

Ceramic RF Transformers

50Ω 1450 to 2400 MHz

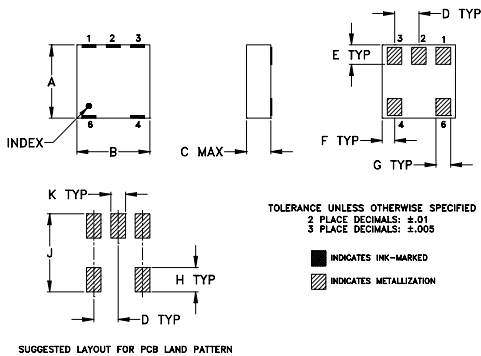
Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 125°C
RF Power	250mW

Pin Connections

PRIMARY DOT	4
PRIMARY	6
SECONDARY DOT	3
SECONDARY	1
SECONDARY CT	2
NOT USED	5

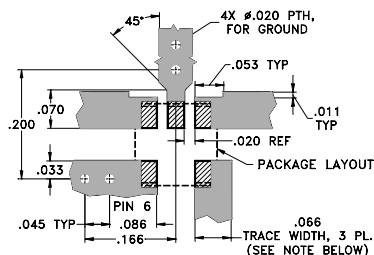
Outline Drawing



Outline Dimensions (inch)

A	B	C	D	E	F	G	H
.150	.150	.050	.050	.040	.025	.030	.050
3.81	3.81	1.27	1.27	1.02	0.64	0.76	1.27
J	K	wt.					
.160	.030	grams					
4.06	0.76	.08					

Demo Board MCL P/N: TB-223 Suggested PCB Layout (PL-119)



Features

- miniature size (.150"X.150")
- LTCC construction
- low cost

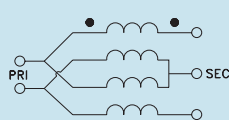
Applications

- PCS
- GPS
- DECT

Electrical Specifications (T_{AMB}=25°C)

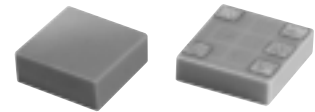
MODEL NO.	Ω RATIO	FREQUENCY (MHz)	MIDBAND INSERTION LOSS (dB) Typ.	FREQUENCY RESPONSE Typ.		PHASE UNBALANCE (Deg.) Typ.		MARKING
				2 dB Unbal.	1 dB Unbal.	1 dB bandwidth	2 dB bandwidth	
TCC-4-T5	4	1200-1800	1.1	1200-1800	1400-1700	1	3	T5A
TCC-4-T2	4	1450-2100	1.2	1450-2100	1600-2000	4	5	T2A
TCC-4-T3	4	1700-2400	1.2	1700-2400	1950-2100	5	7	T3A

configuration H



Mini-Circuits® TCC-series RF Transformers, and Baluns provide wideband 4:1 impedance matching from an unbalanced 50Ω input to a balanced 200Ω output, with center tap. The rugged LTCC construction is ideal because it allows for a small size (.150" sq. x .050"ht.), and Electrical performance is stable over temperature. The TCC-Series is unique in providing low amplitude and phase unbalance over a wideband.

NEW!
TCC-SERIES



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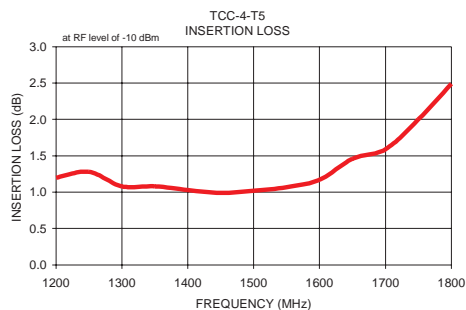
INTERNET <http://www.minicircuits.com>

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

REV. A
M85482
TCC-4-T2 ED-10050/2
TCC-4-T3 ED-10050/3
TCC-4-T5 EC-10050/5
ABD/DJ/CP
030212

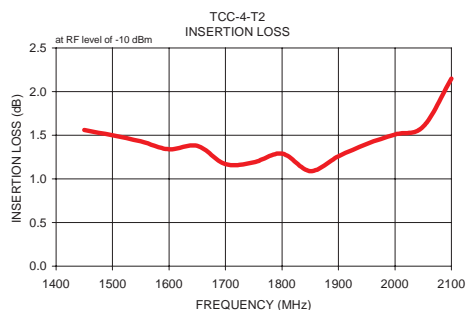
TCC-4-T5 Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg.)
1200.00	1.20	9.68	1.89	2.74
1250.00	1.28	10.18	1.61	1.58
1300.00	1.08	10.91	1.30	0.69
1350.00	1.08	11.92	1.06	0.10
1400.00	1.03	13.16	0.84	0.32
1450.00	0.99	14.51	0.69	0.85
1500.00	1.02	15.40	0.58	1.02
1550.00	1.07	14.99	0.56	1.27
1600.00	1.17	13.40	0.59	1.40
1650.00	1.46	11.39	0.68	1.43
1700.00	1.59	9.56	0.84	1.37
1750.00	2.00	8.02	1.09	1.23
1800.00	2.49	6.75	1.39	1.38



TCC-4-T2 Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg.)
1450.00	1.56	7.88	1.71	0.20
1500.00	1.50	8.20	1.43	0.57
1550.00	1.43	8.69	1.15	1.33
1600.00	1.34	9.28	0.93	1.77
1650.00	1.38	10.05	0.78	2.18
1700.00	1.17	10.92	0.62	2.58
1750.00	1.19	11.98	0.56	2.58
1800.00	1.29	12.88	0.53	2.88
1850.00	1.09	13.58	0.55	2.91
1900.00	1.26	13.48	0.66	3.05
1950.00	1.40	12.64	0.81	3.21
2000.00	1.51	11.27	0.99	3.25
2050.00	1.60	9.81	1.22	3.15
2100.00	2.15	8.44	1.59	3.46



TCC-4-T3 Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg.)
1700.00	1.52	7.99	1.85	2.94
1750.00	1.43	8.52	1.58	3.28
1800.00	1.51	9.11	1.37	4.22
1850.00	1.21	9.95	1.13	4.77
1900.00	1.22	10.90	0.97	5.06
1950.00	1.19	12.14	0.85	5.59
2000.00	1.11	13.52	0.76	5.98
2050.00	0.93	15.00	0.70	6.23
2100.00	1.16	15.82	0.74	6.33
2150.00	1.14	15.41	0.80	6.89
2200.00	1.07	13.87	0.89	6.78
2250.00	1.48	12.04	1.10	7.01
2300.00	1.65	10.21	1.28	7.46
2350.00	1.76	8.70	1.48	7.55
2400.00	2.21	7.42	1.82	7.70

