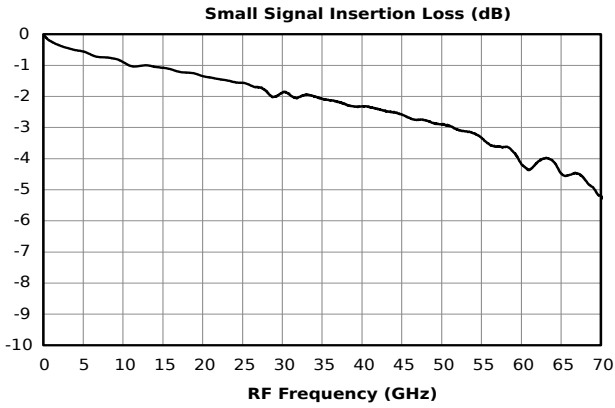
The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the connectorized EVAL-package limiter unless otherwise specified. CSP1-package data shown is deembedded from the EVAL-package data. Linear Specifications valid for input power up to the 0.1dB compression point. See page 5 for P0.1dB graph. Min and Max limits are guaranteed at TA=+25°C.

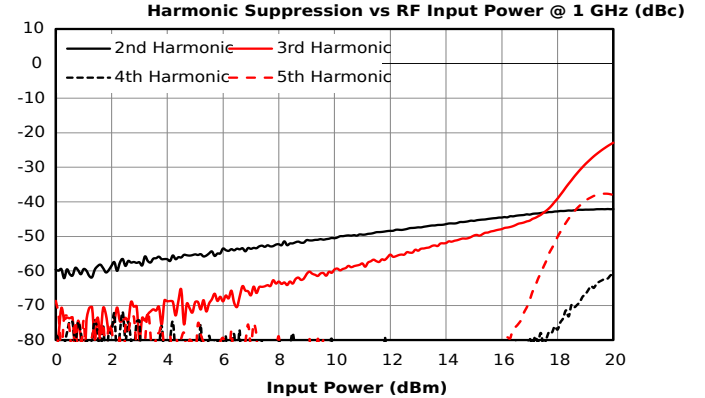
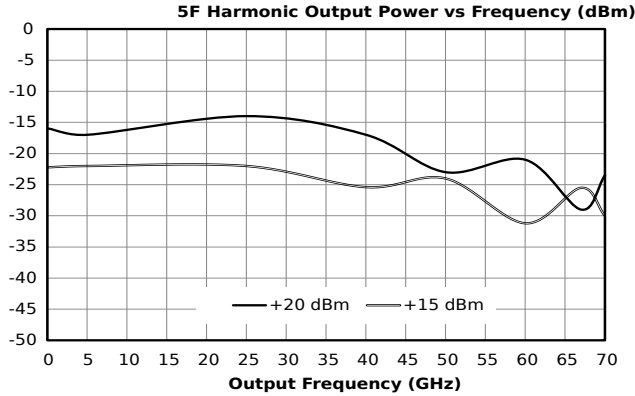
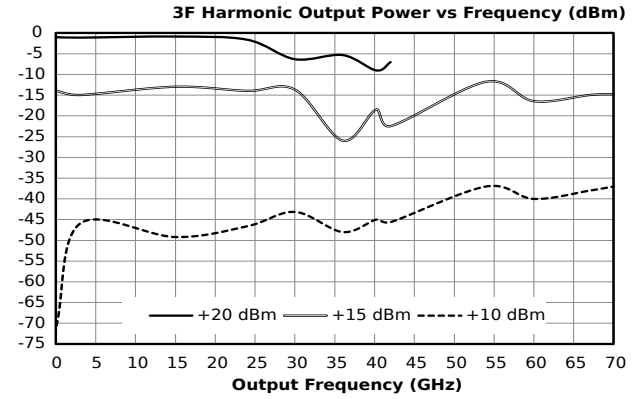
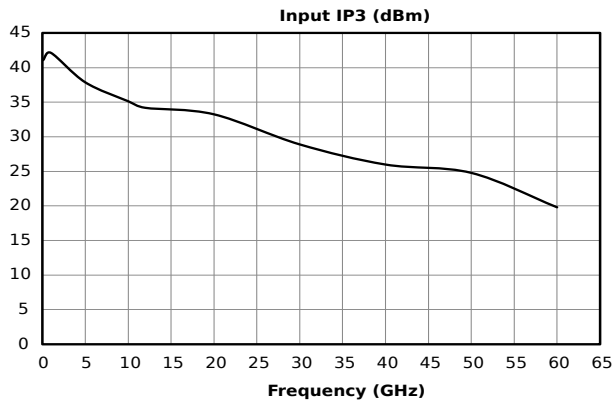
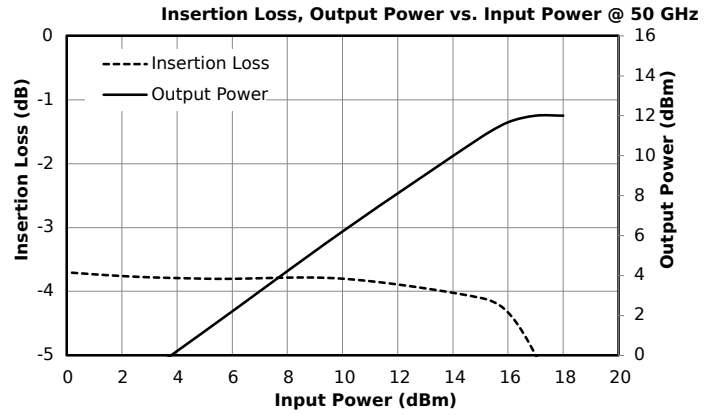
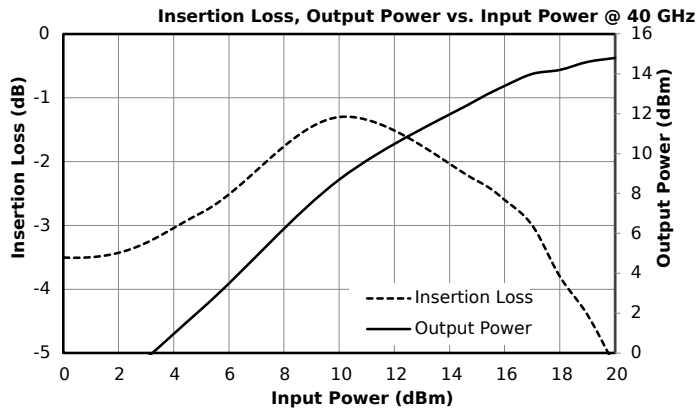
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Flat Leakage	18 GHz CW	-	-	-	18	-	dBm
Flat Leakage	20GHz CW	-	-	-	17	-	dBm
Flat Leakage	40GHz CW	-	-	-	13	-	dBm
Input IP3	DC – 60GHz	0	70	-	32	-	dBm
Insertion Loss	DC – 70GHz	0	70	-	0.5	-	dB
Return Loss	DC – 70GHz	0	70	-	21	-	dB

Typical Performance Plots



Typical Performance Plots EVB Package





Mechanical Data

Outline Drawing

Download : [Outline 2D Drawing](#) | [Outline 3D Drawing](#) | [Outline 3D STP](#)

Units in inch +/- .004" [millimeter +/- 0.1]

Port Number	Function
1	N/C
2	In
3	N/C
4	N/C
5	Out

Top Down View

Bottom Up View

Side View


*All measurements are typical

PROJECTION

REVISIONS		DATE	APPROVALS
REV.	DESCRIPTION		
A	As Drawn	6/17/2024	OG

Notes: (Unless otherwise specified)

1. Front to back registration to be 50.8µm max.
2. Circuits to be shipped individually.
3. Shaded areas are metalized.
4. Finish: Ni: 0.5 - 2.0 µm
Pd: 0.08 - 0.15 µm
Au: 0.008 - 0.05 µm

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		NOTES:		 345 Digital Drive Morgan Hill, CA 95037	
HOLE SIZE	DECIMALS ANGLES	DRAWN BY	DATE	Outline Hot Via Limiter	
XXXL .02 ±	XXXL .05 ±	AJN	09/25/2023		
MATERIAL:		OG	10/04/2023	SIZE	CAGE CODE
FINISH: Note 4				A	0UC32
DO NOT SCALE DRAWING				DWS. NO.	HLM-70CSP2
				SCALE	20:1
				SHEET 1 OF 1	

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