

Power Splitter/Combiner

SEPS-2-33+

2 Way-0° 50Ω 600 to 3000 MHz

Maximum Ratings

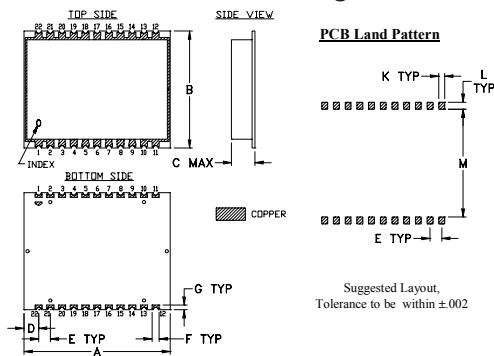
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	5W max.
Internal Dissipation	0.5W max.
DC Current	1.5A (750 mA for each port)

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

Pin Connections

SUM PORT	17
PORT 1	4
PORT 2	8
GROUND	all others

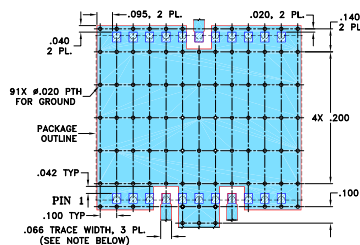
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
1.250	1.000	.200	.125	.100	.060	.040
31.75	25.40	5.08	3.18	2.54	1.52	1.02
H	J	K	L	M		wt
--	--	.050	.060	.920		grams
--	--	1.27	1.52	23.37		4.4

Demo Board MCL P/N: TB-760+ Suggested PCB Layout (PL-402)



Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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Features

- wideband 600-3000 MHz
- good isolation, 22 dB typ.
- good output matching, VSWR 1.2 typ.
- shielded case
- aqueous washable
- excellent amplitude unbalance, 0.15 dB typ.

Applications

- cellular
- GPS
- PCS
- CATV
- ISM
- wireless communication system



Generic photo used for illustration purposes only

CASE STYLE: JF1258

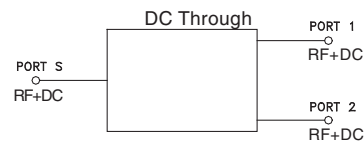
+RoHS Compliant

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
Frequency Range		600		3000	MHz
Insertion Loss Above 3.0 dB	700 - 2200 600 - 3000	— —	0.6 0.8	1.2 1.6	dB
Isolation	600 - 800 800 - 3000	13 17	17.0 24.0	— —	dB
Phase Unbalance	600 - 3000	—	1.0	5.0	Degree
Amplitude Unbalance	600 - 3000	—	0.15	0.6	dB
VSWR (Port S)	600 - 800 800 - 3000	— —	1.45 1.3	1.75 1.55	:1
VSWR (Port 1-2)	600-3000	—	1.2	1.4	:1

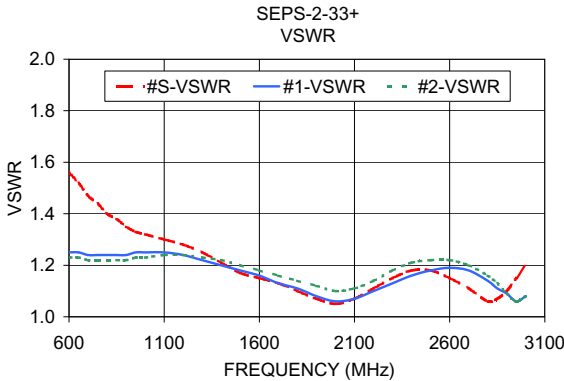
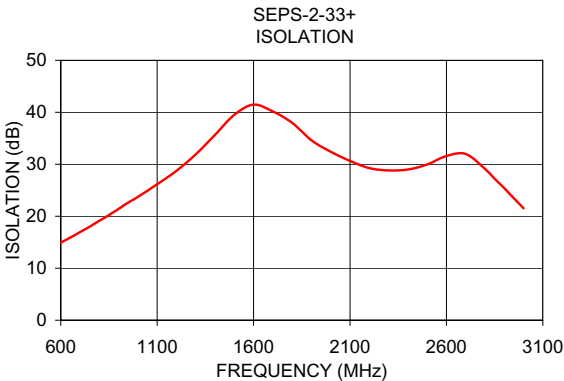
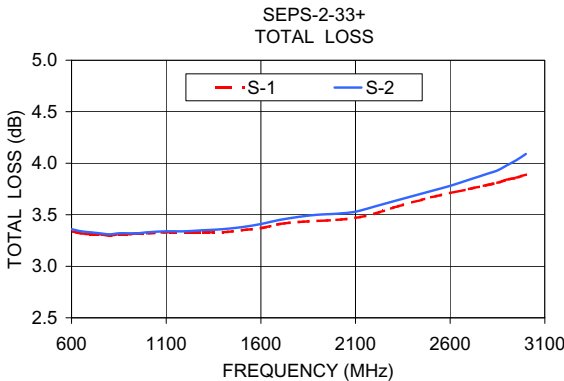
Electrical Schematic



Typical Performance Data

Frequency (MHz)	Total Loss ¹ (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
600.00	3.34	3.36	0.02	14.94	0.07	1.56	1.25	1.23
700.00	3.31	3.33	0.02	16.96	0.06	1.47	1.24	1.22
800.00	3.30	3.31	0.01	19.13	0.02	1.40	1.24	1.22
900.00	3.31	3.32	0.01	21.42	0.05	1.35	1.24	1.22
1000.00	3.32	3.33	0.01	23.73	0.07	1.32	1.25	1.23
1200.00	3.33	3.34	0.01	28.74	0.14	1.28	1.24	1.24
1400.00	3.33	3.36	0.03	35.65	0.14	1.21	1.20	1.22
1500.00	3.35	3.38	0.03	39.52	0.14	1.17	1.18	1.20
1600.00	3.37	3.41	0.04	41.47	0.13	1.15	1.16	1.18
1800.00	3.43	3.48	0.05	37.98	0.18	1.10	1.11	1.14
2000.00	3.45	3.51	0.06	32.40	0.21	1.05	1.06	1.10
2200.00	3.51	3.58	0.07	29.26	0.32	1.11	1.10	1.14
2400.00	3.62	3.68	0.06	28.99	0.35	1.18	1.16	1.21
2600.00	3.71	3.78	0.06	31.59	0.46	1.15	1.19	1.22
3000.00	3.89	4.09	0.20	21.54	0.82	1.20	1.08	1.08

1. Total Loss = Insertion Loss + 3dB splitter theoretical loss.



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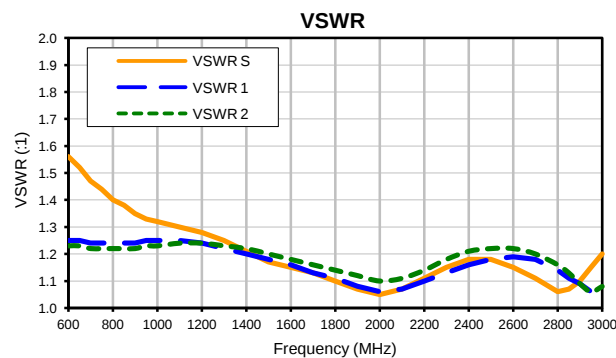
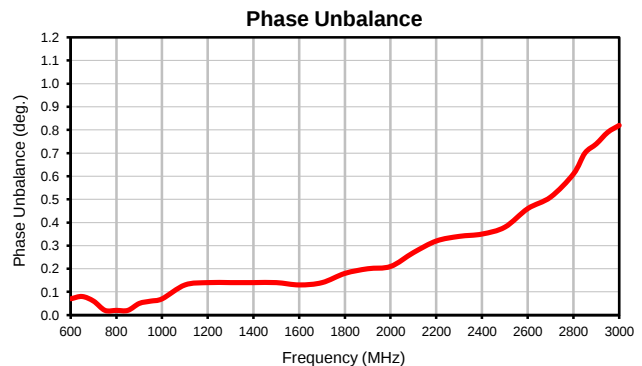
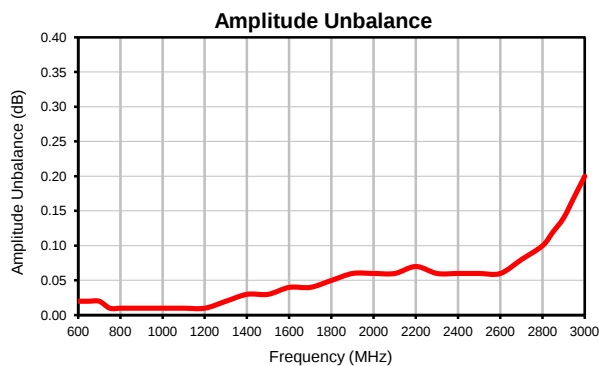
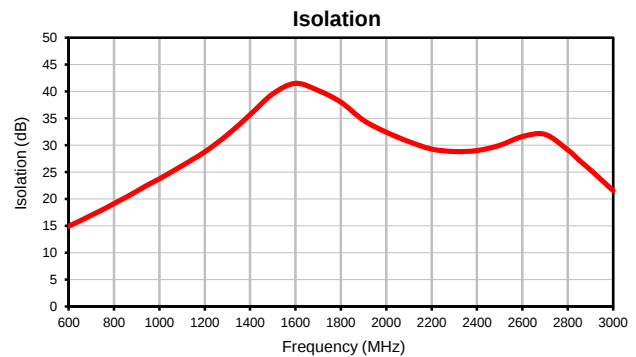
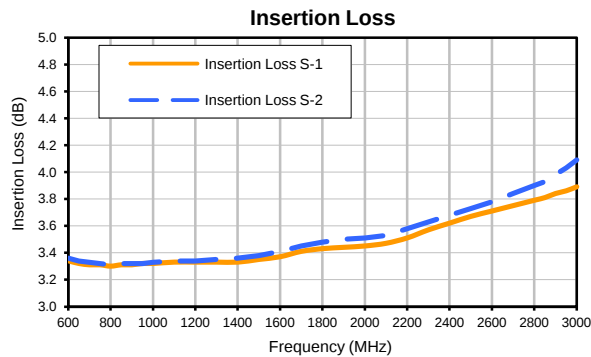


Typical Performance Data

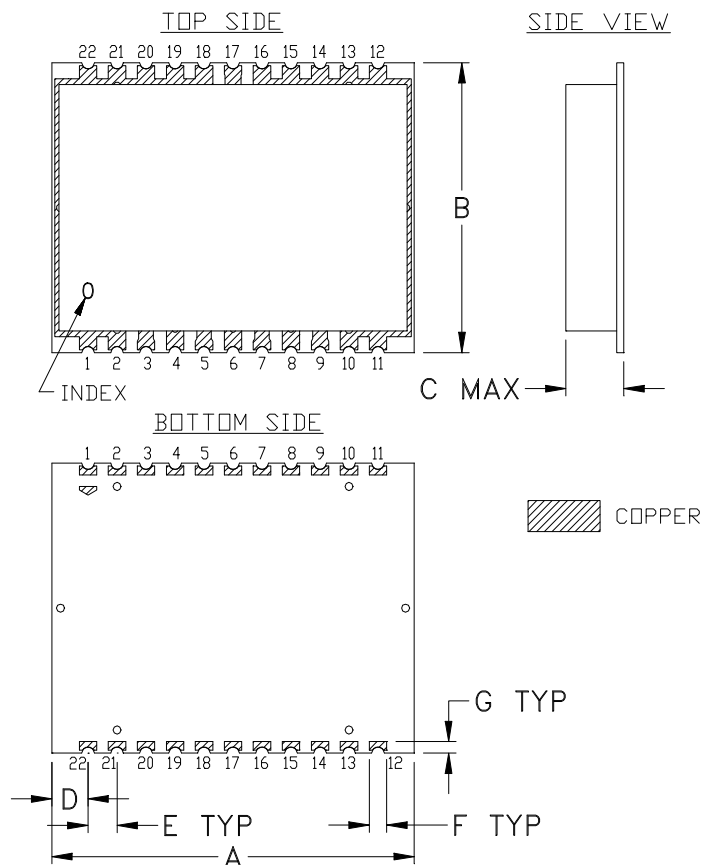
FREQUENCY (MHz)	INSERTION LOSS (dB)		AMPLITUDE UNBALANCE (dB)	ISOLATION (dB) 1-2	PHASE UNBALANCE (deg.)	FREQUENCY (MHz)	VSWR (:1)		
	S-1	S-2					S	1	2
600.0	3.34	3.36	0.02	14.94	0.07	600.0	1.56	1.25	1.23
650.0	3.32	3.34	0.02	15.92	0.08	650.0	1.52	1.25	1.23
700.0	3.31	3.33	0.02	16.96	0.06	700.0	1.47	1.24	1.22
750.0	3.31	3.32	0.01	18.00	0.02	750.0	1.44	1.24	1.22
800.0	3.30	3.31	0.01	19.13	0.02	800.0	1.40	1.24	1.22
850.0	3.31	3.32	0.01	20.24	0.02	850.0	1.38	1.24	1.22
900.0	3.31	3.32	0.01	21.42	0.05	900.0	1.35	1.24	1.22
950.0	3.32	3.32	0.01	22.64	0.06	950.0	1.33	1.25	1.23
1000.0	3.32	3.33	0.01	23.73	0.07	1000.0	1.32	1.25	1.23
1100.0	3.33	3.34	0.01	26.16	0.13	1100.0	1.30	1.25	1.24
1200.0	3.33	3.34	0.01	28.74	0.14	1200.0	1.28	1.24	1.24
1300.0	3.33	3.35	0.02	31.91	0.14	1300.0	1.25	1.22	1.23
1400.0	3.33	3.36	0.03	35.65	0.14	1400.0	1.21	1.20	1.22
1500.0	3.35	3.38	0.03	39.52	0.14	1500.0	1.17	1.18	1.20
1600.0	3.37	3.41	0.04	41.47	0.13	1600.0	1.15	1.16	1.18
1700.0	3.41	3.45	0.04	40.15	0.14	1700.0	1.13	1.13	1.16
1800.0	3.43	3.48	0.05	37.98	0.18	1800.0	1.10	1.11	1.14
1900.0	3.44	3.50	0.06	34.60	0.20	1900.0	1.07	1.08	1.12
2000.0	3.45	3.51	0.06	32.40	0.21	2000.0	1.05	1.06	1.10
2100.0	3.47	3.53	0.06	30.64	0.27	2100.0	1.07	1.07	1.11
2200.0	3.51	3.58	0.07	29.26	0.32	2200.0	1.11	1.10	1.14
2300.0	3.57	3.63	0.06	28.81	0.34	2300.0	1.15	1.13	1.18
2400.0	3.62	3.68	0.06	28.99	0.35	2400.0	1.18	1.16	1.21
2500.0	3.67	3.73	0.06	29.96	0.38	2500.0	1.18	1.18	1.22
2600.0	3.71	3.78	0.06	31.59	0.46	2600.0	1.15	1.19	1.22
2700.0	3.75	3.84	0.08	31.99	0.51	2700.0	1.11	1.18	1.20
2800.0	3.79	3.90	0.10	29.10	0.61	2800.0	1.06	1.14	1.16
2850.0	3.81	3.93	0.12	27.20	0.70	2850.0	1.07	1.11	1.13
2900.0	3.84	3.98	0.14	25.39	0.74	2900.0	1.10	1.09	1.09
2950.0	3.86	4.03	0.17	23.46	0.79	2950.0	1.15	1.06	1.06
3000.0	3.89	4.09	0.20	21.54	0.82	3000.0	1.20	1.08	1.08

¹Total Loss = Insertion Loss + 3dB Splitter Loss

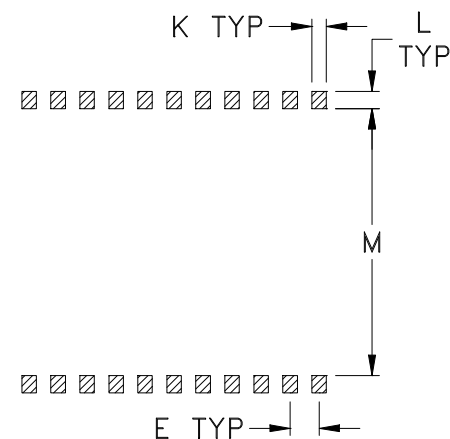
Typical Performance Curves



Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

CASE #	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAM
JF1258	1.250 (31.75)	1.000 (25.40)	.200 (5.08)	.125 (3.17)	.100 (2.54)	.060 (1.52)	.040 (1.02)	-	-	.050 (1.27)	.060 (1.52)	.920 (23.37)	4.4

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3Pl. $\pm .015$

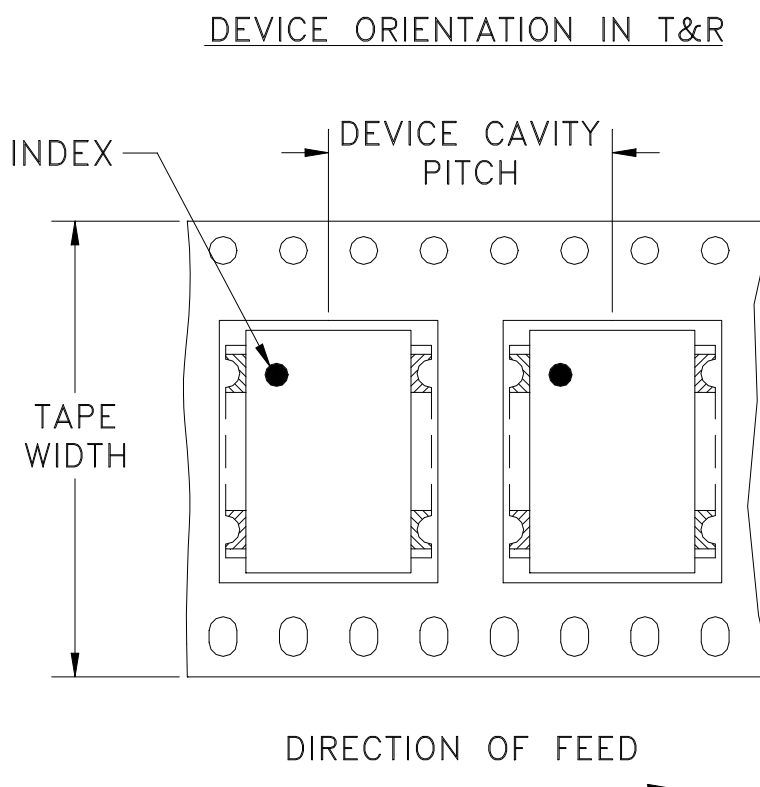
Notes:

- Case material: Nickel-Silver alloy.
- Base: Printed wiring laminate.
- Termination finish:
For RoHS Case Styles: 3-5 μ inch (.08-.13 μ m) Gold over 120-240 μ inch (3-6 μ m) Nickel plate.
All models, (+) suffix.



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Tape & Reel Packaging TR-F27



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
44	32	13	125

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.

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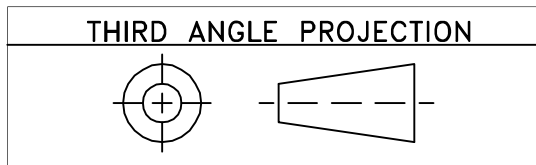


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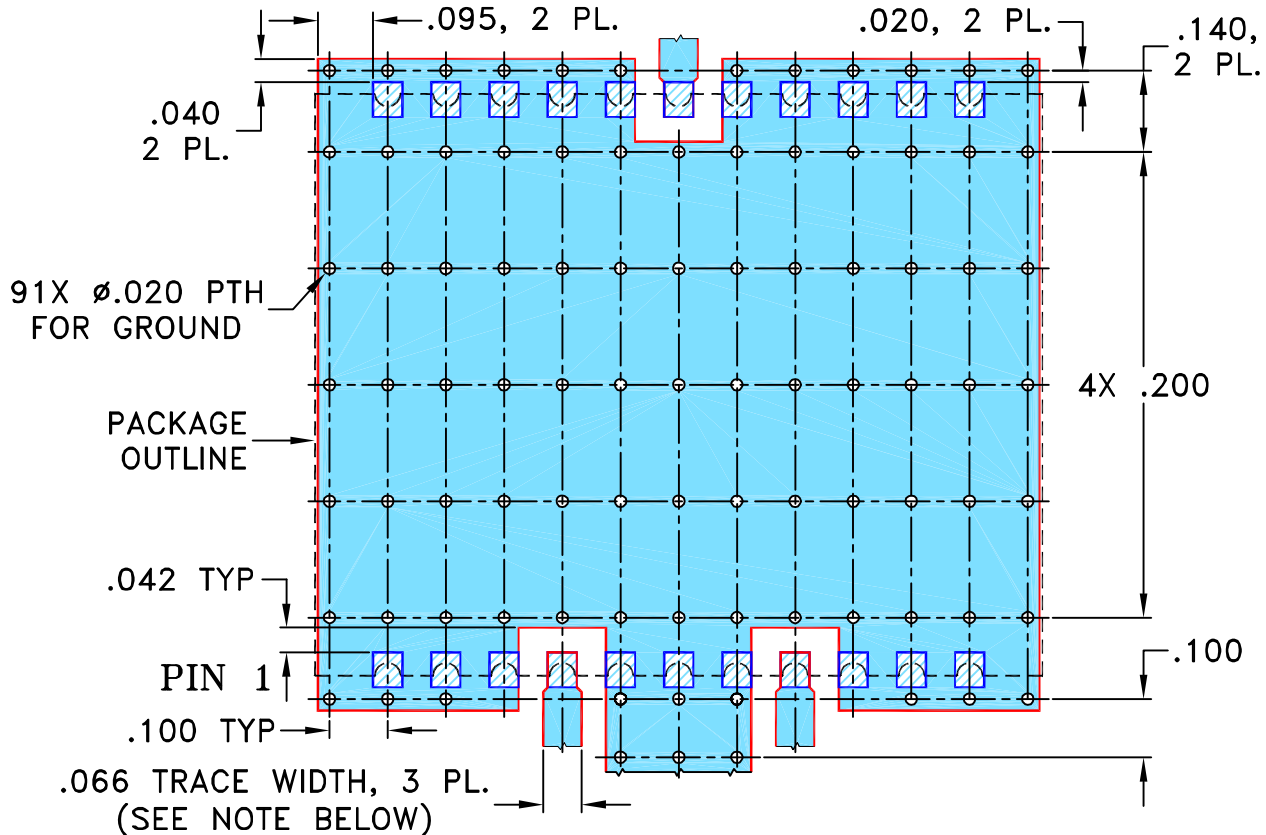
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REVISIONS					
REV OR	ECN No.	DESCRIPTION	DATE	DR	AUTH
	M147511	NEW RELEASE	07/28/14	GF	JC

SUGGESTED MOUNTING CONFIGURATION FOR
JF1258 CASE STYLE, "22SP03" PIN CONNECTION



- NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" $\pm$.002"; COPPER: 1/2 OZ. 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

UNLESS OTHERWISE SPECIFIED	INITIALS		DATE
DIMENSIONS ARE IN INCHES TOLERANCES ON: 2 PL DECIMALS $\pm$ 3 PL DECIMALS $\pm$.005 ANGLES $\pm$ FRACTIONS $\pm$	DRAWN	GF	07/22/14
	CHECKED	ITG	07/28/14
	APPROVED	JC	07/28/14



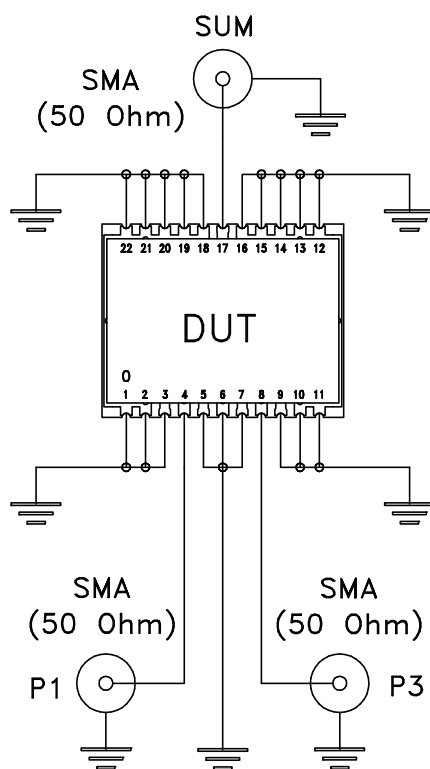
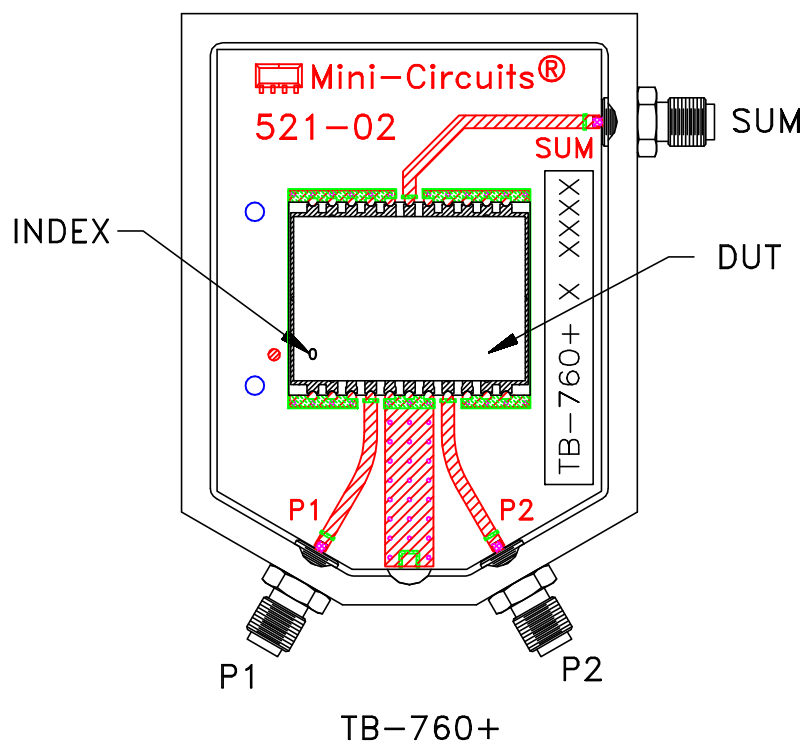
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PL, 22SP03, JF1258, TB-760+

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ASHEETA1.DWG REV:A	DATE:01/12/95

SIZE A	CODE IDENT 15542	DRAWING NO: 98-PL-402	REV: OR
FILE: 98PL402	SCALE: 3:1	SHEET: 1 OF 1	

Evaluation Board and Circuit



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent, Dielectric Constant=3.5, Thickness=.030 inch.

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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 85°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 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, 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