

# Surface Mount High IP3 Monolithic Amplifier

Broadband, 50 or 75 ohms, 5 to 1000 MHz

# HELA-10+ HELA-10



CASE STYLE: CM624  
PRICE: \$19.95 ea. Qty. (1-9)

## Features

- excellent flatness,  $\pm 0.4$  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.

## Applications

- cellular
- catv
- instrumentation

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

See our web site for RoHS Compliance methodologies and qualifications.

## Electrical Specifications at 25°C

KIT <sup>1</sup> NO.	FREQ. (MHz)		OHMS	GAIN* (dB)				MAXIMUM POWER (dBm)			DYNAMIC RANGE		VSWR ** Typ. (:1)		DC POWER		THERMAL RESISTANCE*** $\theta_{jc}$ °C/W
	$f_L$	$f_U$		Min.	Typ.	Max.	Typ. Flatness	Output (1 dB Compr.) Typ.	Min.	Input <sup>†</sup> (no damage)	NF dB Typ.	IP3 dBm Typ.	In	Out	Volt (V)	Current (mA)	
HELA-10A(+)	50	1000	75	10	12	13	$\pm 0.4$	30	26	20	3.5	47	1.22	1.22	12	525	6
HELA-10B(+)	50	1000	50	10 <sup>‡</sup>	12	13	$\pm 0.4$	30	26	20	3.5	47	1.22	1.22	12	525	6
HELA-10C(+)	5	450	75	9.3	11.4	12.5	$\pm 0.4$	30	26	20	3.5	48	1.3	1.22	12	525	6
HELA-10D(+)	8	300	50	9.3	11.0	12.5	$\pm 0.4$	30	26	20	3.5	48	1.2	1.2	12	525	6

<sup>1</sup> Kit consists of HELA-10 plus transformers, see table below.

<sup>†</sup> 9.5 dB min., 800-1000 MHz.

<sup>‡</sup> Open load is not recommended, potentially can cause damage. With no load, derate max. input power by 20 dB

<sup>\*</sup> Includes transformer losses at input & output.

<sup>\*\*</sup> For 75 ohm. For 50 ohm, VSWR increases from 1.2:1 at 1 GHz to 2.0:1 at 50MHz.

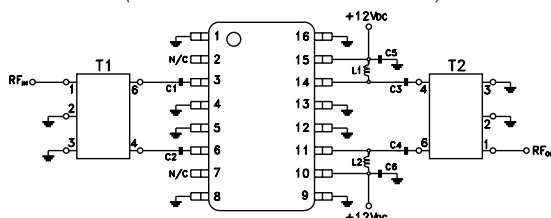
<sup>\*\*\*</sup> Thermal resistance is from junction to heat slug.

## Pin Connections

PORT	kl
RF IN	3,6
RF OUT	11,14
DC	10,15
CASE GND	1,4,5,8,9,12,13,16
NO CONNECTION	2,7

## Application Schematic Diagram

(see table below for values C1 to C6, L1&L2)

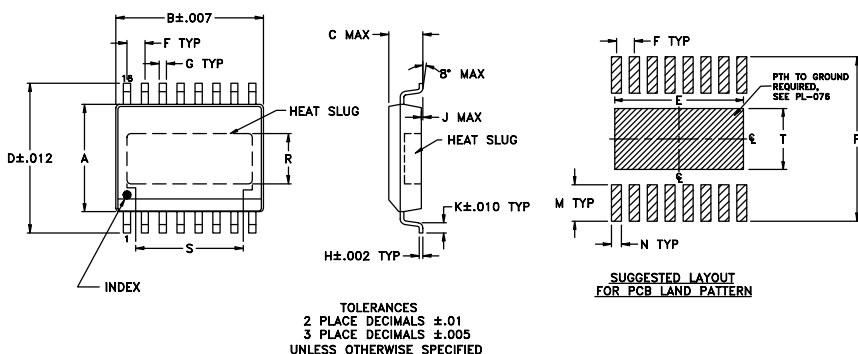


APPLICATION CIRCUIT	T1	T2	C1 TO C6	L1, L2	PCB LAYOUT	EVALUATION BOARD
A	ADTL1-18-75	ADTL1-18-75	0.01 $\mu$ F	0.75 $\mu$ H	B14-TB-30	TB-16
B	ADTL1-12	ADTL1-12	0.01 $\mu$ F	0.75 $\mu$ H	B14-TB-17	TB-17
C	ADT1-1WT	ADT1-4-75	0.039 $\mu$ F	3.3 $\mu$ H	B14-TB-16	TB-30
D	ADT1.5-1	ADT1.5-1	0.039 $\mu$ F	3.3 $\mu$ H	B14-TB-17	TB-45

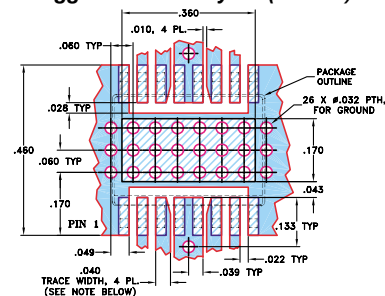
## Maximum Ratings

Heat Slug Temperature	110°C max.
Storage Temperature	-40°C to 150°C
DC Voltage	+13V
DC Power	7.15W

## Outline Drawing



## 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"  $\pm$  .002". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT.
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

## Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	wt
.295	.405	.098	.406	.36	.05	.016	.008	.004	.032	--	.102	.028	.46	.13	.13	.34	.17	grams
7.491	10.29	2.491	10.31	9.14	1.27	0.41	0.20	0.10	0.81	--	2.59	0.71	11.68	3.30	3.30	8.64	4.32	0.67

## 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.



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