Surface Mount **High IP3 Monolithic Amplifier**

Broadband,

50&75 ohms 5 to 1000 MHz

Maximum Ratings

Heat Slug Temperature	110°C
Storage Temperature	-40°C to +125°C
DC Voltage	+13V
DC Power	7.15W

Pin Connections

RF IN 1,2	3,6
RF OUT 1,2	14,11
DC	10,15
GROUND	1,4,5,8,9,12,13,16
NO CONNECTION	2,7*
** *** *** ***	IDO IDO

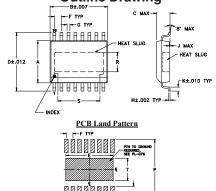
Adding bias resistors may improve IP3, IP2. See Application Notes:

Enhanced linearity in the HELA-10 Power Amplifier

(AN60-009) High IP3, wideband, balanced linear amplifier

HELA-10 (AN60-0033)

Outline Drawing

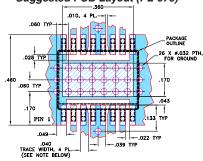




Outline Dimensions (inch)

		- (
J .004 0.10	H .008 0.20	.016	F .050 1.27	E .360 9.14		.098	.405	A .295 7.49
		.34	.13	P .460 11.68	.028	M .102 2.59		K .032 0.81

Demo Board MCL P/N: TB-16,-17,-30,-45 Suggested PCB Layout (PL-076)



NOTE: 1.TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS 0.057" ± .002"; COPPER: 1/2 0Z. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED. 2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE. DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

- excellent flatness, ±0.4 dB typ.
- very high IP3, 49 dBm typ. at 150 MHz & 45 dBm typ. at 800 MHz
- very high IP2, 88 dBm typ.
- low noise figure, 3.5 dB typ.
- aqueous washable

Applications

- Cellular
- Catv
- Instrumentation





CASE STYLE: CM624							
Model	Price	Qty.					
HELA-10+	\$15.95	(1-24)					

HELA Kit (see table below)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

\$19.95

(1-9)

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

Electrical Specifications at 25°C

KIT ¹ NO.	FREQ. (MHz)	SMHO	GAIN ² (dB)			MAXIMUM POWER (dBm)			AMIC NGE	-	WR⁴ 1)		DC WER	THERMAL RESIS- TANCE ⁵		
								tput Compr.)	Input ³	NF (dB)	IP3 (dBm)	IN	OUT	Volt (V)	Current (mA)	
	f _∟ -f _∪		Min.	Тур.	Max.	Typ. Flatness	Тур.	Min.	(no damage)	Тур.	Тур.	Тур.	Тур.	Nom.	Max.	θјс ° С/₩
HELA-10A+	50-1000	75	9.5	12	13	±0.4	30	26	20	3.5	47	1.22	1.22	12	525	6
HELA-10B+	50-1000	50	9.5	12	13	±0.4	30	26	20	3.5	47	1.22	1.22	12	525	6
HELA-10C+	5-450	75	9.3	11.4	12.5	±0.4	30	26	20	3.5	48	1.3	1.22	12	525	6
HELA-10D+	8-300	50	9.3	11	12.5	±0.4	30	26	20	3.5	48	1.2	1.2	12	525	6

1. Kit consists of HELA-10 plus transformers, see table below.

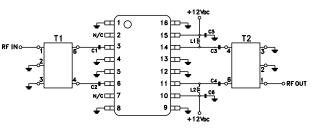
2. Includes transformer losses at input & output.

3. Open load is not recommended, potentially can cause damage. With no load, derate max. input power by 20 dB.

4. For 75 ohm. For 50 ohm. VSWR increases from 1.2:1 at 1 GHz to 2.0:1 at 50MHz.

5. Thermal resistance is from junction to heat slug. (mounting paddle).

Application Schematic Diagram



APPLICATION					PCB	EVALUATION
CIRCUIT	T1	T2	C1 TO C6	L1, L2	LAYOUT	BOARD
А	ADTL1-18-75	ADTL1-18-75	0.01µF	0.75µH	B14-TB-30	TB-16
В	ADTL1-12	ADTL1-12	0.01µF	0.75µH	B14-TB-17	TB-17
С	ADT1-1WT	ADTL1-4-75	0.039µF	3.3µH	B14-TB-16	TB-30
D	ADT1.5-1	ADT1.5-1	0.039µF	3.3µH	B14-TB-17	TB-45

Assembly Guideline

Reflow solder the slug to the ground plane; PC board layouts for 75 ohm (B14-TB-16), (B14-TB-30), and for 50 ohm (B14-TB-17) are available upon request. Please contact Applications Department or consult our web site.



For detailed performance specs & shopping online see web site

TES COPPER LAND PATTERN FREE OF SOLDER MASK ISO 9001 ISO 14001 AS 9100 CERTIFIED P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Training Provides ACTUAL Data Instantly at minicipality. IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp.

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