

Surface Mount 
Bias-Tee

TCBT-6G+

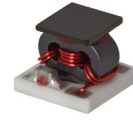
50Ω Wideband 50 to 6000 MHz

Features

- wideband, 50 to 6000 MHz
- low insertion loss, 0.7 dB typ.
- miniature surface mount 0.15"x0.15"
- protected by US Patent, 7,012,486
- aqueous washable

Applications

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



Generic photo used for illustration purposes only

CASE STYLE: GU1604

+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
13"	2000

Electrical Specifications

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		50		6000	MHz
Insertion Loss	50-500	—	0.2	0.8	dB
	500-3000	—	0.7	1.8	
	3000-6000	—	1.1	2.5	
Isolation (RF port to DC port) (RF & DC port to DC port)	50-500	38	52	—	dB
	500-3000	18	28	—	
	3000-6000	17	19	—	
VSWR	50-500	—	1.05	1.5	:1
	500-3000	—	1.1	1.3	
	3000-6000	—	1.2	2.2	

External C1(0.01μF) is required. See functional schematic and PCB layout.

Maximum Ratings

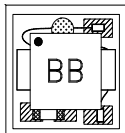
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	30 dBm max.
Voltage at DC port	25 V max.
DC Current	200mA

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

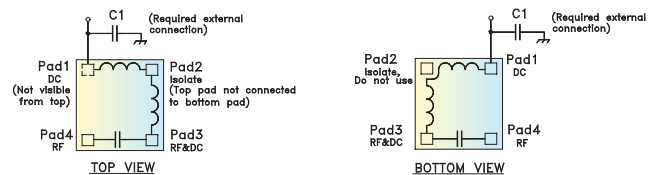
Pad Terminations

Function	Pad Number
RF	4
RF&DC	3
DC	1
ISOLATE (see PCB Layout)	2

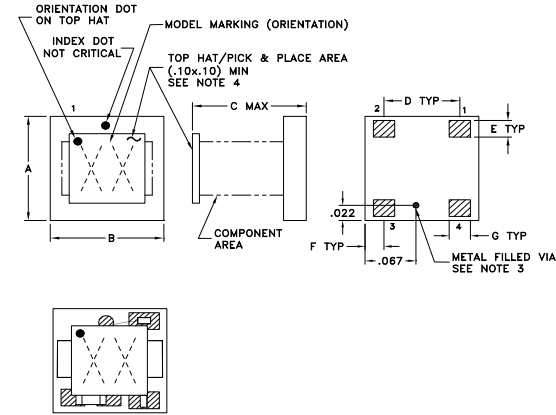
Product Marking



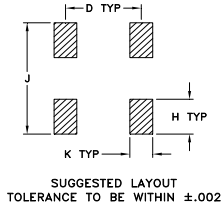
Functional Schematic



Outline Drawing



PCB Land Pattern



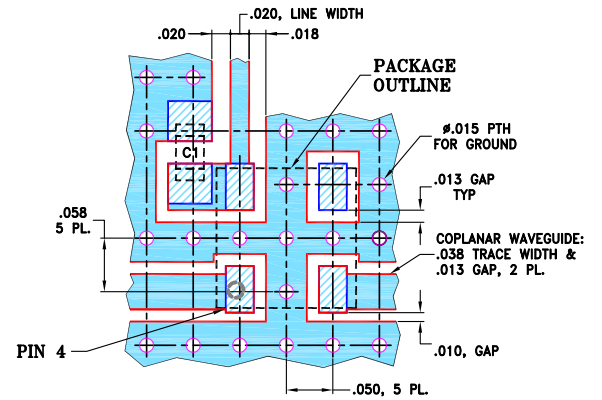
Notes:

- 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.
- Top-Hat total thickness: .013 inches MAX.

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-268 Suggested PCB Layout (PL-146)



NOTES:

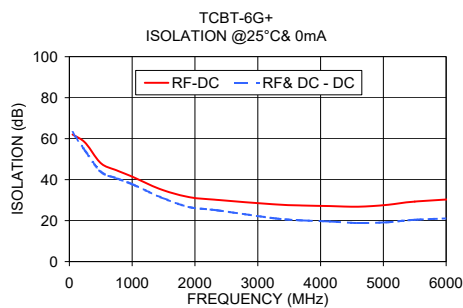
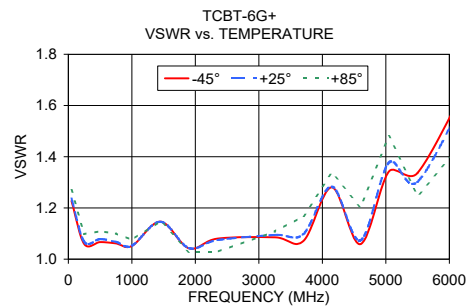
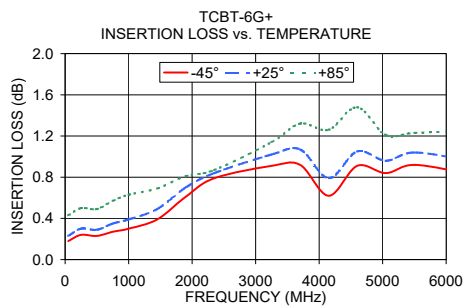
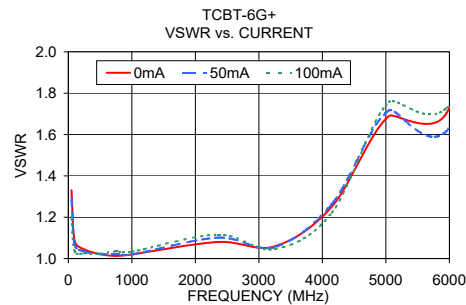
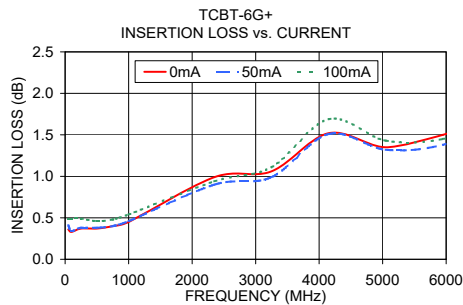
- COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020 ± 0.0015 ; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB) with temperature			VSWR (:1) with temperature			ISOLATION (dB) 0mA	
	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	RF - DC	RF & DC-DC
	50.00	0.18	0.23	0.43	1.23	1.24	1.27	62.01
250.00	0.24	0.30	0.50	1.06	1.07	1.10	58.05	54.10
500.00	0.23	0.29	0.49	1.07	1.08	1.11	48.04	43.88
750.00	0.27	0.35	0.57	1.06	1.07	1.10	44.58	40.67
1000.00	0.30	0.39	0.63	1.05	1.05	1.08	41.47	37.79
1450.00	0.39	0.49	0.69	1.15	1.15	1.15	35.33	31.47
1900.00	0.61	0.70	0.81	1.04	1.04	1.03	31.51	26.67
2350.00	0.79	0.84	0.87	1.08	1.07	1.03	30.13	25.03
3250.00	0.91	1.02	1.14	1.09	1.09	1.11	27.98	21.20
3700.00	0.92	1.07	1.32	1.07	1.10	1.17	27.37	20.10
4150.00	0.62	0.79	1.26	1.28	1.28	1.34	27.10	19.55
4600.00	0.91	1.05	1.48	1.06	1.07	1.20	26.78	18.79
5050.00	0.84	0.96	1.21	1.34	1.38	1.48	27.64	19.18
5500.00	0.92	1.04	1.23	1.34	1.30	1.25	29.30	20.39
6400.00	0.83	0.96	1.25	1.74	1.70	1.51	31.01	21.50



Additional 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-Circuits' 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