top hat™

Very Wideband

RF Choke

TCCH-80+

50Ω 50 to 8200 MHz

CASE STYLE: GU1604
PRICE: $3.45 ea. QTY (20)

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

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
DC Current	300 mA

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

Pad Terminations

RF-IN & DC	1
DC	3
NOT USED	2,4

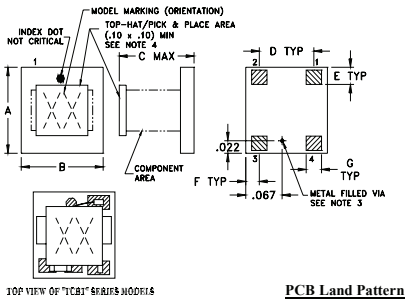
Features

- very broadband
- miniature size, 0.15"x0.15"
- low parasitic capacitance 0.1 pf typ.
- effective parallel resistance, Rch 500 ohm typ.
- usable up to 10GHz
- aqueous washable
- protected by U.S. Patent 7,012,485
- low DC resistance, 0.1Ω

Applications

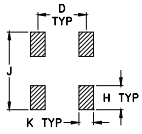
- biasing amplifiers
- biasing of laser diodes
- biasing of active antennas

Outline Drawing



Notes:
1. Open style, Ceramic Base.
2. Termination Finish: Palladium Silver.
3. Must be isolated from external conductors on mounting surface. Suggested solder mask area is .025 x .025 At Mini-Circuits option via may be removed.
4. Top-Hat total thickness: .013 inches MAX.

PCB Land Pattern



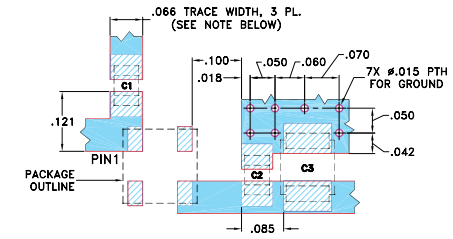
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F
.150	.150	.150	.100	.030	.025
3.81	3.81	3.81	2.54	0.76	0.64

G	H	J	K	wt
.028	.050	.160	.030	grams
0.71	1.27	4.06	0.76	0.10

Demo Board MCL P/N: TB-272
Suggested PCB Layout (PL-147)



CAPACITORS C1,C2: 39000 pF, EIA CODE (MM): 2012
CAPACITORS C3: TANT, 1 uF, EIA CODE (MM): 3528

NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .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
3. NOT PRESENT IN TCCH-80+

Electrical Specifications @ 25°C

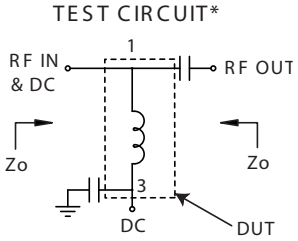
FREQ. RANGE (MHz)	INSERTION LOSS* (dB)		VSWR* (:1)		DC CURRENT (mA)	INDUCTANCE (μH) Typ. at			
	Typ.	Max.	Typ.	Max.	Max.	0mA	50mA	100mA	200mA
50-8200	0.5	1.1	1.1	1.7	200	4	1.3	0.9	0.5

*tested with circuit shown below, Zo=50 ohms

Typical Performance Data

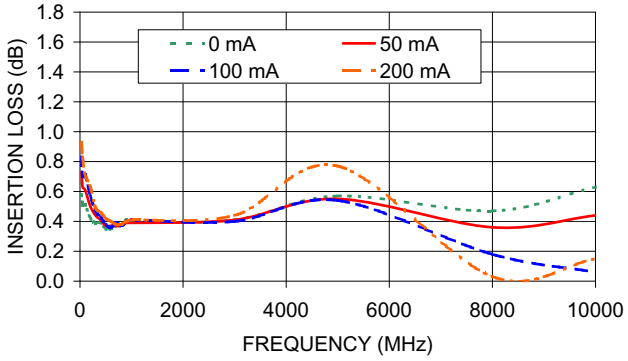
FREQUENCY (MHz)	INSERTION LOSS (dB) with current				VSWR (:1) with current			
	0mA	50mA	100mA	200mA	0mA	50mA	100mA	200mA
30	0.58	0.73	0.83	0.93	1.20	1.31	1.45	1.56
50	0.51	0.63	0.70	0.83	1.16	1.23	1.31	1.37
100	0.51	0.61	0.71	0.71	1.12	1.16	1.20	1.25
200	0.42	0.50	0.57	0.63	1.10	1.12	1.15	1.17
300	0.39	0.44	0.47	0.49	1.12	1.13	1.14	1.16
400	0.39	0.41	0.43	0.46	1.09	1.09	1.10	1.14
500	0.35	0.37	0.38	0.42	1.08	1.08	1.07	1.12
600	0.35	0.37	0.36	0.40	1.08	1.08	1.08	1.12
700	0.37	0.37	0.39	0.38	1.07	1.07	1.07	1.12
800	0.38	0.37	0.37	0.38	1.09	1.09	1.09	1.11
900	0.41	0.39	0.40	0.40	1.11	1.11	1.11	1.12
1000	0.40	0.39	0.41	0.41	1.12	1.12	1.11	1.11
3000	0.41	0.41	0.40	0.44	1.12	1.12	1.12	1.14
5000	0.57	0.55	0.54	0.77	1.16	1.17	1.16	1.26
8000	0.47	0.36	0.18	0.03	1.49	1.57	1.63	1.57
10000	0.63	0.44	0.06	0.15	1.61	1.54	1.41	1.56

Electrical Schematic

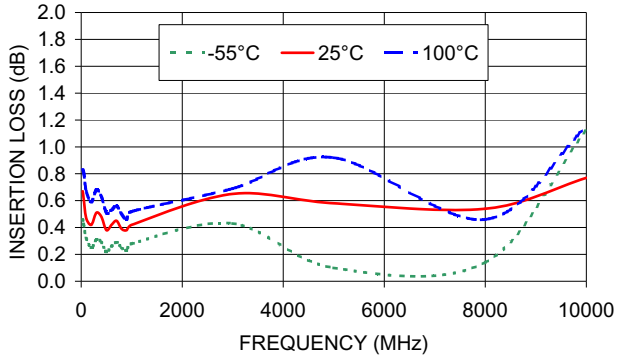


REV. D
M134722
ED-11032/4
TCCH-80+
DJ/TD/AM
120511

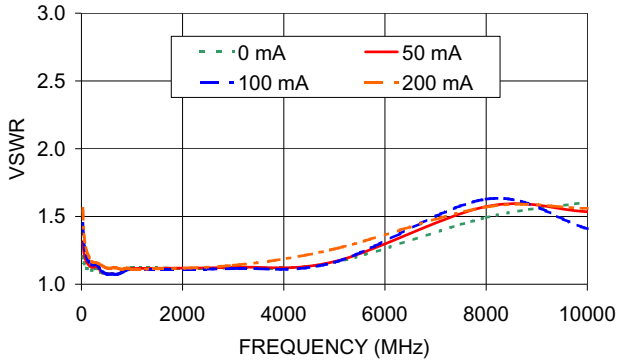
TCCH-80+
INSERTION LOSS vs. CURRENT



TCCH-80+
INSERTION LOSS vs. TEMPERATURE



TCCH-80+
VSWR vs. CURRENT



TCCH-80+
VSWR vs. TEMPERATURE