

LTCC

Low Pass Filter

50Ω

4900 to 5950 MHz

LPJC-592R+



Generic photo used for illustration purposes only

CASE STYLE: JC0603C-1

Features

- Miniature size 0603
- Low Insertion Loss, 0.4 dB typ. and High rejection 49 dB typ.
- Low cost
- Aqueous washable

Applications

- ISM Band
- WLAN
- Bluetooth
- Zigbee

+RoHS Compliant

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



Available Tape and Reel
at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500, 1000, 4000

Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss ¹	F1-F2	4900 - 5950	—	0.4	1.0	dB
	VSWR	F1-F2	4900 - 5950	—	1.1	1.9	:1
Stop Band	Rejection Loss	F3-F4	8800- 12600	34	49	—	dB

1. Tested on Evaluation Board TB-1026+

Maximum Ratings

Operating Temperature	-40°C to +85°C
Storage Temperature ²	-40°C to +85°C
RF Power Input ³	3W at 25°C

2. Refer to product storage temperature after installation

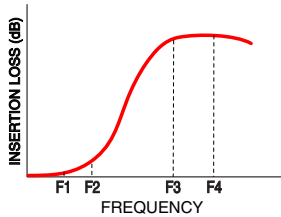
Suggestion for T&R unused product storage condition: +5 ~ +35 °C, Humidity 45~75%RH, 12 month Max

3. Derate linearly to 1.5W at 85°C.

Typical Performance Data at 25°C

Frequency (GHz)	Insertion Loss (dB)	VSWR (:1)
3.50	0.30	1.64
4.00	0.25	1.52
4.50	0.19	1.29
4.90	0.17	1.11
5.00	0.18	1.08
5.50	0.27	1.22
5.95	0.40	1.32
6.00	0.42	1.32
6.50	0.59	1.14
7.00	2.77	3.24
7.50	10.64	15.60
8.00	21.00	52.08
8.50	33.56	1202.45
9.00	45.39	227.59
9.50	45.32	123.59
10.00	45.71	80.92
11.00	74.33	134.25
12.60	36.39	451.51

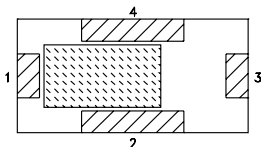
Specification Definition



Block Diagram

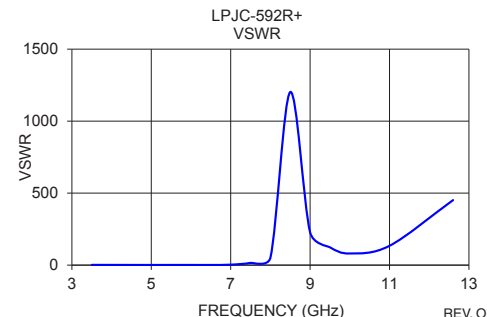
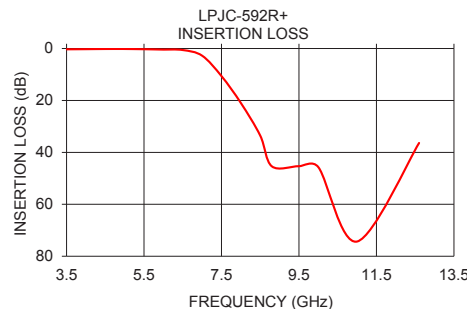


Top View



Pad Connections

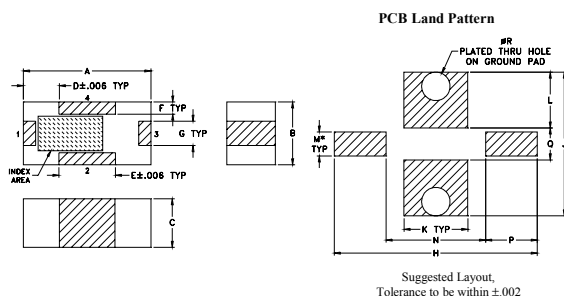
Input	1
Output	3
Ground	2, 4



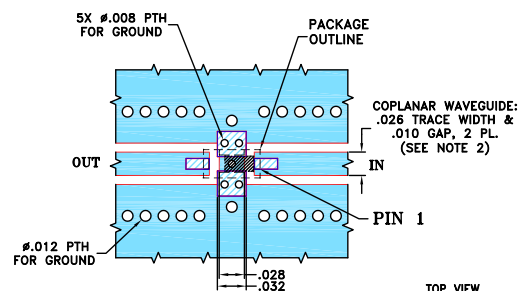
Low Pass Filter

LPJC-592R+

Outline Drawing



Evaluation Board MCL P/N: TB-1026+ Suggested PCB Layout (PL-564)



NOTES:

1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
 2. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR FR4 WITH DIELECTRIC THICKNESS $.003 \pm .0005$; COPPER: 1/2 OZ. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
 3. LAYER 3 AND LAYER 4 OF THE PCB ARE CONTINUOUS GROUND PLANES.
-  DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Outline Dimensions ($\frac{\text{inch}}{\text{mm}}$)

A	B	C	D	E	F	G	H	J
.063	.031	.024	.018	.028	.006	.012	.100	.071
1.60	0.79	0.61	0.46	0.71	0.15	0.30	2.54	1.80
K	L	M	N	P	Q	R	wt	
.032	.028	.012	.049	.026	.016	.014	grams	
0.81	0.71	0.30	1.24	0.66	0.41	0.36	0.005	

Additional Notes

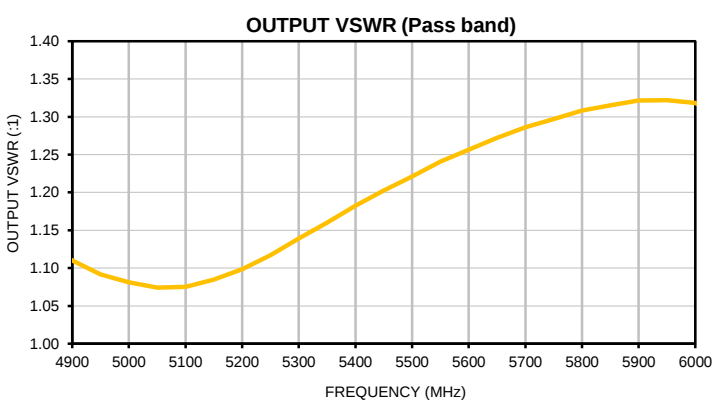
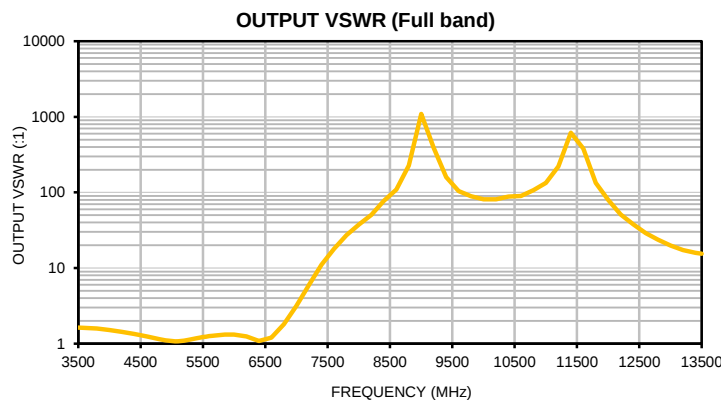
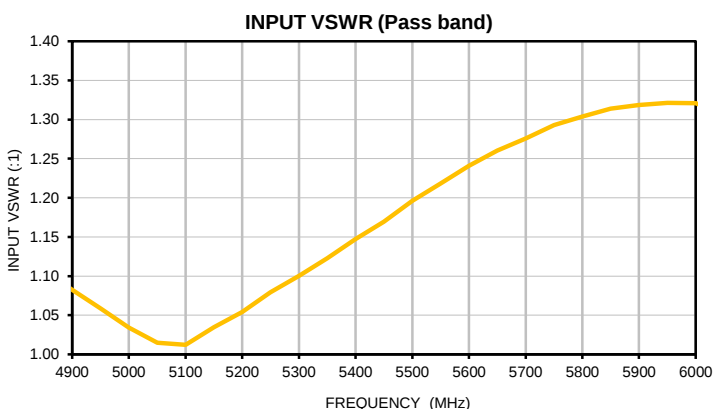
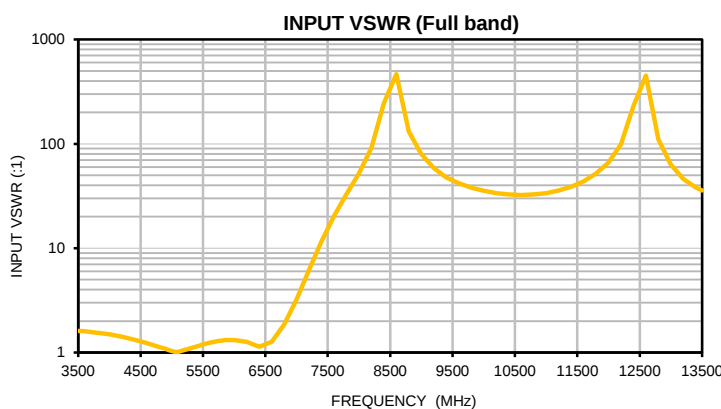
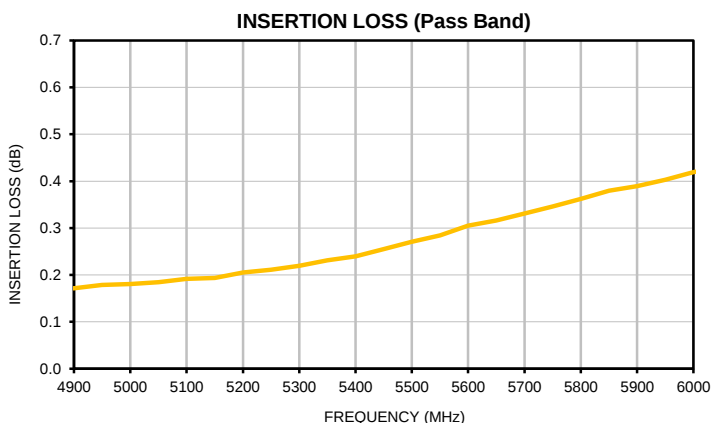
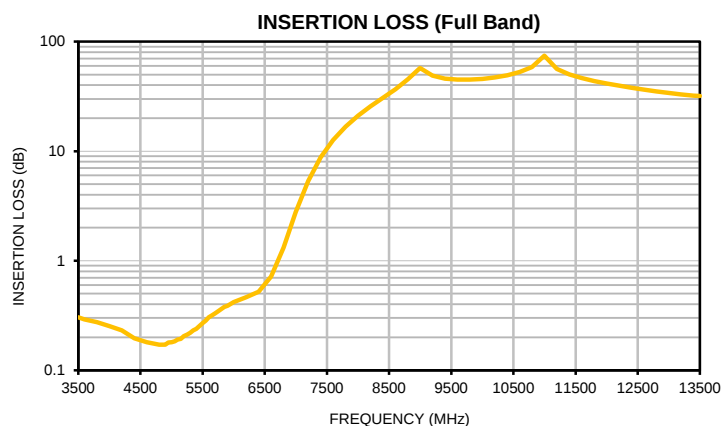
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- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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Typical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

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT VSWR (:1)	OUTPUT VSWR (:1)
3500	0.30	1.61	1.64
3600	0.29	1.60	1.62
3800	0.28	1.55	1.58
4000	0.25	1.50	1.52
4200	0.23	1.42	1.43
4400	0.20	1.33	1.34
4600	0.18	1.23	1.24
4800	0.17	1.13	1.15
4900	0.17	1.08	1.11
4950	0.18	1.06	1.09
5000	0.18	1.03	1.08
5050	0.18	1.01	1.07
5100	0.19	1.01	1.08
5150	0.19	1.03	1.08
5200	0.21	1.05	1.10
5250	0.21	1.08	1.12
5300	0.22	1.10	1.14
5350	0.23	1.12	1.16
5400	0.24	1.15	1.18
5450	0.26	1.17	1.20
5500	0.27	1.20	1.22
5550	0.28	1.22	1.24
5600	0.30	1.24	1.26
5650	0.32	1.26	1.27
5700	0.33	1.28	1.29
5750	0.35	1.29	1.30
5800	0.36	1.30	1.31
5850	0.38	1.31	1.32
5900	0.39	1.32	1.32
5950	0.40	1.32	1.32
6000	0.42	1.32	1.32
6200	0.46	1.26	1.25
6400	0.52	1.14	1.08
6600	0.72	1.26	1.20
6800	1.31	1.85	1.81
7000	2.77	3.24	3.15
7200	5.34	6.21	6.00
7400	8.75	11.67	11.05
7600	12.61	20.39	17.97
7800	16.69	32.87	27.14
8000	21.00	52.08	37.72
8200	25.59	91.29	50.78
8400	30.67	245.57	77.20
8600	36.80	464.98	109.13
8800	45.39	131.40	227.59
9000	57.38	80.08	1092.63
9200	49.01	58.78	388.69
9400	45.99	47.57	159.23
9600	44.98	41.85	104.66
9800	44.98	37.96	89.30
10000	45.71	35.41	80.92
10200	47.00	33.71	81.47
10400	49.20	32.78	87.80
10600	52.64	32.40	90.11
10800	58.64	32.65	106.77
11000	74.33	33.68	134.25
11200	56.27	35.75	221.47
11400	50.10	38.69	618.08
11600	46.58	43.76	381.87
11800	43.65	52.00	133.20
12000	41.36	66.35	79.80
12200	39.52	99.11	50.96
12400	37.87	230.39	37.87
12600	36.39	451.51	29.07
12800	35.06	110.01	23.59
13000	33.93	63.28	19.89
13200	32.98	45.97	17.35
13400	32.16	38.11	15.88
13500	31.83	35.82	15.42

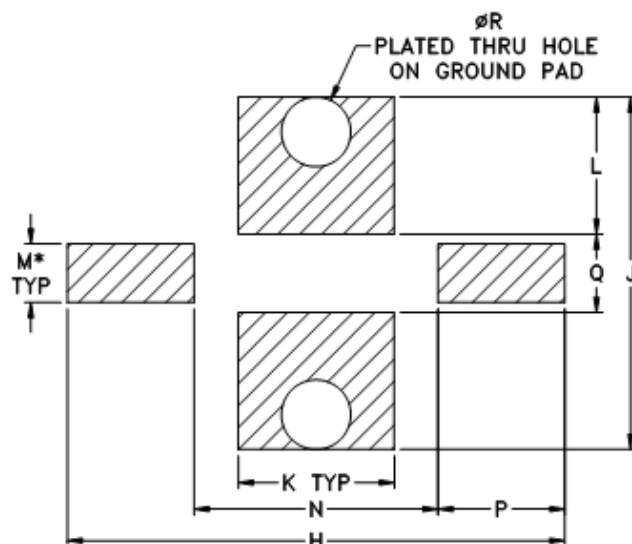
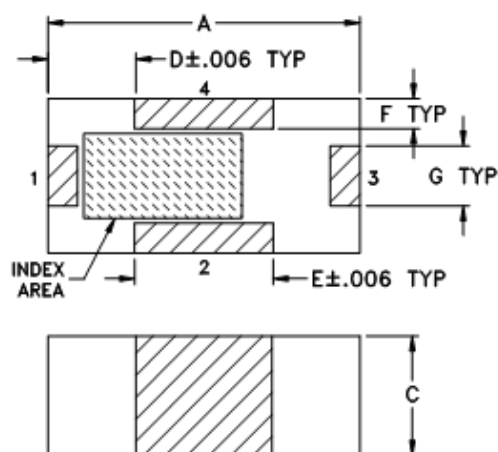
Typical Performance Curves



Outline Dimensions

JC0603C-1

PCB Land Pattern



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

CASE #	A	B	C	D	E	F	G	H	J	K	L
JC0603C-1	.063 (1.60)	.031 (0.80)	.024 (0.60)	.018 (0.45)	.028 (0.70)	.006 (0.15)	.012 (0.30)	.100 (2.54)	.071 (1.80)	.032 (0.80)	.028 (0.70)

CASE #	M*	N	P	Q	R	WT. GRAMS
JC0603C-1	.012 (0.30)	.049 (1.24)	.026 (0.65)	.016 (0.40)	.014 (0.35)	.005

Dimensions are in inches (mm). Tolerances: 3 Pl. $\pm .004$

Notes:

1. Open style, ceramic base.
2. Termination finish:
For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
- 3.* - Line width should be designed to match 50 OHMS characteristic impedance, depending on PCB material & thickness.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



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RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F114

DEVICE ORIENTATION IN T&R

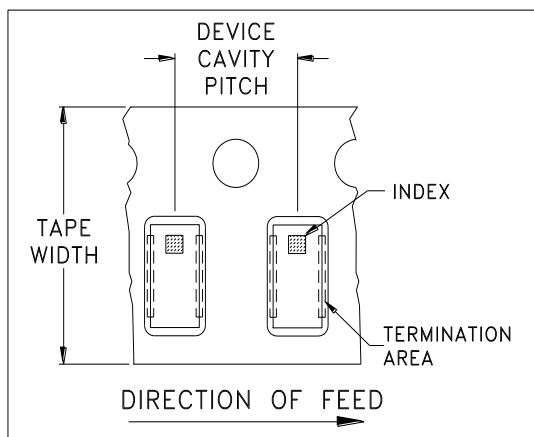


ILLUSTRATION 1

Applicable Case Styles	
GE0805C	JC0603C
GE0805C-1	JC0603C-4
GE0805C-1AP	JC0603C-6
GE0805C-7	
GE0805C-9	
GE0805C-10	
GE0805C-11	
GE0805C-12	

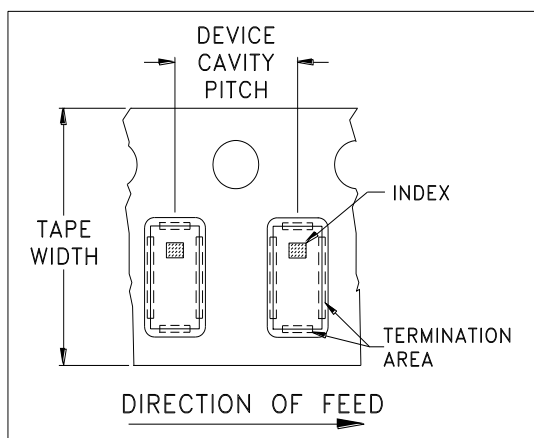


ILLUSTRATION 2

Applicable Case Styles	
GE0805C-2	JC0603C-1
GE0805C-3	JC0603C-2
GE0805C-4	JC0603C-3
GE0805C-5	JC0603C-5
GE0805C-6	JC0603C-7
GE0805C-8	
GE0805C-15	

Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
8	4	7	Small quantity standards (see note)	20
				50
				100
				200
				500
				1000
			Standard	4000

Note: Please Consult individual model data sheet to determine device per reel availability.

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



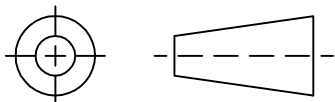
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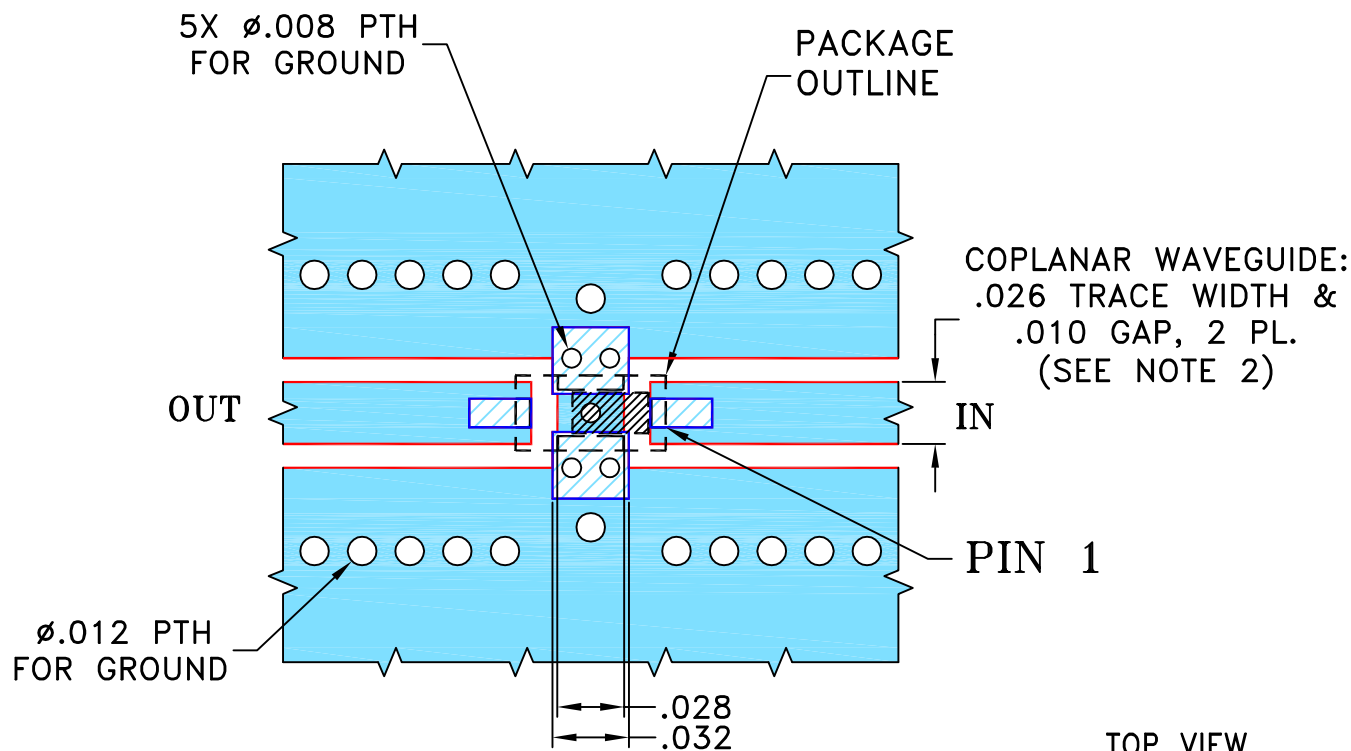
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M168200	NEW RELEASE	05/31/18	NP	SL

SUGGESTED MOUNTING CONFIGURATION
FOR JC0603C-1 CASE STYLE, "04FL01" PIN CODE



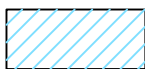
TOP VIEW

NOTES:

1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
2. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .003"±.0005"; COPPER: 1/2 OZ. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
3. LAYER 3 AND LAYER 4 OF THE PCB ARE CONTINUOUS GROUND PLANES.



DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).



DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
 TOLERANCES ON:
 2 PL DECIMALS ±
 3 PL DECIMALS ± .005
 ANGLES ±
 FRACTIONS ±



INITIALS

DATE

DRAWN

NP

05/30/18

CHECKED

GF

05/30/18

APPROVED

SL

05/31/18



Mini-Circuits®

13 Neptune Avenue
 Brooklyn NY 11235

PL, 04FL01, JC0603C-1, TB-1026+

SIZE
 A

CODE IDENT
 15542

DRAWING NO:

98-PL-564

REV:

OR

FILE:

98PL564

SCALE:

12:1

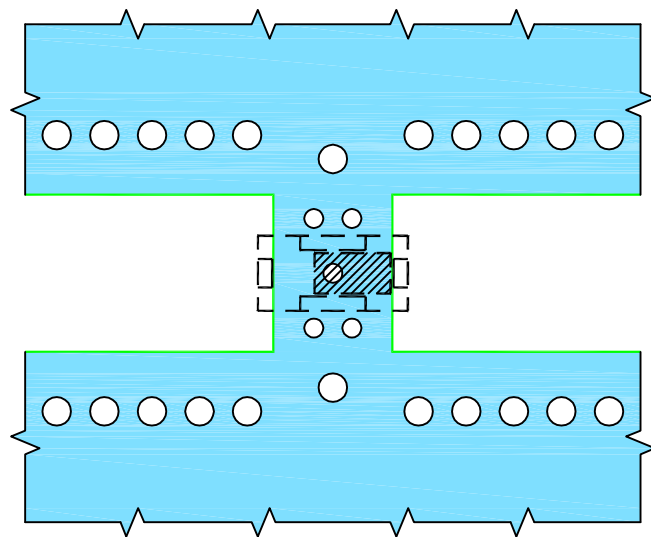
SHEET:

1 OF 2

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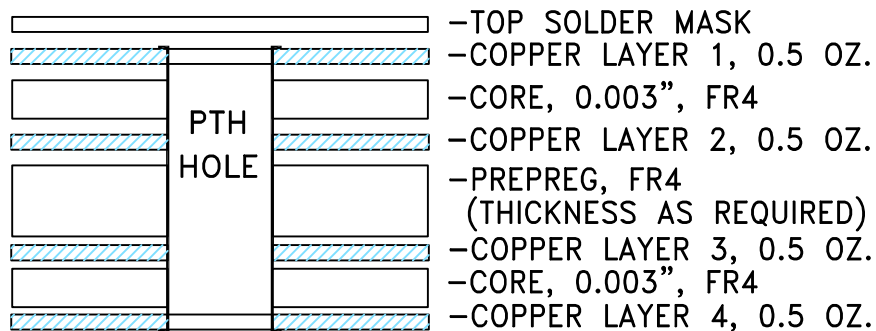
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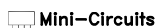


LAYER 2

STACK-UP DIAGRAM



1. TOTAL FINISHED THICKNESS 0.020" $\pm$ 10%.
2. PTH HOLES PRESENT FROM COPPER LAYER 1 TO 4.



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ALL DIMENSIONS ARE IN INCHES EXCEPT OTHERWISE SPECIFIED

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A	15542	98-PL-564	OR
FILE:	98PL564	SCALE:	SHEET:
		12:1	2 OF 2



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	-40° to 85° 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: 250°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, 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