

# Surface Mount Amplifier

## RAMP-31-1+

50Ω 1.5 to 30 MHz

### Features

- Single +12V operation
- Excellent gain flatness,  $\pm 0.2$  dB typ. usable to 70 MHz
- Output power up to +30 dBm typ.
- Small size

### Applications

- Buffer amplifier
- Driver amplifier
- HF communications
- Lab, instrumentation, test equipment



Case Style: BL1543-1

### +RoHS Compliant

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

### Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		1.5		30	MHz
Gain	1.5 - 30	28		31	dB
Gain Flatness	1.5 - 30		$\pm 0.2$	$\pm 1.0$	dB
Output Power at 1dB compression	1.5 - 30	27	30	—	dBm
Output third order intercept point IP3	1.5 - 30	40.5**	42*	—	dBm
Noise Figure	10 - 30	—	5.5	7.0	dB
Input VSWR	1.5 - 30	—	—	2.0	:1
Output VSWR	1.5 - 30	—	—	2.0	:1
DC Supply Voltage		11.75	12.0	12.25	V
Supply Current		—	310	325	mA

\* At 25°C with power out of each tone at 17 dBm

\*\* -40° to 90°C with power out of each tone at 17 dBm

### Maximum Ratings

Parameter	Ratings
Operating Temperature	-40°C to 90°C
Storage Temperature	-55°C to 100°C
DC Voltage	13V
Input RF Power (no damage)	5 dBm

Permanent damage may occur if any of these limits are exceeded.

### Pad Connections

Function	Pad Number
RF IN	1
RF OUT	12
DC INPUT	18
GROUND	All others and bottom pad

### ESD Rating

ESD Class 1A 250 to <500V in accordance with JS-001-2014

Moisture Sensitivity: MSL3 in accordance with IPC/JEDECJ-STD-020C

### Notes

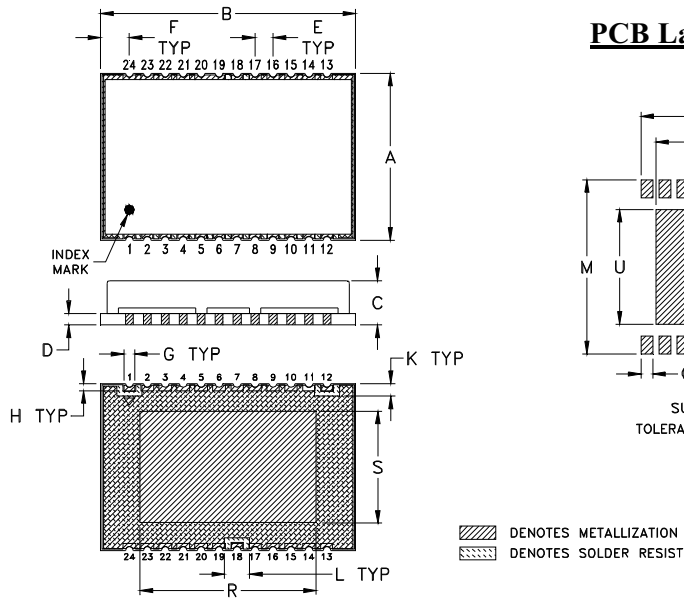
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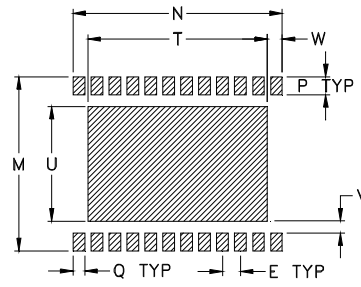
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### Outline Drawing



### PCB Land Pattern



SUGGESTED LAYOUT,  
TOLERANCE TO BE WITHIN  $\pm 0.002$

### Outline Dimensions (inch/mm)

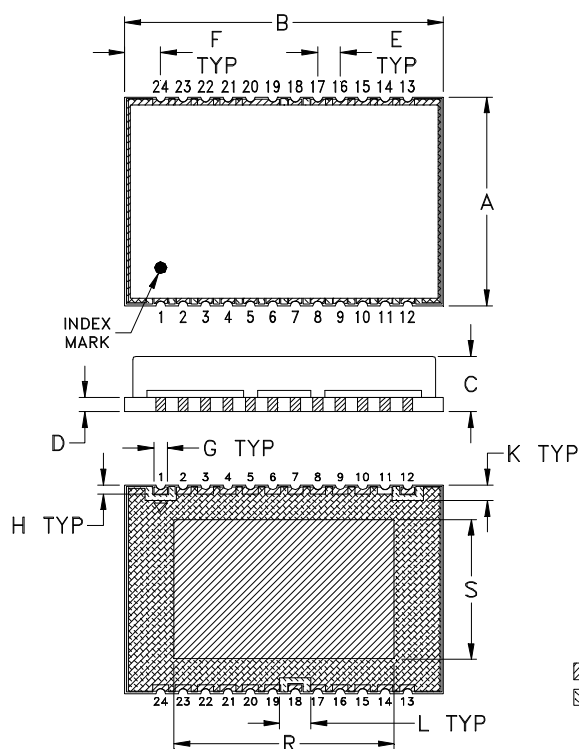
A	B	C	D	E	F	G	H	J	K	L
.93	1.42	.25	.063	.100	.160	.060	.040	--	.070	.140
23.62	36.07	6.35	1.60	2.54	4.06	1.52	1.02	--	1.78	3.56
M	N	P	Q	R	S	T	U	V	W	wt
.970	1.165	.100	.065	.980	.620	1.0	.640	.065	.083	grams
24.64	29.59	2.54	1.65	24.89	15.75	25.40	16.26	1.65	2.11	6.5

#### Notes

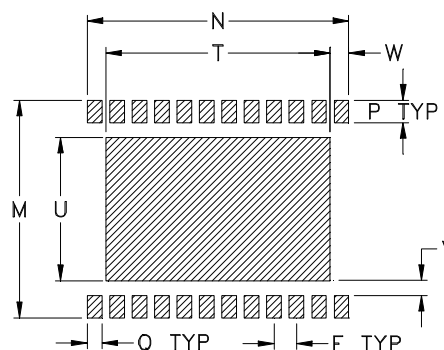
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
### Outline Dimensions



### PCB Land Pattern



SUGGESTED LAYOUT,  
TOLERANCE TO BE WITHIN  $\pm 0.002$

 DENOTES METALLIZATION  
 DENOTES SOLDER RESIST

CASE #	A	B	C	D	E	F	G	H	J	K	L	M
BL1543-1	.93 (23.62)	1.42 (36.07)	.25 (6.35)	.063 (1.60)	.100 (2.54)	.160 (4.06)	.060 (1.52)	.040 (1.02)	-- --	.070 (1.78)	.140 (3.56)	.970 (24.64)

CASE #	N	P	Q	R	S	T	U	V	W	WT. GRAM
BL1543-1	1.165 (29.59)	.100 (2.54)	.065 (1.65)	.980 (24.89)	.620 (15.75)	1.000 (25.40)	.640 (16.26)	.065 (1.65)	.083 (2.10)	6.5

Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .01$ ; 3Pl.  $\pm .005$

#### Notes:

- Case material: Copper-Nickel alloy.
- Base material: Printed wiring laminate.
- Termination finish: 3-5 $\mu$ inch (.08-.13 microns) Gold over 120-240 $\mu$ inch (3.05-6.10 microns) Nickel plate.  
All models, (+) suffix.



INTERNET <http://www.minicircuits.com>

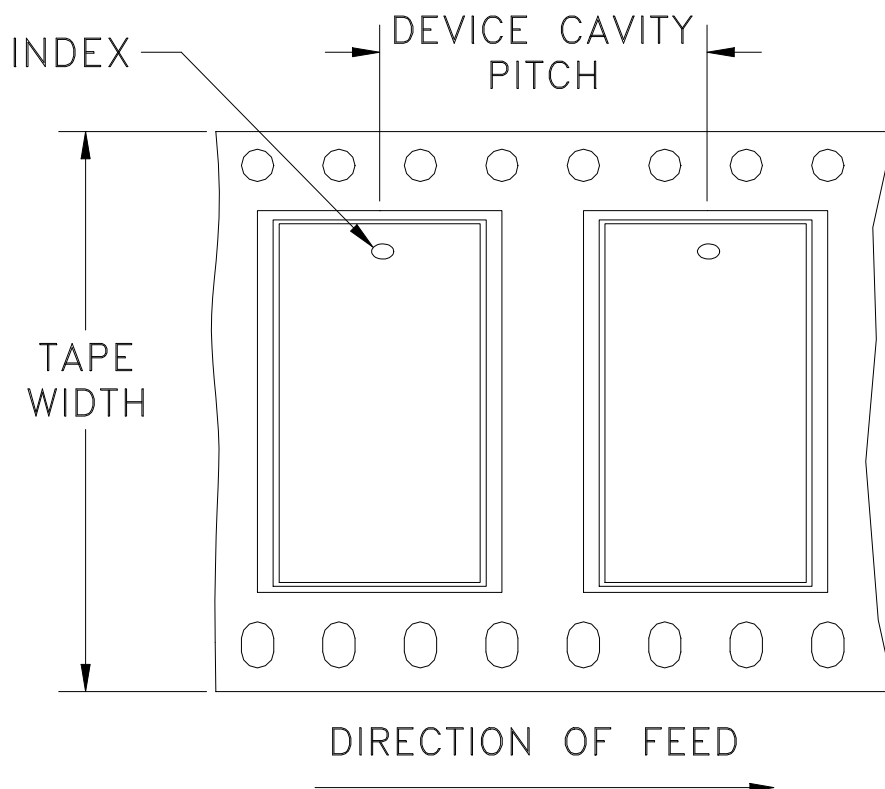
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# Tape & Reel Packaging TR-F89

## DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
56	32	13	100

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: [www.minicircuits.com/pages/pdfs/tape.pdf](http://www.minicircuits.com/pages/pdfs/tape.pdf)



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All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	40° to 90° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutectic Process: 225°C peak Pb-Free Process: 245°C peak	J-STD-020C, Table 4-1, 4-2 and 5-2; Figure 5-1
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
Vibration (High Frequency)	20g peak, 20-2000 Hz, 4 times in each of three axes (total 12)	MIL-STD-883, Method 2007.3, Condition A
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215