14000–18000 MHz 6-Bit GaAs MMIC Digital Attenuator Die

LCI-ATT-14000-18000-6B-D is a 6-bit GaAs pHEMT digital attenuator bare die for 14000–18000 MHz, providing stepped RF amplitude adjustment.

RMS attenuation error: 0.3 dB (typical); Insertion loss: 4 dB (maximum); Attenuation range: 0.5 dB (minimum) / 31.5 dB (maximum). Die dimensions: 2.5 × 1.5 × 0.1 mm.



RF characteristics

TA = +25 °C

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating frequency	-	14000	-	18000	MHz
Insertion loss	-	-	-	4	dB
Attenuation range	-	0.5	-	31.5	dB
RMS attenuation error	-	-	0.3	-	dB
Attenuation-induced phase variation	-	-	±2	-	°
Input VSWR	-	-	1.75	-	-
Output VSWR	-	-	1.5	-	-

DC bias and current

Parameter	Symbol	Minimum	Typical	Maximum	Value	Unit
Negative supply voltage	-	-	-	-	-5	V
Control voltage	-	-	-	-	0 / +5	V
Attenuation step	-	-	-	-	0.5	dB

Absolute limits

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Maximum input power	-	-	-	25	dBm

Environmental specifications

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Storage temperature	-	-65	-	150	°C
Operating temperature	-	-55	-	85	°C

Bond-pad assignments

Pins	Symbol	Function	Notes
1, 3, 4, 6	GND	Ground; no wire bond required	-
2	RF_in	RF input	-
5	RF_out	RF output	-
13	VE	DC bias	–5 V
7	A1	Attenuation control	0.5 dB; 0 / +5 V
8	A2	Attenuation control	1 dB; 0 / +5 V
9	A3	Attenuation control	2 dB; 0 / +5 V
10	A4	Attenuation control	4 dB; 0 / +5 V
11	A5	Attenuation control	8 dB; 0 / +5 V
12	A6	Attenuation control	16 dB; 0 / +5 V

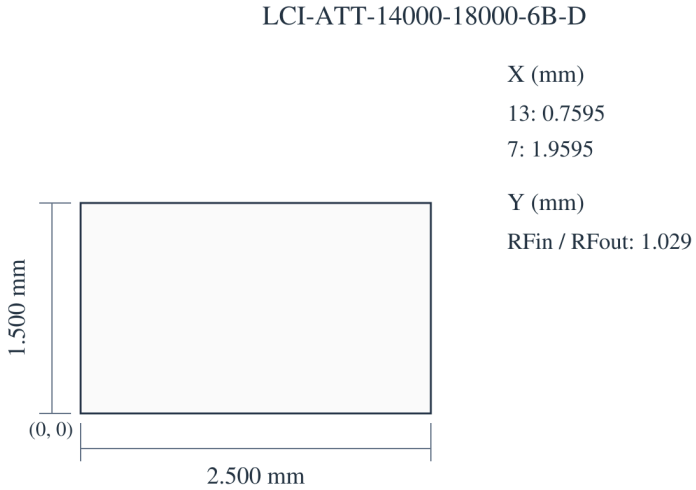
Control truth table

State	A1	A2	A3	A4	A5	A6
Reference state	0 V	0 V	0 V	0 V	0 V	0 V
0.5 dB	5 V	0 V	0 V	0 V	0 V	0 V
1 dB	0 V	5 V	0 V	0 V	0 V	0 V
2 dB	0 V	0 V	5 V	0 V	0 V	0 V
4 dB	0 V	0 V	0 V	5 V	0 V	0 V
8 dB	0 V	0 V	0 V	0 V	5 V	0 V
16 dB	0 V	0 V	0 V	0 V	0 V	5 V

Die dimensions

Parameter	Value	Unit
Die dimensions	2.5 × 1.5 × 0.1	mm

Reference drawing showing selected dimensions in mm. Use complete drawings for fabrication and wire bonding.



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Die integration and bias sequencing

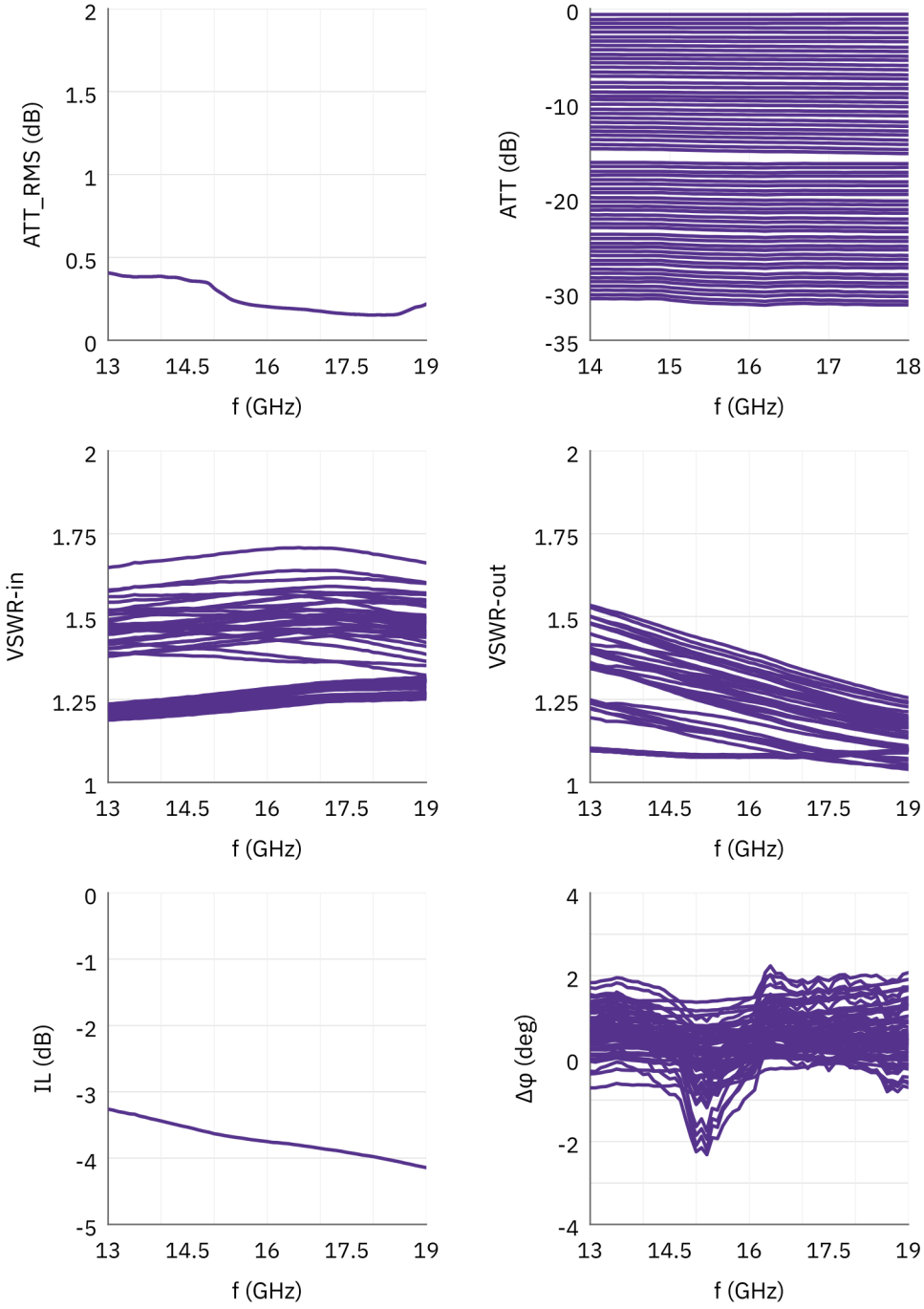
Control interface: Parallel TTL control.

Performance curves

Read each figure with its stated operating conditions.

Insertion loss; Input matching; Output matching; Attenuation; RMS attenuation error; ΔPHS.

Readings are approximate. Read the final plot by its vertical axis, delta_PHS (deg), which shows phase variation in degrees.



Document notice

Specifications are subject to revision. Before design release, confirm the current document revision and product-specific requirements with LCRF. The approved quotation and order documentation define the supplied configuration.