MMIC SURFACE MOUNT

Power Splitter/Combiner EP2KA+

2 Way-0° 50Ω 10 to 43.5 GHz

THE BIG DEAL

- Ultra-Wide bandwidth, 10 to 43.5 GHz
- Excellent amplitude unbalance, 0.18 dB typ.
- Small size, 3.5 x 2.5 mm
- DC passing

Generic photo used for illustration purposes only

CASE STYLE: JV259-1

+RoHS Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Military
- 5G
- Instrumentation

PRODUCT OVERVIEW

Mini-Circuits EP2KA+ is a MMIC splitter/combiner designed for wide band operation from 10 to 43.5 GHz. This model provides excellent amplitude unbalance in a tiny device package (3.5 x 2.5mm). Manufactured using GaAs IPD technology, it provides a high level of ESD protection and excellent reliability.

KEY FEATURES

Feature	Advantages
Wideband, 10 to 43.5 GHz	One power splitter can be used in many applications, saving component count. Also ideal for wideband applications such as military and instrumentation.
Excellent Amplitude Unbalance (0.18 dB) and Good Phase Unbalance (3-6 deg.)	Excellent Amplitude and phase unbalance helps to accurately divide the input signals which is essential in test and measurement circuits.
Small size 3.5mm x 2.5mm QFN style package	Tiny footprint saves space in dense layouts while providing low inductance, repeatable transitions, and excellent thermal contact to the PCB.

REV. A
ECO-012024
EP2KA+
CM/JM/PS
230113

Power Splitter/Combiner EP2KA+

ELECTRICAL SPECIFICATIONS[1] AT 25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		10		43.5	GHz
Insertion Loss above 3.0 dB	10 - 20	—	0.8	1.7	dB
	20 - 25	—	0.5	1.0	
	25 - 30	—	0.9	2.1	
	30 - 40	—	1.5	2.8	
	40 - 43.5	—	2.2	—	
Isolation	10 - 20	—	17	—	dB
	20 - 25	19	26	—	
	25 - 30	17	22	—	
	30 - 40	17	26	—	
	40 - 43.5	—	29	—	
Phase Unbalance	10 - 20	—	3.7	7.0	Degree
	20 - 25	—	4.7	8.0	
	25 - 30	—	6.1	9.0	
	30 - 40	—	9.3	—	
	40 - 43.5	—	9.6	—	
Amplitude Unbalance	10 - 20	—	0.13	0.3	dB
	20 - 25	—	0.18	0.4	
	25 - 30	—	0.22	0.5	
	30 - 40	—	0.36	0.7	
	40 - 43.5	—	0.57	—	
VSWR (Port S)	10 - 20	—	1.6	—	:1
	20 - 25	—	1.1	—	
	25 - 30	—	1.4	—	
	30 - 40	—	1.4	—	
	40 - 43.5	—	1.5	—	
VSWR (Port 1-2)	10 - 20	—	1.3	—	:1
	20 - 25	—	1.2	—	
	25 - 30	—	1.3	—	
	30 - 40	—	1.4	—	
	40 - 43.5	—	1.4	—	

1. Tested on Mini-Circuits Test Board TB-EP2KA+

MAXIMUM RATINGS

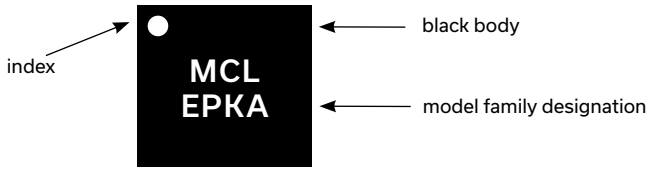
Parameter	Ratings
Operating temperature	-40°C to 85°C
Storage temperature	-65°C to 150°C
Power Input (as a splitter)	1.25W
Internal Dissipation (as a combiner)	0.63W
DC Current	300 mA

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

PAD CONNECTIONS

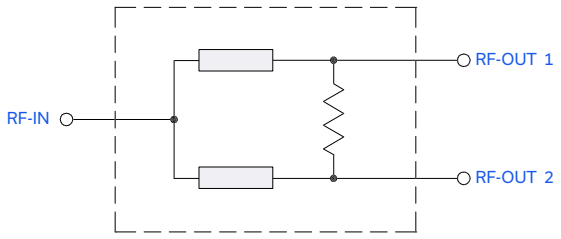
Function	Pad Number
SUM PORT	10
PORT 1	3
PORT 2	7
NC	2,5,8
GND	1,4,6,9 & Paddle

PRODUCT MARKING



Marking may contain other features or characters for internal lot control

SIMPLIFIED ELECTRICAL SCHEMATIC



Power Splitter/Combiner EP2KA+

ADDITIONAL DETAILED TECHNICAL INFORMATION IS AVAILABLE ON OUR DASH BOARD. TO ACCESS CLICK HERE

Performance Data	Data Table Swept Graphs S-Parameter (S3P Files) Data Set (.zip file)
Case Style	JV2579-1 Plastic package, exposed paddle; lead finish: Matte Tin
Tape & Reel **Standard quantities available on reel**	F74 7" reels with 20, 50, 100, 200, 500, 1000 & 2000 devices
Suggested Layout for PCB Design	PL-598
Evaluation Board	TB-EP2KA+
Environmental Ratings	ENV08T1

ESD RATING

Human Body Model (HBM): Class 2 (Pass 2000V) in accordance with ANSI/ESD STM 5.1 - 2001

MSL RATING

Moisture Sensitivity: MSL1 in accordance with IPC/JEDEC J-STD-020D

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

2 Way-0° Power Splitter/Combiner EP2KA+

Typical Performance Data

TEST CONDITIONS: INPUT POWER = 0 dBm @Temperature = +25°C

FREQUENCY (MHz)	TOTAL LOSS[1] (dB)		AMPLITUDE UNBALANCE (dB)	ISOLATION (dB)	PHASE UNBALANCE (Deg)
	S-1	S-2		1-2	
10	3.55	3.54	0.01	3.62	0.01
100	3.54	3.53	0.00	3.68	0.02
1000	3.56	3.56	0.00	4.01	0.24
2000	3.59	3.60	0.02	4.50	0.42
3000	3.61	3.64	0.03	5.14	0.42
4000	3.68	3.69	0.01	5.80	0.39
5000	3.82	3.80	0.03	6.58	0.54
6000	3.83	3.78	0.05	7.66	0.94
7000	3.68	3.63	0.05	8.86	1.33
8000	3.63	3.61	0.02	9.48	1.57
9000	3.72	3.70	0.02	9.63	1.78
10000	4.02	4.01	0.01	10.37	2.07
11000	4.12	4.15	0.03	11.87	2.20
12000	3.79	3.83	0.03	13.60	2.10
13000	3.58	3.57	0.01	14.68	2.14
14000	3.71	3.67	0.04	15.01	2.45
15000	3.98	3.94	0.04	15.91	2.83
16000	4.01	3.99	0.02	17.57	3.10
17000	3.75	3.74	0.01	19.81	3.28
18000	3.51	3.50	0.01	22.31	3.40
19000	3.47	3.46	0.01	23.72	3.54
20000	3.56	3.54	0.03	24.32	3.73
21000	3.56	3.52	0.04	25.12	4.01
22000	3.48	3.44	0.05	25.72	4.34
23000	3.45	3.43	0.02	25.47	4.60
24000	3.47	3.45	0.01	23.97	4.71
25000	3.54	3.51	0.03	22.24	4.63
26000	3.76	3.67	0.09	21.26	4.75
27000	3.96	3.82	0.14	21.31	5.34
28000	4.01	3.89	0.12	21.52	5.89
29000	4.10	4.01	0.09	21.00	5.97
30000	4.38	4.23	0.15	20.51	6.07
31000	4.64	4.44	0.20	20.75	6.71
32000	4.75	4.57	0.18	21.28	7.47
33000	4.72	4.59	0.13	21.56	7.87
34000	4.69	4.60	0.09	22.08	8.04
35000	4.71	4.63	0.08	23.36	8.10
36000	4.62	4.53	0.09	25.11	8.26
37000	4.48	4.38	0.10	26.88	8.50
38000	4.39	4.28	0.10	28.97	8.82
39000	4.31	4.22	0.09	31.13	9.11
40000	4.30	4.22	0.08	32.02	9.29
41000	4.51	4.45	0.06	30.83	9.34
42000	5.06	4.98	0.07	29.26	9.33
43000	5.61	5.50	0.11	28.80	9.44
43500	5.73	5.60	0.13	28.96	9.60

FREQUENCY (MHz)	VSWR (:1)		
	S	1	2
10	1.98	1.96	1.96
100	1.94	1.92	1.93
1000	1.89	1.83	1.84
2000	1.97	1.78	1.79
3000	2.03	1.63	1.66
4000	2.02	1.44	1.45
5000	2.07	1.32	1.32
6000	2.03	1.22	1.20
7000	1.85	1.13	1.11
8000	1.79	1.14	1.13
9000	1.91	1.15	1.12
10000	2.23	1.39	1.34
11000	2.27	1.47	1.42
12000	1.87	1.30	1.29
13000	1.59	1.12	1.18
14000	1.66	1.18	1.27
15000	1.92	1.43	1.46
16000	1.97	1.54	1.53
17000	1.64	1.41	1.39
18000	1.32	1.21	1.20
19000	1.25	1.13	1.11
20000	1.34	1.26	1.20
21000	1.34	1.32	1.26
22000	1.18	1.25	1.21
23000	1.07	1.15	1.16
24000	1.08	1.10	1.15
25000	1.17	1.14	1.20
26000	1.40	1.26	1.30
27000	1.53	1.33	1.31
28000	1.51	1.28	1.28
29000	1.59	1.29	1.38
30000	1.85	1.50	1.50
31000	1.99	1.67	1.56
32000	1.86	1.63	1.53
33000	1.74	1.48	1.49
34000	1.75	1.43	1.49
35000	1.74	1.46	1.48
36000	1.61	1.45	1.40
37000	1.41	1.41	1.31
38000	1.19	1.34	1.26
39000	1.06	1.26	1.22
40000	1.21	1.21	1.19
41000	1.31	1.22	1.24
42000	1.56	1.39	1.42
43000	1.92	1.60	1.60
43500	2.03	1.66	1.62

[1]Total Loss = Insertion Loss + 3dB Splitter Loss

2 Way-0° Power Splitter/Combiner EP2KA+

Typical Performance Data

TEST CONDITIONS: INPUT POWER =0 dBm @Temperature = -45°C

FREQUENCY (MHz)	TOTAL LOSS[1] (dB)		AMPLITUDE UNBALANCE (dB)	ISOLATION (dB)	PHASE UNBALANCE (Deg)
	S-1	S-2		1-2	
10	3.54	3.54	0.00	3.61	0.02
100	3.53	3.53	0.00	3.67	0.03
1000	3.55	3.57	0.01	3.98	0.27
2000	3.58	3.61	0.03	4.47	0.42
3000	3.60	3.63	0.04	5.13	0.44
4000	3.64	3.66	0.02	5.82	0.48
5000	3.77	3.76	0.01	6.58	0.60
6000	3.78	3.74	0.04	7.63	0.99
7000	3.65	3.62	0.03	8.75	1.43
8000	3.61	3.60	0.00	9.34	1.64
9000	3.68	3.68	0.00	9.55	1.81
10000	3.97	3.97	0.00	10.36	2.15
11000	4.05	4.09	0.04	11.90	2.32
12000	3.72	3.78	0.06	13.55	2.19
13000	3.54	3.56	0.02	14.34	2.18
14000	3.72	3.71	0.01	14.55	2.50
15000	3.99	3.98	0.02	15.64	2.87
16000	3.95	3.95	0.00	17.69	3.15
17000	3.66	3.67	0.02	20.22	3.32
18000	3.45	3.47	0.02	22.21	3.44
19000	3.44	3.46	0.02	22.62	3.58
20000	3.56	3.56	0.00	22.95	3.74
21000	3.52	3.51	0.01	23.93	4.00
22000	3.38	3.38	0.00	25.13	4.29
23000	3.36	3.37	0.01	25.97	4.49
24000	3.37	3.39	0.02	24.92	4.59
25000	3.42	3.43	0.01	22.81	4.54
26000	3.62	3.57	0.05	21.23	4.56
27000	3.85	3.74	0.11	20.80	5.09
28000	3.97	3.86	0.11	20.67	5.72
29000	4.09	4.00	0.08	20.46	5.88
30000	4.30	4.17	0.13	20.66	6.09
31000	4.45	4.28	0.17	21.36	6.81
32000	4.53	4.40	0.13	21.57	7.58
33000	4.63	4.58	0.05	20.86	7.85
34000	4.74	4.73	0.01	20.79	7.85
35000	4.77	4.77	0.00	22.05	7.83
36000	4.54	4.52	0.02	24.62	7.87
37000	4.33	4.28	0.05	28.02	8.07
38000	4.32	4.26	0.06	30.62	8.37
39000	4.31	4.24	0.07	31.17	8.61
40000	4.29	4.21	0.08	30.22	8.83
41000	4.49	4.40	0.09	28.53	9.13
42000	5.09	5.01	0.08	27.29	9.41
43000	5.65	5.57	0.08	27.48	9.61
43500	5.73	5.64	0.09	28.15	9.72

FREQUENCY (MHz)	VSWR (:1)		
	S	1	2
10	1.98	1.96	1.96
100	1.94	1.93	1.93
1000	1.89	1.83	1.84
2000	1.98	1.77	1.79
3000	2.04	1.64	1.67
4000	2.00	1.45	1.46
5000	2.03	1.32	1.32
6000	1.99	1.21	1.19
7000	1.85	1.14	1.11
8000	1.82	1.14	1.14
9000	1.94	1.15	1.14
10000	2.25	1.39	1.35
11000	2.23	1.47	1.41
12000	1.81	1.29	1.27
13000	1.59	1.12	1.17
14000	1.74	1.20	1.30
15000	2.04	1.47	1.51
16000	1.99	1.54	1.54
17000	1.57	1.39	1.37
18000	1.28	1.21	1.21
19000	1.28	1.16	1.13
20000	1.43	1.30	1.24
21000	1.41	1.33	1.28
22000	1.19	1.23	1.20
23000	1.06	1.14	1.15
24000	1.06	1.12	1.16
25000	1.12	1.16	1.21
26000	1.32	1.24	1.28
27000	1.46	1.31	1.30
28000	1.53	1.28	1.28
29000	1.70	1.32	1.40
30000	1.94	1.54	1.54
31000	1.96	1.68	1.55
32000	1.70	1.62	1.50
33000	1.67	1.49	1.48
34000	1.88	1.49	1.54
35000	1.96	1.52	1.56
36000	1.73	1.46	1.43
37000	1.37	1.38	1.29
38000	1.08	1.35	1.26
39000	1.09	1.28	1.23
40000	1.10	1.19	1.17
41000	1.17	1.21	1.21
42000	1.59	1.40	1.42
43000	2.11	1.64	1.63
43500	2.24	1.70	1.65

[1]Total Loss = Insertion Loss + 3dB Splitter Loss

2 Way-0° Power Splitter/Combiner EP2KA+

Typical Performance Data

TEST CONDITIONS: INPUT POWER =0 dBm @Temperature = +85°C

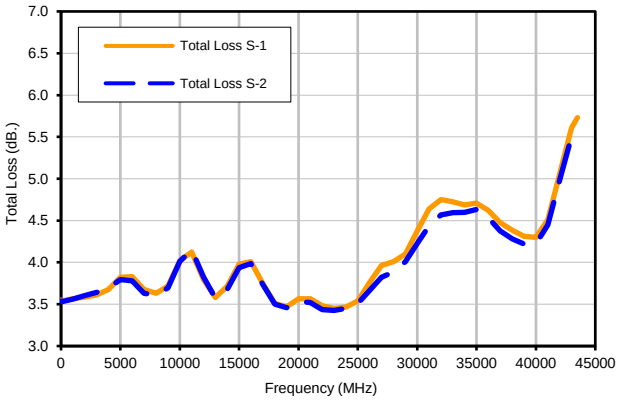
FREQUENCY (MHz)	TOTAL LOSS[1] (dB)		AMPLITUDE UNBALANCE (dB)	ISOLATION (dB)	PHASE UNBALANCE (Deg)
	S-1	S-2		1-2	
10	3.55	3.55	0.00	3.63	0.03
100	3.54	3.54	0.00	3.69	0.03
1000	3.58	3.58	0.00	4.02	0.26
2000	3.60	3.63	0.02	4.50	0.41
3000	3.63	3.66	0.03	5.16	0.46
4000	3.69	3.71	0.02	5.84	0.46
5000	3.84	3.82	0.02	6.63	0.60
6000	3.86	3.81	0.05	7.70	0.99
7000	3.73	3.69	0.04	8.85	1.40
8000	3.68	3.66	0.02	9.47	1.63
9000	3.77	3.75	0.02	9.69	1.85
10000	4.06	4.06	0.00	10.50	2.15
11000	4.14	4.17	0.03	12.03	2.31
12000	3.84	3.87	0.04	13.69	2.24
13000	3.66	3.67	0.00	14.60	2.26
14000	3.81	3.78	0.03	15.01	2.56
15000	4.03	4.00	0.03	16.05	2.95
16000	4.00	3.99	0.02	17.93	3.23
17000	3.75	3.75	0.00	20.37	3.40
18000	3.58	3.58	0.00	22.46	3.54
19000	3.57	3.56	0.01	23.36	3.70
20000	3.65	3.63	0.02	24.06	3.91
21000	3.62	3.58	0.03	25.22	4.18
22000	3.54	3.51	0.03	26.22	4.51
23000	3.54	3.52	0.01	26.06	4.75
24000	3.56	3.56	0.00	24.29	4.87
25000	3.64	3.62	0.02	22.34	4.85
26000	3.88	3.81	0.07	21.35	4.97
27000	4.07	3.96	0.11	21.35	5.45
28000	4.11	4.02	0.09	21.38	5.90
29000	4.26	4.17	0.08	20.88	5.93
30000	4.56	4.42	0.15	20.73	6.04
31000	4.78	4.56	0.22	21.30	6.70
32000	4.85	4.64	0.21	21.82	7.56
33000	4.86	4.71	0.15	21.66	8.11
34000	4.90	4.80	0.09	21.85	8.33
35000	4.90	4.84	0.07	23.20	8.37
36000	4.73	4.65	0.07	25.58	8.47
37000	4.55	4.46	0.09	28.42	8.65
38000	4.50	4.41	0.09	30.84	8.97
39000	4.46	4.38	0.08	32.14	9.28
40000	4.45	4.39	0.06	31.66	9.47
41000	4.71	4.67	0.03	29.94	9.51
42000	5.29	5.25	0.04	28.63	9.40
43000	5.80	5.71	0.08	28.52	9.45
43500	5.88	5.77	0.10	29.10	9.61

FREQUENCY (MHz)	VSWR (:1)		
	S	1	2
10	1.97	1.95	1.95
100	1.94	1.92	1.92
1000	1.88	1.82	1.83
2000	1.98	1.77	1.78
3000	2.04	1.63	1.65
4000	2.01	1.44	1.45
5000	2.05	1.32	1.32
6000	2.01	1.22	1.20
7000	1.86	1.12	1.10
8000	1.81	1.13	1.12
9000	1.93	1.15	1.13
10000	2.23	1.39	1.35
11000	2.22	1.46	1.41
12000	1.82	1.30	1.28
13000	1.59	1.14	1.20
14000	1.69	1.19	1.29
15000	1.93	1.43	1.47
16000	1.91	1.52	1.51
17000	1.56	1.38	1.36
18000	1.30	1.21	1.20
19000	1.27	1.16	1.13
20000	1.35	1.26	1.20
21000	1.30	1.28	1.23
22000	1.14	1.21	1.18
23000	1.06	1.13	1.14
24000	1.07	1.13	1.16
25000	1.18	1.18	1.22
26000	1.42	1.30	1.33
27000	1.50	1.33	1.32
28000	1.47	1.25	1.25
29000	1.63	1.30	1.38
30000	1.92	1.53	1.53
31000	1.98	1.67	1.56
32000	1.73	1.59	1.49
33000	1.65	1.44	1.45
34000	1.78	1.42	1.50
35000	1.81	1.46	1.51
36000	1.59	1.42	1.38
37000	1.31	1.35	1.25
38000	1.11	1.32	1.23
39000	1.04	1.28	1.22
40000	1.16	1.24	1.21
41000	1.32	1.25	1.27
42000	1.62	1.39	1.44
43000	1.95	1.57	1.58
43500	2.03	1.62	1.58

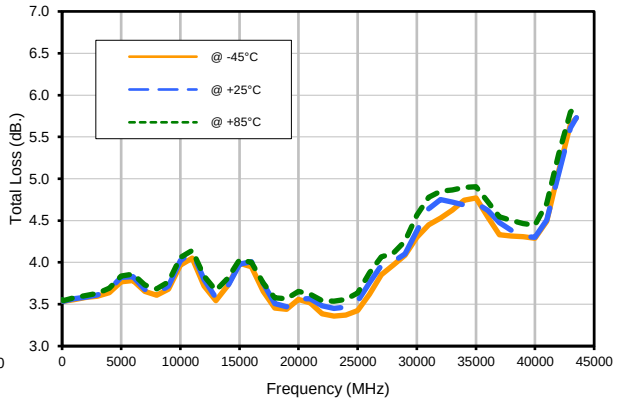
[1]Total Loss = Insertion Loss + 3dB Splitter Loss

Typical Performance Curves

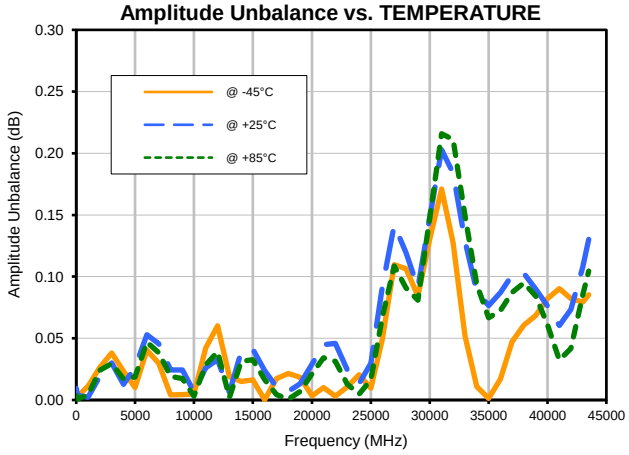
Total Loss



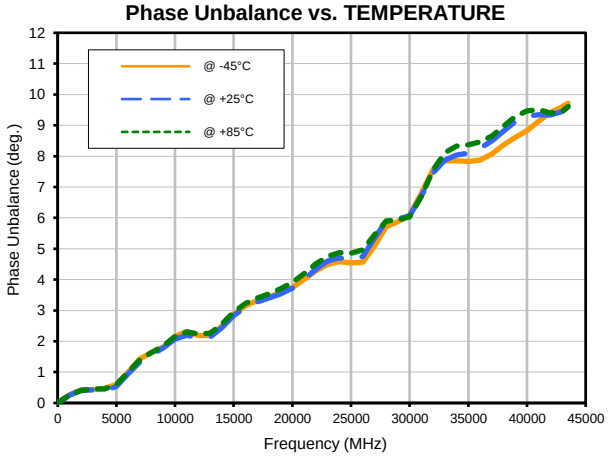
Total Loss S-1 vs. TEMPERATURE



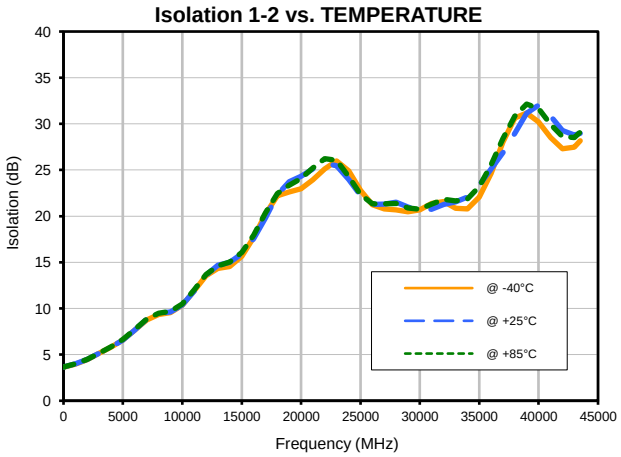
Amplitude Unbalance vs. TEMPERATURE



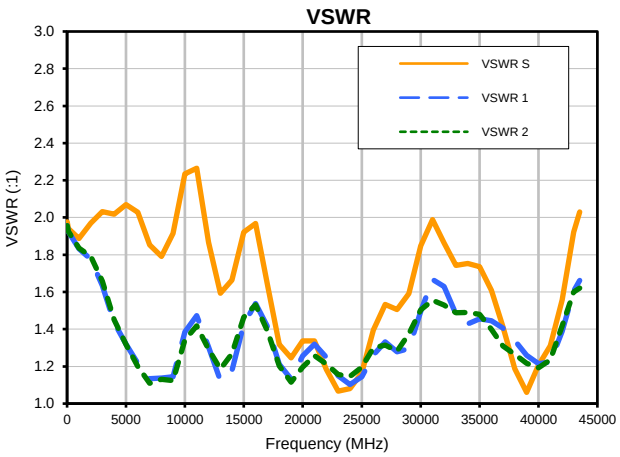
Phase Unbalance vs. TEMPERATURE

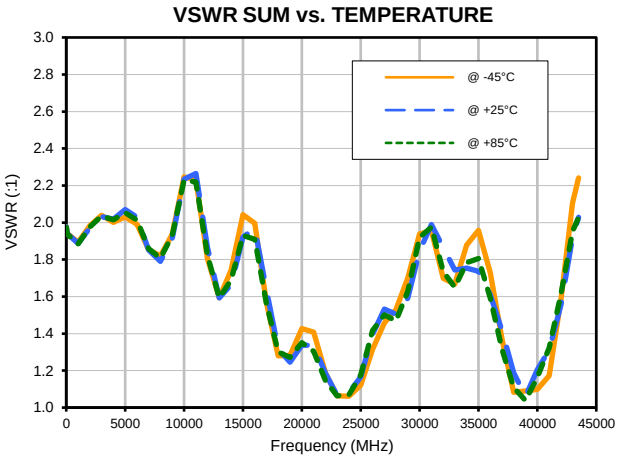


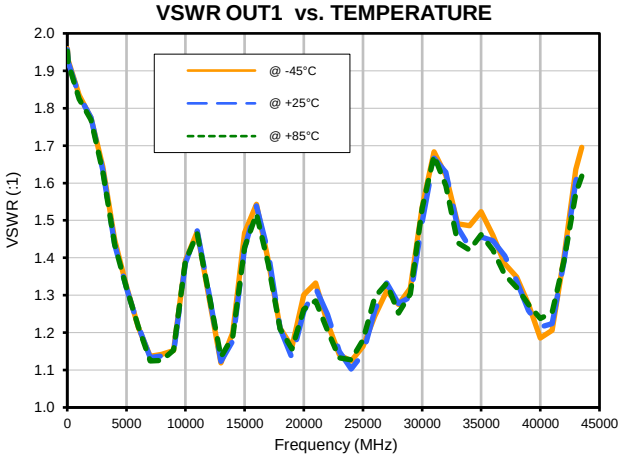
Isolation 1-2 vs. TEMPERATURE



Typical Performance Curves



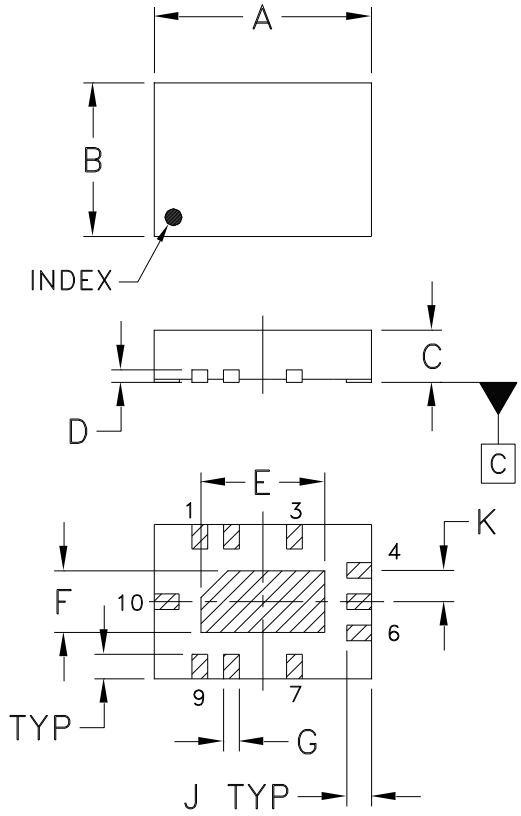




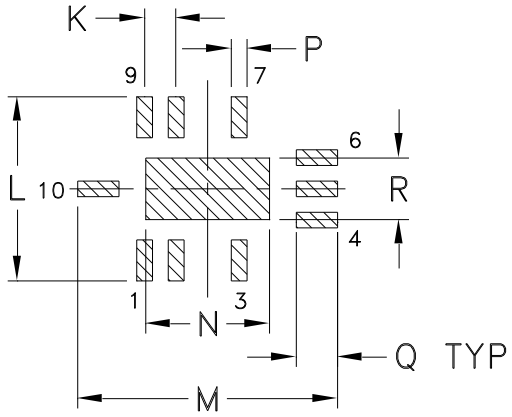
Case Style JV

Outline Dimensions

JV2579-1



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE #	A	B	C	D	E	F	G	H	J	K	L	M	N
JV2579-1	.138 (3.5)	.098 (2.5)	.033 (0.85)	.008 (0.20)	.079 (2.01)	.039 (0.99)	.010 (0.25)	- -	.016 (0.41)	.020 (.51)	.118 (3.00)	.165 (4.19)	.079 (2.01)

CASE #	P	Q	R	WT. GRAM
JV2579-1	.010 (0.25)	.026 (0.66)	.039 (0.99)	.03

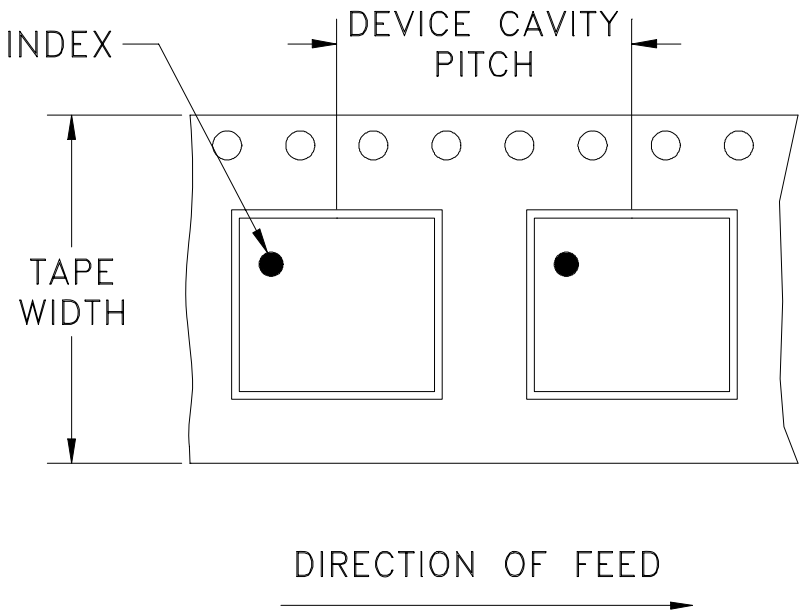
Dimensions are in inches (mm). Tolerances: 2 Pl. ± .01; 3 Pl. ± .005

Notes:

1. Case material: Plastic.
2. Termination finish: **as shown below or indicated on Data Sheet.**
   For RoHS Case Styles: Matte-Tin plate.

Tape & Reel Packaging TR-F104

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
8	4	7	Small quantity standards (see note)	20
				50
				100
				200
				500
				1000
		7	Standard	2000

Note: Please Consult individual model data sheet to determine device per reel availability.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

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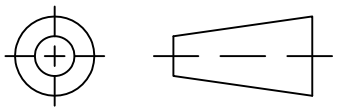
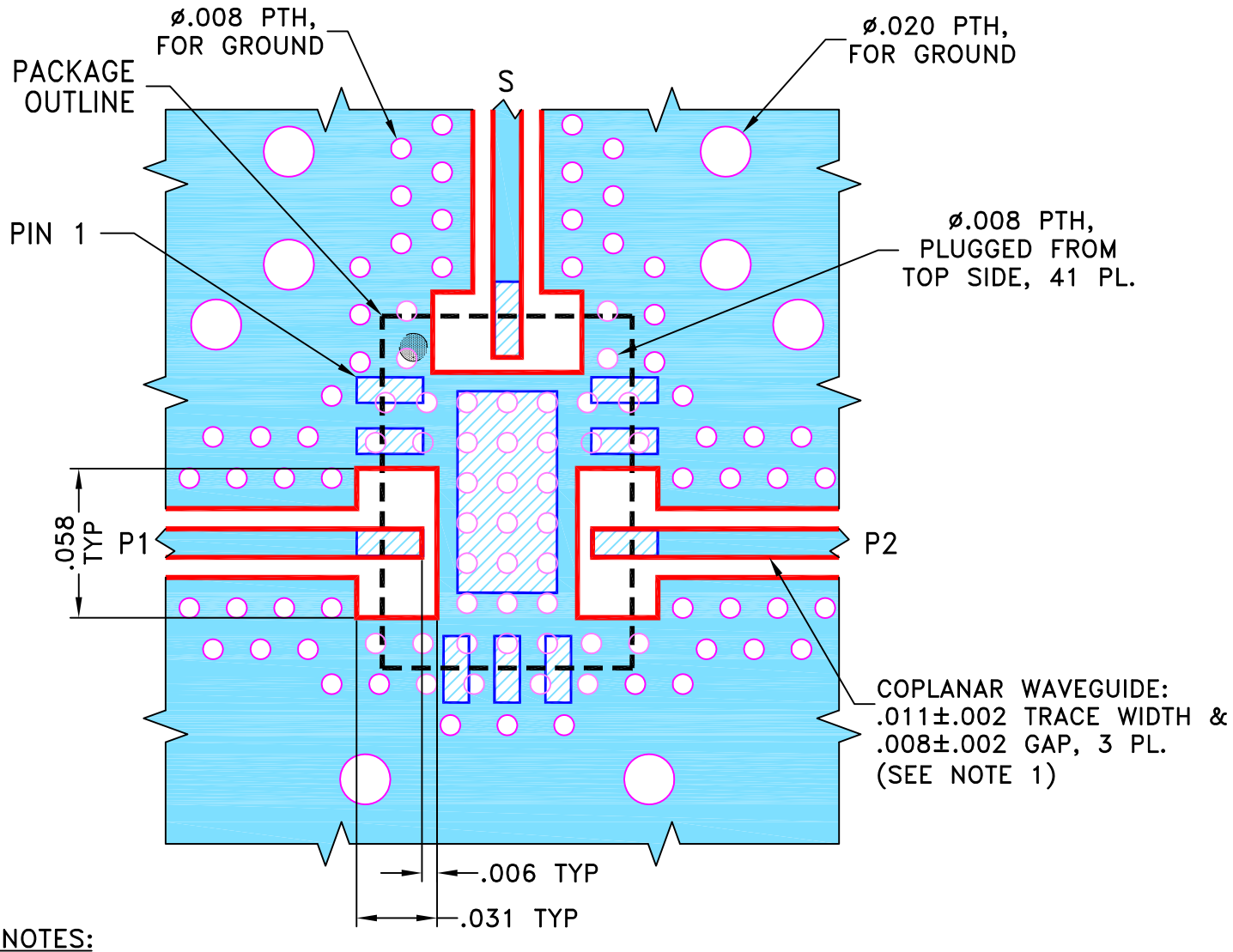
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M168742	NEW RELEASE	07/06/18	GF	GH

SUGGESTED MOUNTING CONFIGURATION
FOR JV2579-1 CASE STYLE, "10SP04" PIN CODE



NOTES:

1. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .0066±.0005. 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.

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	GF	06/28/18
TOLERANCES ON:	CHECKED	IL	07/05/18
2 PL DECIMALS ± .005	APPROVED	GH	07/06/18
3 PL DECIMALS ±			
ANGLES ±			
FRACTIONS ±			

ASHEETA1.DWG REV:A DATE:01/12/95

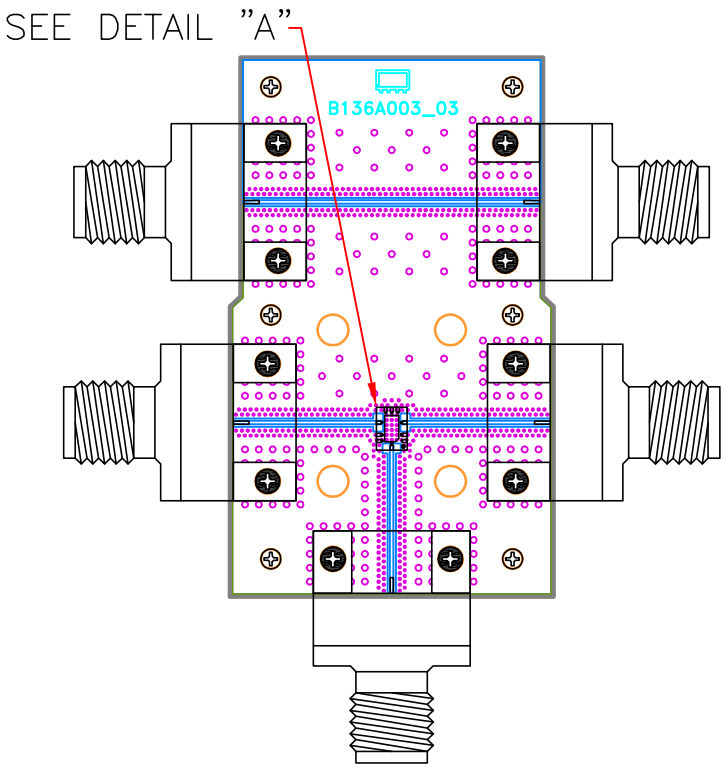
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

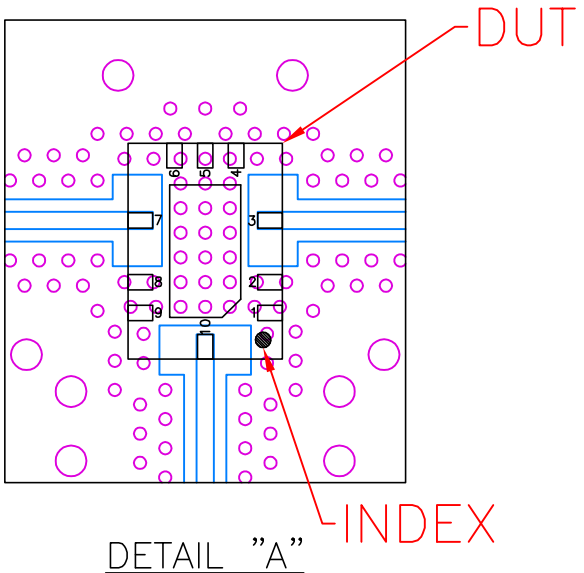
PL, 10SP04, JV2579-1, MB-029

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-598	OR

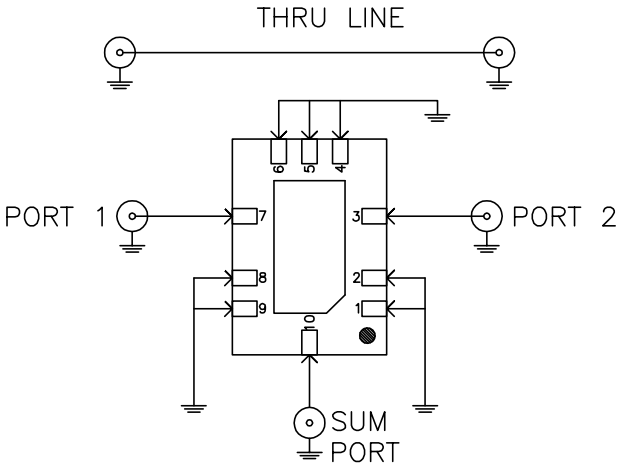
FILE:	SCALE:	SHEET:
98PL598	15:1	1 OF 1

Evaluation Board and Circuit





DETAIL "A"
LOCATION OF INTERCONNECTOR
AND UNITS COMPONENTS
(SCALE 5:1)



SCHEMATIC DIAGRAM

Function	Pad
SUM PORT	10
PORT 1	7
PORT 2	3
GND	1,2,4,5,6,8,9

Notes:

1. 2.4mm Female Connectors.
2. PCB Material: Roger RO4350B or equivalent, Dielectric constant=3.5, Thickness=0.0066 inch

Mini-Circuits®

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Environmental Specifications ENV08T1

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85°C or -45° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C or -65° to 150° Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Mechanical Shock	1.5Kg, 0.5 ms, 5 shock pulses, Y1 direction only	MIL-STD-883, Method 2002, Condition B, except Y1 direction only
Vibration (Variable Frequency)	50g peak	MIL-STD-883, Method 2007, Condition B
Autoclave	15 psig, 100% RH, 121°C, 96 hours	JESD22-A102, Condition C
HAST	130°C, 85% RH, 96 hours	JESD22-A110
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
Solder Reflow Heat	Sn-Pb Eutetic Process: 240°C peak Pb-Free Process: 260°C peak	J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1
Moisture Sensitivity: Level 1	Bake at 125°C for 24 hours Soak at 85°C/85% RH for 168 hours, Reflow 3 cycles at 260°C peak	J-STD-020
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether +	MIL-STD-202, Method 215

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
	monoethanolamine at 63°C to 70°C	