

12.5/50Ω 20 to 600 MHz 50 Watt

The Big Deal

- High power handling, 50W
- Low insertion loss, 0.4 dB
- Small size, 0.93 x 1.22 x 0.47"



CASE STYLE: BL301-7

Product Overview

Mini-Circuits' SERT4-2HP-50W+ is a high-power, surface-mount transformer with a secondary/primary impedance ratio of 1/4 for applications from 20 to 600 MHz. The transformer is capable of handling RF input power up to 50W and provides very low insertion loss (0.4 dB) as well as excellent return loss at the 50Ω port. The unit comes housed in a miniature, shielded package measuring just 0.93 x 1.22 x 0.47", making it ideal for applications where high power and small size are priorities.

Key Features

Feature	Advantages
High RF power handling (50W)	Supports systems with high power requirements.
Low insertion loss, 0.4 dB	Excellent transmission of signal power from input to output.
Small footprint, 0.93 x 1.22 x 0.47"	Accommodates tight space requirements for dense PCB layouts.

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document 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



Surface Mount RF Transformer

12.5/50Ω 20 to 600 MHz 50 Watt

SERT4-62HP-50W+



Generic photo used for illustration purposes only

CASE STYLE: BL301-7

Maximum Ratings

Operating Temperature -40°C to 65°C case*

Storage Temperature -55°C to 100°C

RF Power 50W

*Case temperature is defined as temperature on ground leads.
Permanent damage may occur if any of these limits are exceeded.

Pin Connections

PRIMARY (50 ohm) 15-16

SECONDARY (12.5 ohm) 7-11

CASE GROUND all others

Features

- high power input, 50 Watt max.
- low insertion loss, 0.40 dB typ.
- small size, 0.93 x 1.22 x 0.47"

Applications

- military mobile
- PCS
- BALUN
- diode matching

+RoHS Compliant

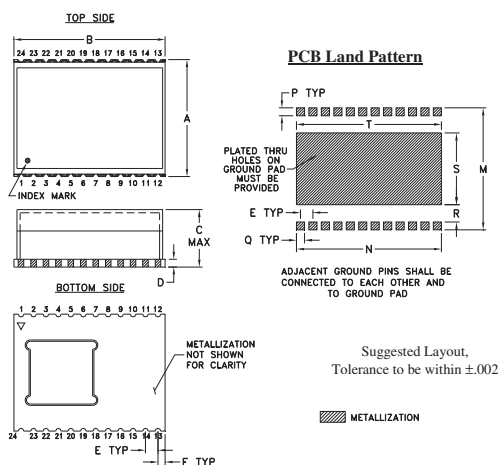
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (Secondary/Primary)			1/4		
Frequency Range		20	—	600	MHz
Insertion Loss	20-600	—	0.4	0.8	dB
Return Loss at 50 ohm	20-600	17.5	24	—	dB
Power Handling at primary ¹	20-600	—	—	50	Watt

1. The user must provide adequate means of heat removal to limit the temperature of ground connections under the PCB to +65°C, in order to ensure proper performance. At 25°C ambient temperature this requires thermal resistance of the user's PC board heat sink to be 0.8°C/W.

Outline Drawing



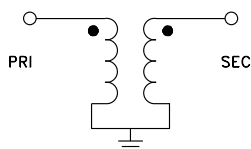
Test Board: TB-1101+

Outline Dimensions (inch)

A	B	C	D	E	F	M
.93	1.22	.47	.062	.100	.058	.970
23.62	30.99	11.94	1.57	2.54	1.47	24.64

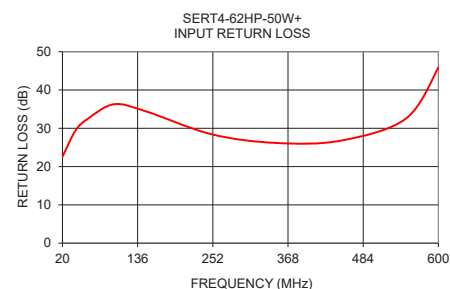
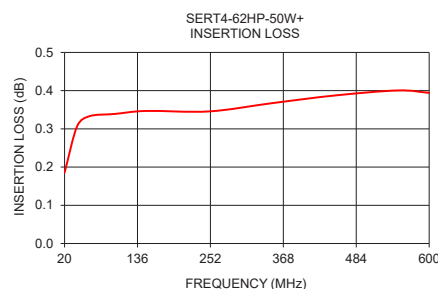
N	P	Q	R	S	T	wt
1.165	.063	.065	0.138	0.570	1.165	grams
29.59	1.60	1.65	3.51	14.48	29.59	grams

Config. D



Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	R. LOSS (dB) IN	R. LOSS (dB) OUT
20	0.19	22.55	22.61
40	0.31	29.37	29.23
60	0.33	32.58	32.13
100	0.34	36.29	35.57
150	0.35	34.36	36.50
250	0.35	28.44	30.89
350	0.37	26.17	28.68
450	0.39	26.79	29.78
550	0.40	32.54	36.82
600	0.39	45.85	36.56



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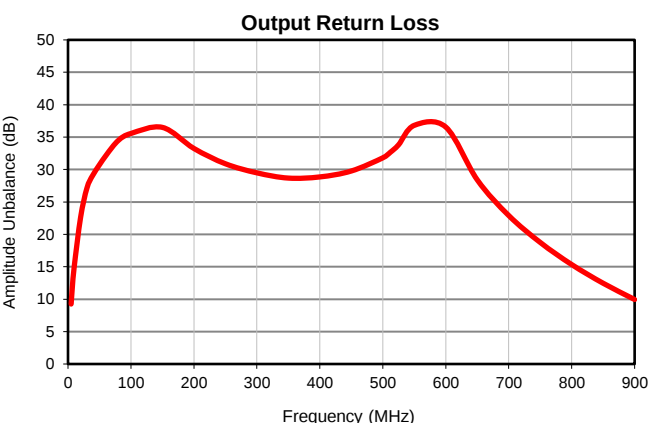
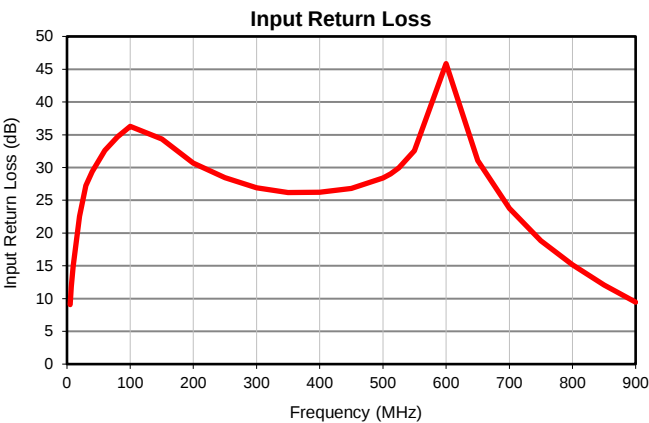
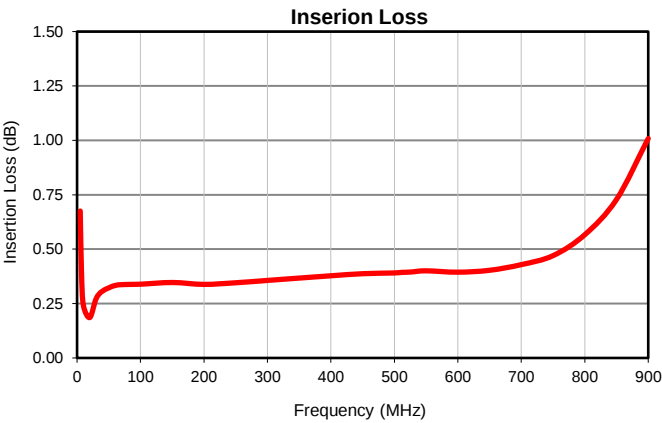
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Typical Performance Data

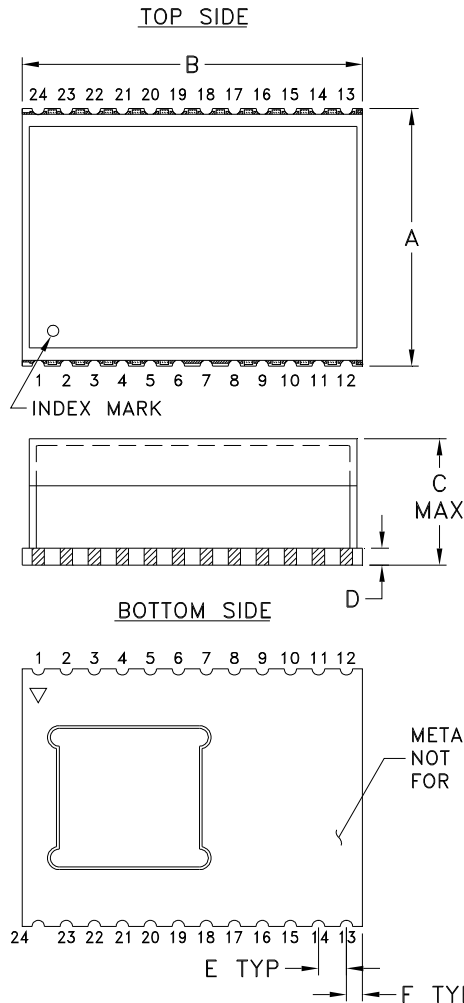
FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT RETURN LOSS (dB)	OUTPUT RETURN LOSS (dB)
5	0.68	9.08	9.25
7	0.39	11.80	11.96
10	0.24	14.98	15.11
20	0.19	22.55	22.61
30	0.27	27.23	27.12
40	0.31	29.37	29.23
60	0.33	32.58	32.13
80	0.34	34.70	34.50
100	0.34	36.29	35.57
150	0.35	34.36	36.50
200	0.34	30.68	33.26
250	0.35	28.44	30.89
300	0.36	26.92	29.49
350	0.37	26.17	28.68
400	0.38	26.24	28.86
450	0.39	26.79	29.78
500	0.39	28.40	31.81
512	0.39	29.03	32.67
525	0.39	29.97	33.82
550	0.40	32.54	36.82
600	0.39	45.85	36.56
650	0.40	31.05	28.41
700	0.43	23.75	22.91
750	0.47	18.84	18.76
800	0.57	15.14	15.35
850	0.73	12.07	12.46
900	1.01	9.44	9.95

Typical Performance Data

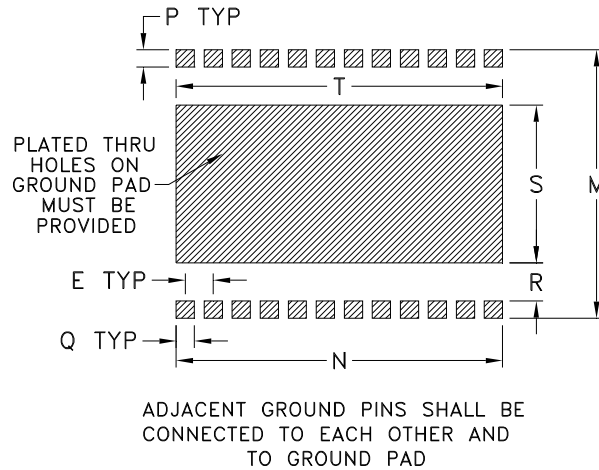


Outline Dimensions

BL301-7



PCB Land Pattern



Suggested Layout,
Tolerance to be within ± 0.002

METALLIZATION

CASE #	A	B	C	D	E	F	G	H	J	K	L
BL301-7	.93 (23.62)	1.22 (30.99)	.47 (11.94)	.062 (1.57)	.100 (2.54)	.058 (1.46)	--	--	--	--	--
CASE#	M	N	P	Q	R	S	T	U	WT. GRAM		
BL301-7	.970 (24.64)	1.165 (29.59)	.063 (1.60)	.065 (1.65)	.138 (3.51)	.570 (14.48)	1.165 (29.59)	--	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:

For RoHS Case Styles: 3-5 μ inch Gold over 120-240 μ inch Nickel plate. All models, (+) suffix.

For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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RF/IF MICROWAVE COMPONENTS



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 65° C Case 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 Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, 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, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
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