

# Surface Mount Power Splitter/Combiner

## HPQ-05+ HPQ-05

2 Way-90° 50Ω 410 to 455 MHz



### Maximum Ratings

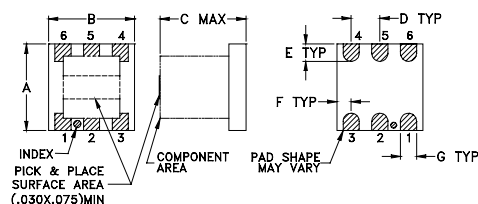
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
Power Input (as a splitter)	1W max.

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

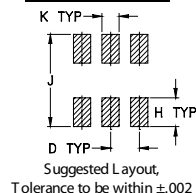
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern



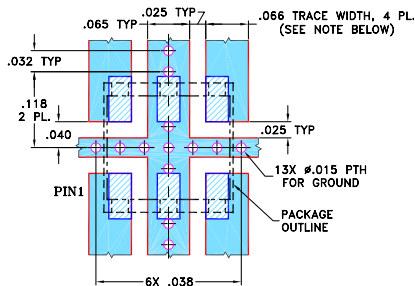
### Outline Dimensions (inch/mm)

A	B	C	D	E	F
.200	.200	.200	.075	.050	.025
5.08	5.08	5.08	1.91	1.27	0.64

G	H	J	K	wt
.026	.070	.220	.035	grams
0.66	1.78	5.59	0.89	0.15

### Demo Board MCL P/N: TB-43 Suggested PCB Layout (PL-114)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B 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

### Features

- low insertion loss, 0.17 dB typ.
- good isolation, 25 dB typ.
- excellent input & output VSWR, 1.12 typ.
- aqueous washable

### Applications

- UHF
- image reject mixer
- balanced amplifiers
- modulators

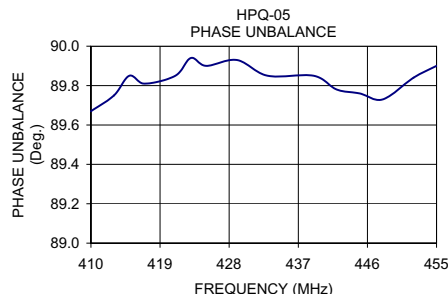
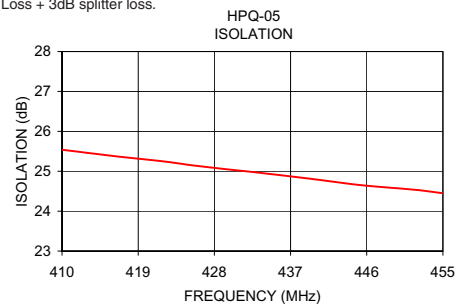
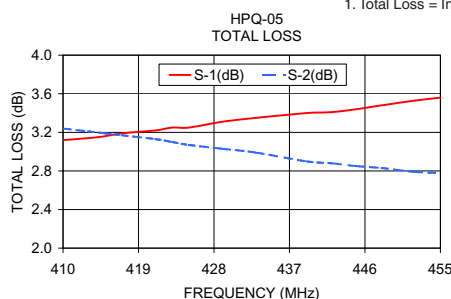
### Electrical Specifications

FREQ. RANGE (MHz)	ISOLATION (dB)		INSERTION LOSS (dB) Avg. of Coupled Outputs ABOVE 3 dB		PHASE UNBALANCE (Degrees)		AMPLITUDE UNBALANCE (dB)		VSWR (:1)	
	Typ.	Min.	Typ.	Max.	Typ.	Max.	Typ.	Max.	S-Port Typ.	Output Typ.
f <sub>L</sub> -f <sub>U</sub>	25	20	0.17	0.35	0.5	3.0	0.5	1.0	1.12	1.12

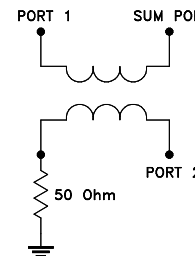
### Typical Performance Data

Frequency (MHz)	Total Loss <sup>1</sup> (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
410.00	3.12	3.24	0.13	25.54	89.67	1.14	1.13	1.13
413.00	3.14	3.21	0.07	25.46	89.75	1.14	1.13	1.13
415.00	3.16	3.19	0.03	25.41	89.85	1.14	1.13	1.13
417.00	3.19	3.17	0.02	25.36	89.81	1.14	1.13	1.13
421.00	3.22	3.13	0.08	25.27	89.85	1.14	1.13	1.14
423.00	3.25	3.10	0.15	25.22	89.94	1.14	1.13	1.14
425.00	3.25	3.07	0.18	25.16	89.90	1.14	1.14	1.14
429.00	3.31	3.03	0.28	25.06	89.93	1.14	1.14	1.14
433.00	3.35	2.99	0.36	24.97	89.85	1.14	1.14	1.14
439.00	3.40	2.90	0.50	24.82	89.85	1.14	1.14	1.14
442.00	3.41	2.88	0.54	24.74	89.78	1.14	1.14	1.14
445.00	3.44	2.85	0.60	24.66	89.76	1.14	1.14	1.14
448.00	3.48	2.83	0.65	24.60	89.73	1.15	1.14	1.14
452.00	3.53	2.79	0.73	24.53	89.84	1.15	1.14	1.14
455.00	3.56	2.78	0.78	24.45	89.90	1.15	1.14	1.14

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



### electrical schematic



For detailed performance specs & shopping online see web site

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