Surface Mount

Power Splitter/Combiner

QBA-12+

2 Way-90° 50Ω 800 to 1200 MHz



Generic photo used for illustration purposes only

CASE STYLE: SM33

+RoHS Compliant

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

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C

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

Pin Connections

SUM PORT	1
PORT 1 (+90°)	10
PORT 2 (0°)	6
GROUND	2,3,4,7,8,9
50 OHM TERM EXTERNAL	5

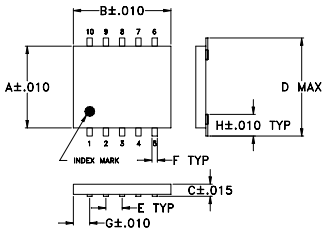
Features

- low insertion loss, 0.25 dB typ.
- high power capability, 50W
- isolation, 23 dB typ.
- ceramic body, good for heat dissipation
- solder plated leads for excellent solderability
- aqueous washable
- protected by U.S. Patent 5,534,830

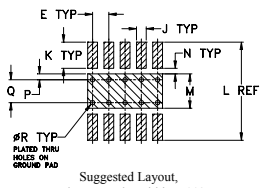
Applications

- cellular
- ISM

Outline Drawing



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

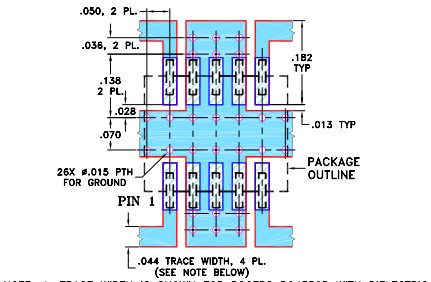
ADJACENT GROUND PINS SHALL BE CONNECTED TO EACH OTHER AND TO GROUND PAD

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
.250	.300	.050	.310	.050	.015	.050	.066
6.35	7.62	1.27	7.87	1.27	0.38	1.27	1.68

J	K	L	M	N	P	Q	R	wt
.030	.095	.330	.100	.020	.015	.070	.014	grams
0.76	2.41	8.38	2.54	0.51	0.38	1.78	0.36	0.2

Demo Board MCL P/N: TB-115+
Suggested PCB Layout (PL-004)



NOTE: 1. TRACE WIDTH IS 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. 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

Electrical Specifications

FREQ. RANGE (MHz)	ISOLATION (dB)	INSERTION LOSS[1] (dB) Avg. of Coupled Outputs ABOVE 3 dB			PHASE UNBALANCE (Degrees)	AMPLITUDE UNBALANCE (dB)	INPUT POWER[2] (W)
		f_L	f_U				
f_L-f_U	Typ. Min.	$\overline{X}$	$\overline{X}$	σ	Max.	Max.	below 25°C
800-1200	23 14	0.25	0.44	0.02	6.0	1.2	50

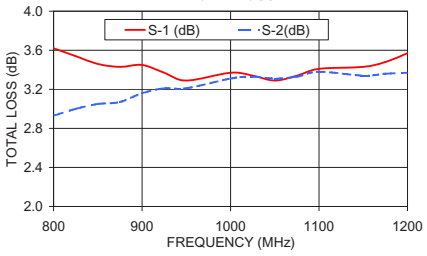
1. Includes test fixture losses.
2. Derate linearly to 10W at 100°C
Thermal compound may be applied to decrease body temperature. See application note AN-10-007

Typical Performance Data

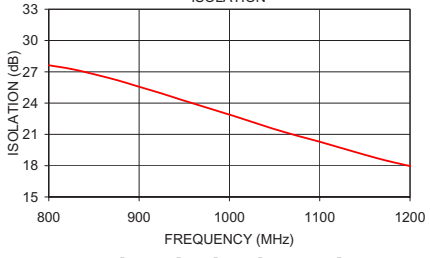
Frequency (MHz)	Total Loss[1] (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
800.00	3.62	2.93	0.70	27.63	90.49	1.08	1.21	1.09
825.00	3.54	3.00	0.54	27.27	90.70	1.08	1.21	1.09
850.00	3.46	3.05	0.40	26.77	90.62	1.08	1.22	1.09
875.00	3.43	3.07	0.36	26.21	90.51	1.08	1.23	1.09
900.00	3.45	3.16	0.28	25.57	90.98	1.09	1.24	1.10
925.00	3.37	3.21	0.16	24.92	91.26	1.09	1.25	1.10
950.00	3.29	3.21	0.09	24.23	91.13	1.11	1.26	1.11
1000.00	3.37	3.31	0.06	22.89	91.51	1.13	1.28	1.13
1025.00	3.34	3.33	0.01	22.20	91.78	1.15	1.29	1.15
1050.00	3.29	3.31	0.03	21.50	91.85	1.17	1.30	1.16
1075.00	3.34	3.33	0.01	20.87	91.92	1.19	1.31	1.17
1100.00	3.41	3.38	0.03	20.29	92.22	1.21	1.32	1.19
1150.00	3.43	3.34	0.09	19.04	92.80	1.26	1.35	1.23
1175.00	3.48	3.36	0.12	18.46	93.06	1.28	1.36	1.25
1200.00	3.57	3.37	0.20	17.96	93.41	1.31	1.37	1.27

1. Total Loss = Insertion Loss + 3dB splitter loss.

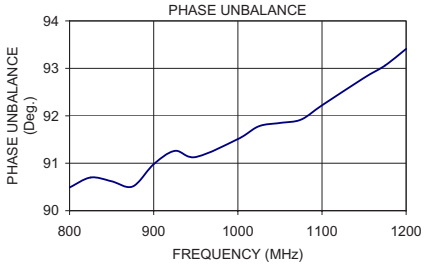
QBA-12+
TOTAL LOSS



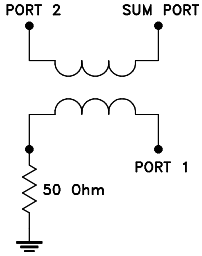
QBA-12+
ISOLATION



QBA-12+
PHASE UNBALANCE



electrical schematic



Notes

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