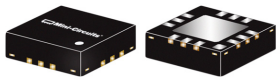
MMIC Surface Mount

Power Splitter/Combiner

GP2S1+

2 Way-0° 50Ω 500 to 2500 MHz



CASE STYLE: DQ1225

+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, 2000

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-65°C to 150°C
Power Input (as a splitter)	1.5W max.
Internal Dissipation	0.75W max.

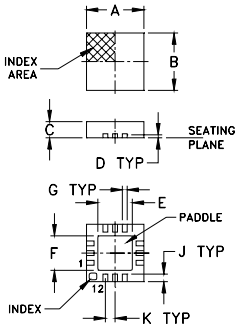
Permanent damage may occur if any of these limits are exceeded.

Pad Connections

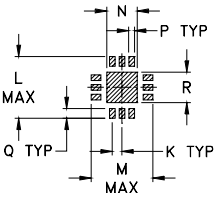
SUM PORT	2
PORT 1	7
PORT 2	9
GROUND	1,3,4,5,6,8,10,11,12, paddle

Product Marking

Outline Drawing



PCB Land Pattern



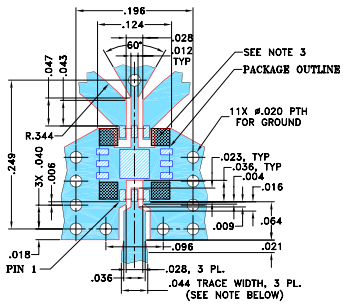
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J
.118	.118	.035	.008	.057	.057	.009	---	.016
3.00	3.00	0.89	0.20	1.45	1.45	0.23	---	0.41

K	L	M	N	P	Q	R	wt
.020	.127	.127	.049	.010	.020	.049	grams
0.51	3.23	3.23	1.24	0.25	0.51	1.24	0.02

Demo Board MCL P/N: TB-453-GP2S1+
Suggested PCB Layout (PL-282)



NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015", COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. SIGNAL TRACES ARE NOT ALLOWED INSIDE HATCHED AREAS (APPROX. .030 X .030) AT 4 PLACES AS SHOWN.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

- very wide bandwidth, 500 to 2500 MHz
- excellent isolation, 20 dB typ.
- excellent amplitude unbalance, 0.02 dB typ.
- excellent phase unbalance, 0.9 deg. typ.
- small size, 0.118"x0.118"x0.035"
- high ESD level
- aqueous washable

Applications

- cellular
- GPS
- radar
- WCDMA
- GSM
- Korea PCS

Electrical Specifications

FREQ. RANGE (MHz)	ISOLATION (dB)		INSERTION LOSS* (dB) ABOVE 3.0 dB		PHASE UNBALANCE (Degrees)	AMPLITUDE UNBALANCE (dB)	VSWR (:1) Typ.	
f_L-f_U	Typ.	Min.	Typ.	Max.	Max.	Max.	Port S	Ports 1,2
500-2500	20	9	0.9	1.8	5.0	0.2	1.3	1.2

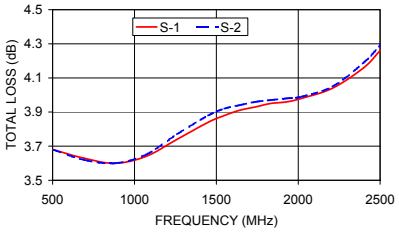
* De-embedded from demo board loss.

Typical Performance Data

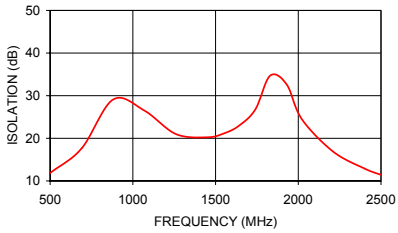
Frequency (MHz)	Total Loss[1] (dB)		Amplitude Unbalance (dB)	Isolation (dB)	Phase Unbalance (deg.)	VSWR S	VSWR 1	VSWR 2
	S-1	S-2						
500.00	3.68	3.68	0.01	11.86	0.42	1.52	1.30	1.30
690.00	3.63	3.62	0.01	17.62	0.47	1.31	1.21	1.20
880.00	3.60	3.60	0.00	29.08	0.52	1.12	1.14	1.12
1070.00	3.64	3.65	0.01	26.49	0.66	1.10	1.09	1.07
1260.00	3.74	3.77	0.04	21.01	0.78	1.22	1.04	1.02
1450.00	3.84	3.88	0.04	20.24	0.87	1.30	1.07	1.05
1550.00	3.88	3.92	0.04	21.14	0.91	1.32	1.10	1.08
1640.00	3.91	3.94	0.03	22.91	0.97	1.30	1.14	1.11
1740.00	3.93	3.96	0.03	26.76	1.05	1.27	1.17	1.14
1830.00	3.95	3.97	0.02	34.69	1.16	1.22	1.20	1.17
1930.00	3.96	3.98	0.02	32.63	1.28	1.15	1.22	1.19
2020.00	3.98	3.99	0.01	24.55	1.41	1.08	1.24	1.21
2210.00	4.04	4.05	0.02	16.91	1.65	1.11	1.25	1.23
2400.00	4.16	4.19	0.03	12.90	1.80	1.34	1.24	1.24
2500.00	4.26	4.29	0.03	11.43	1.89	1.47	1.24	1.24

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

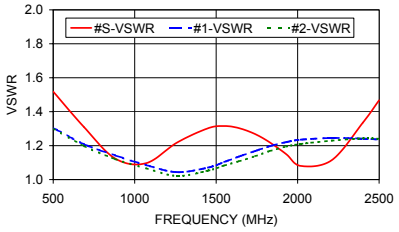
GP2S1+
TOTAL LOSS



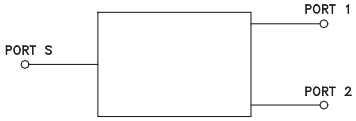
GP2S1+
ISOLATION



GP2S1+
VSWR



electrical schematic



ESD Rating
Human Body Model (HBM): Class 1A (250 to < 500V) in accordance with ANSI/ESD STM 5.1 - 2001
Machine Model (MM): Class M2 (100V to < 250V) in accordance with ANSI/ESD STM 5.2 - 1999

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-Circuit's 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

Rev. C
M151107
GP2S1+
ED-13012A/1
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