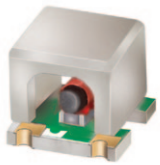
Surface Mount

Bias-Tee

50Ω Wideband 10 MHz to 10 GHz

TCBT-14+



CASE STYLE: GU1414
PRICE: $8.45 ea. QTY (10-49)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify 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
RF Power	30dBm max.
Voltage at DC port	25V max.
Input Current	200mA

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

Pad Terminations

RF	2
RF&DC	1
DC	3
NOT USED	4

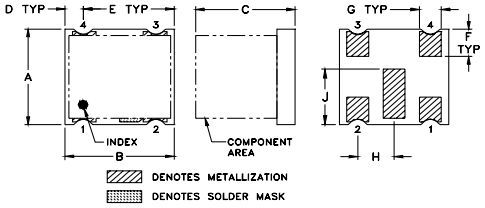
Features

- wideband, 10 to 10000 MHz
- low insertion loss, 0.5 dB typ.
- excellent VSWR, 1.25:1 typ.
- miniature surface mount 0.15"x0.15"
- aqueous washable

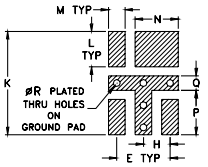
Applications

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

Outline Drawing



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J
.150	.150	.14	.025	.100	.043	.030	.050	.087
3.81	3.81	3.56	0.64	2.54	1.09	0.76	1.27	2.21

K	L	M	N	P	Q	R	wt
.193	.066	0.031	.081	.083	.027	0.013	grams

Bias-Tee Electrical Specifications

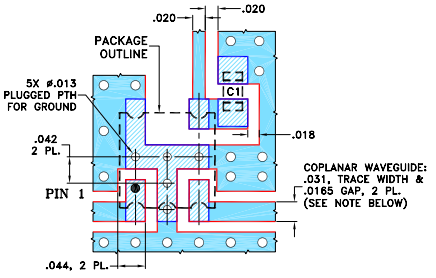
FREQUENCY (MHz)		INSERTION LOSS (dB)						ISOLATION (dB) (RF port to DC port) (RF&DC port to DC port)						VSWR (:1)					
		L		M		U		L		M		U		L		M		U	
f_L	f_U	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Typ.	Max.	Typ.	Max.
10	10000	0.1	0.5	0.35	0.8	0.8	1.6	55	30	33	18	22	15	1.05	1.3	1.2	1.5	1.3	1.5

L= 10-100 MHz M=100-5000 MHz U=5000-10000 MHz
External C1(0.01μF) is required. See functional schematic and PCB layout.

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB) with current		VSWR (:1) with current	
	0mA	200mA	0mA	200mA
10.00	0.11	0.11	1.21	1.21
100.00	0.04	0.04	1.02	1.02
500.00	0.07	0.07	1.03	1.03
1000.00	0.12	0.12	1.05	1.05
1450.00	0.13	0.13	1.04	1.04
2050.00	0.16	0.16	1.02	1.02
2500.00	0.18	0.18	1.03	1.03
3100.00	0.21	0.21	1.03	1.03
4000.00	0.30	0.30	1.16	1.16
5050.00	0.47	0.48	1.08	1.08
6100.00	0.66	0.66	1.20	1.20
7000.00	0.86	0.85	1.25	1.25
8050.00	0.78	0.77	1.11	1.11
9100.00	0.70	0.69	1.22	1.21
10000.00	0.99	0.97	1.09	1.09

Demo Board MCL P/N: TB-510+
Suggested PCB Layout (PL-321)



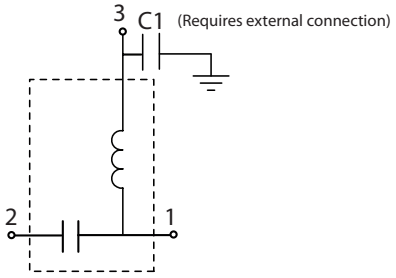
CAPACITOR C1: .010 uF, 0603 SIZE.

NOTES: 1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. FOOTPRINT OF C1 IS SHOWN FOR REFERENCE.
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

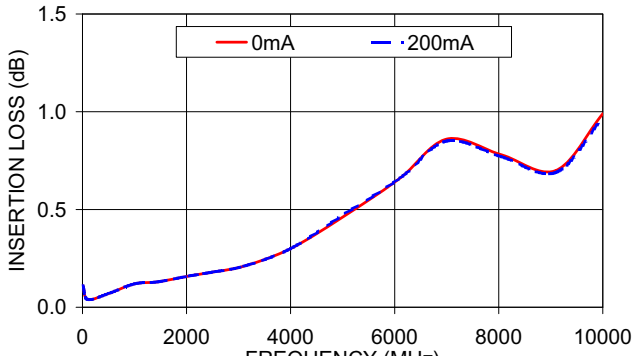
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Functional Schematic

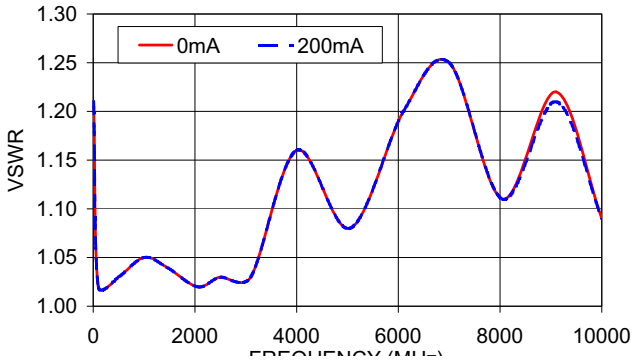


REV. OR
M127988
ED-13597/14
TCBT-14+
DJ/CP/AM
100825

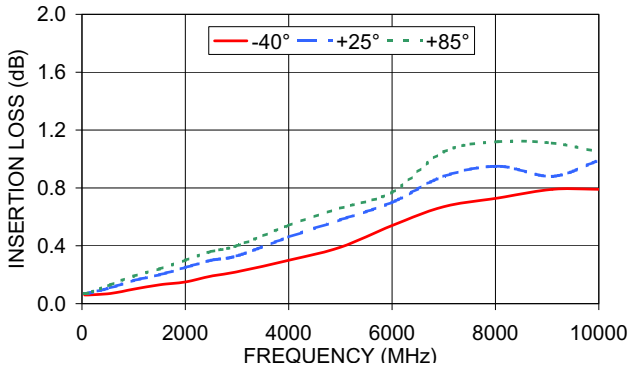
TCBT-14+
INSERTION LOSS vs. CURRENT



TCBT-14+
VSWR vs. CURRENT



TCBT-14+
INSERTION LOSS vs. TEMPERATURE



TCBT-14+
VSWR vs. TEMPERATURE