

Non-Catalog Model

Frequency Mixer

ALY-44MHW

Level 13 (LO Power + 13 dBm)

Important Note

This is a non-catalog model and can be manufactured on specific request.
Pricing and delivery information can be supplied upon request.

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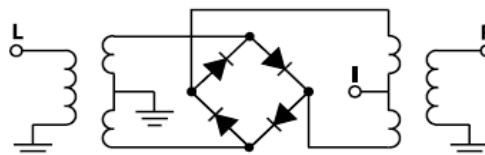
CASE STYLE : CB518

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (f _L to f _U)	1800		4900	MHz
	RF (f _L to f _U)	1800		4900	MHz
	IF	DC		1400	MHz
Conversion Loss	Total Range		7.5	9.2	dB
LO-RF Isolation		20	30		dB
LO-IF Isolation		8	14		dB

MAXIMUM RATINGS	
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C

PIN CONNECTIONS	
LO	1
RF	6
IF	10
GROUND	2,3,4,5,7,8,9

Electrical Schematic



Frequency Mixer

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Typical Performance Data

RF (MHz)	LO (MHz)	CONVERSION LOSS (dB)			LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
		@LO (dBm)				@LO (dBm)			@LO (dBm)		
		+10	+13	+16		+10	+13	+16	+10	+13	+16
1800.0	1770.0	9.36	7.03	6.03	1770.0	38.66	33.33	34.00	10.50	12.33	13.84
2021.4	1991.4	7.44	6.27	5.77	1991.4	32.67	30.67	29.83	10.84	12.00	12.33
2242.9	2212.9	6.55	5.38	5.05	2212.9	32.50	31.50	30.50	11.67	12.17	12.00
2400.0	2370.0	5.70	5.20	5.04	2370.0	32.50	32.16	30.67	13.33	13.50	12.34
2464.3	2434.3	5.87	5.37	5.37	2434.3	32.33	31.84	30.00	13.83	13.67	12.50
2500.0	2470.0	6.01	5.51	5.51	2470.0	32.50	32.33	30.17	14.50	14.33	12.83
2685.7	2655.7	6.85	6.18	5.85	2655.7	31.00	30.33	29.34	17.50	15.50	13.84
2907.1	2877.1	7.13	6.63	6.30	2877.1	32.16	31.33	30.34	20.83	17.83	15.84
3000.0	2970.0	7.49	6.82	6.49	2970.0	32.00	31.50	30.84	21.33	18.66	16.84
3128.6	3098.6	7.49	6.82	6.49	3098.6	31.83	30.66	30.50	21.83	20.00	18.84
3350.0	3320.0	7.41	6.91	6.58	3320.0	29.50	30.16	30.84	21.00	21.50	22.00
3571.4	3541.4	6.66	6.32	5.99	3541.4	32.67	33.17	32.66	21.00	22.83	24.66
3792.9	3762.9	6.43	6.10	5.76	3762.9	33.17	32.50	31.67	21.50	23.17	24.83
4000.0	3970.0	6.70	6.37	6.04	3970.0	33.33	32.00	30.67	22.00	22.83	22.67
4014.3	3984.3	6.68	6.35	6.02	3984.3	33.50	32.00	30.67	22.00	22.66	22.50
4235.7	4205.7	5.83	5.67	5.50	4205.7	33.00	31.00	30.00	22.33	21.66	20.83
4400.0	4370.0	5.59	5.42	5.25	4370.0	31.66	29.34	28.33	21.66	20.67	19.50
4457.1	4427.1	5.71	5.55	5.21	4427.1	31.34	29.00	28.00	21.34	20.33	19.33
4678.6	4648.6	6.31	5.81	5.65	4648.6	30.00	28.50	27.67	19.50	18.83	18.17
4900.0	4870.0	5.19	4.85	4.85	4870.0	29.00	28.00	27.17	17.50	17.34	17.17



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IF/RF MICROWAVE COMPONENTS



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ALY-44MHW

Typical Performance Data

RF (MHz)	LO (MHz)	RF VSWR (:1)			LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR (:1)		
		@LO (dBm)			@LO (dBm)				@LO (dBm)		
		+10	+13	+16	+10	+13	+16		+10	+13	+16
1800.0	1770.0	4.09	4.09	3.68	8.08	5.27	3.69	10.0	1.47	1.85	2.10
2021.4	1991.4	3.46	3.26	3.17	8.05	3.26	2.86	40.0	1.46	1.83	2.07
2242.9	2212.9	3.36	3.09	2.86	5.28	3.95	3.17	70.0	1.48	1.83	2.10
2400.0	2370.0	2.80	2.56	2.46	4.80	2.94	2.93	100.0	1.46	1.83	2.10
2464.3	2434.3	2.73	2.56	2.46	3.95	2.73	2.94	109.3	1.48	1.83	2.07
2500.0	2470.0	2.61	2.46	2.36	3.95	2.51	2.86	208.6	1.50	1.81	2.07
2685.7	2655.7	2.67	2.51	2.46	3.01	2.04	2.56	307.9	1.55	1.83	2.04
2907.1	2877.1	2.17	2.13	2.07	1.92	1.71	2.36	407.1	1.64	1.85	2.04
3000.0	2970.0	1.98	1.92	1.87	1.67	1.55	2.24	500.0	1.71	1.87	2.01
3128.6	3098.6	1.78	1.73	1.67	1.59	1.39	1.95	506.4	1.73	1.87	2.01
3350.0	3320.0	2.24	2.04	1.95	1.92	1.55	2.10	605.7	1.77	1.90	1.98
3571.4	3541.4	2.94	2.67	2.51	2.17	2.10	2.67	705.0	1.85	1.90	1.95
3792.9	3762.9	3.69	3.26	3.01	1.98	2.46	3.26	804.3	1.90	1.90	1.92
4000.0	3970.0	3.26	2.94	2.67	1.65	2.46	3.46	903.6	1.92	1.90	1.90
4014.3	3984.3	3.09	2.80	2.56	1.65	2.46	3.47	1000.0	1.83	1.74	1.71
4235.7	4205.7	2.32	2.01	1.85	1.48	2.28	3.18	1002.9	1.83	1.74	1.69
4400.0	4370.0	2.28	1.90	1.73	1.54	2.37	3.26	1102.1	1.67	1.54	1.49
4457.1	4427.1	2.20	1.85	1.69	1.56	2.41	3.26	1201.4	1.56	1.32	1.24
4678.6	4648.6	2.24	2.07	1.98	1.69	2.41	3.18	1300.7	1.55	1.19	1.05
4900.0	4870.0	1.58	1.39	1.34	1.77	2.20	2.73	1400.0	1.65	1.36	1.34



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IF/RF MICROWAVE COMPONENTS



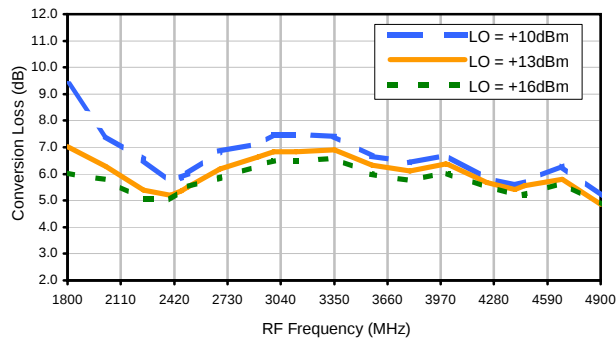
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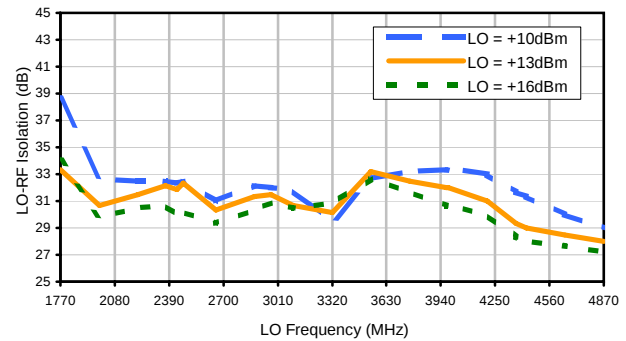
ALY-44MHW

Typical Performance Curves

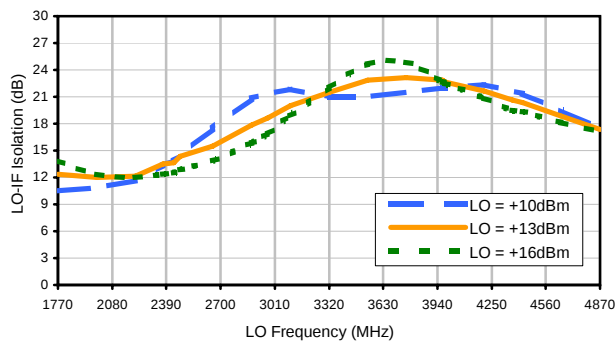
Conversion Loss



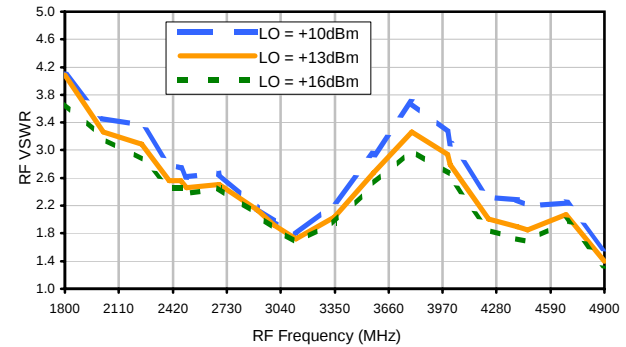
LO-RF Isolation



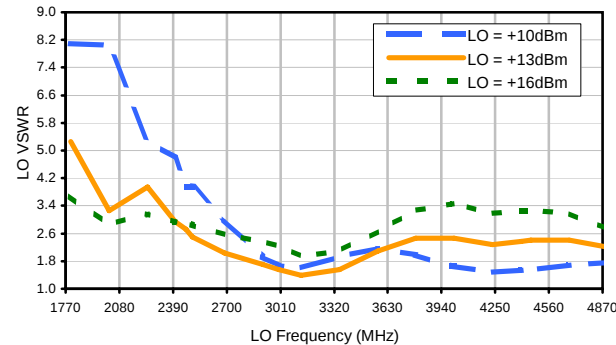
LO-IF Isolation



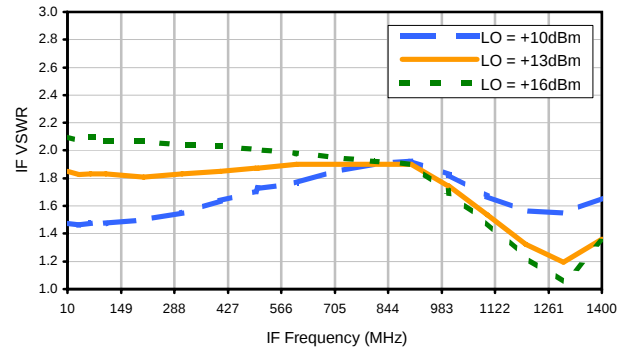
RF VSWR



LO VSWR

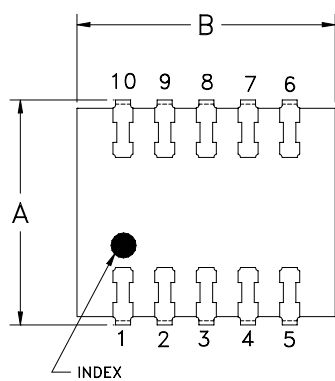


IF VSWR

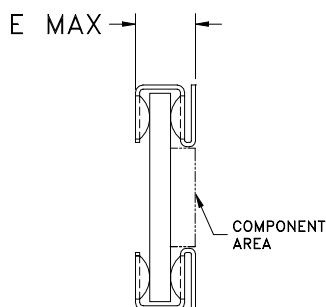


CB518
CB539

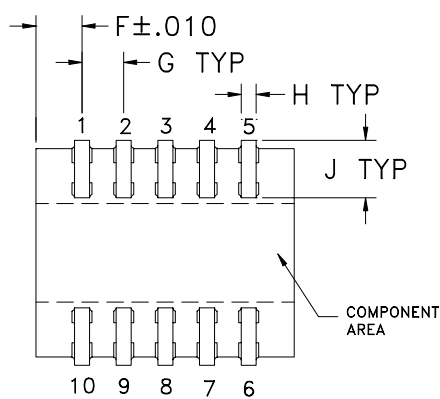
Outline Dimensions



TOP VIEW

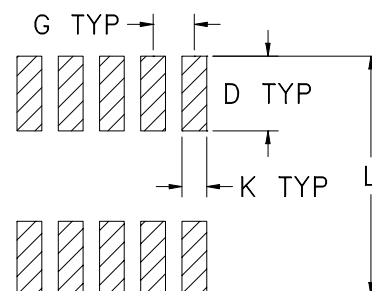


SIDE VIEW



BOTTOM VIEW

PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm.002$

CASE #	A	B	C	D	E	F	G	H	J	K	L	WT. GRAM
CB518	.27 (6.86)	.31 (7.87)	-	.090 (2.29)	.080 (2.03)	.055 (1.40)	.050 (1.27)	.018 (0.46)	.074 (1.88)	.030 (0.76)	.290 (7.37)	.3
CB539	.29 (7.36)	.30 (7.62)	-		.085 (2.16)	.050 (1.27)			.067 (1.70)		.315 (8.00)	.3

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

Notes:

1. Open style, ceramic base.
2. Termination finish:
For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.



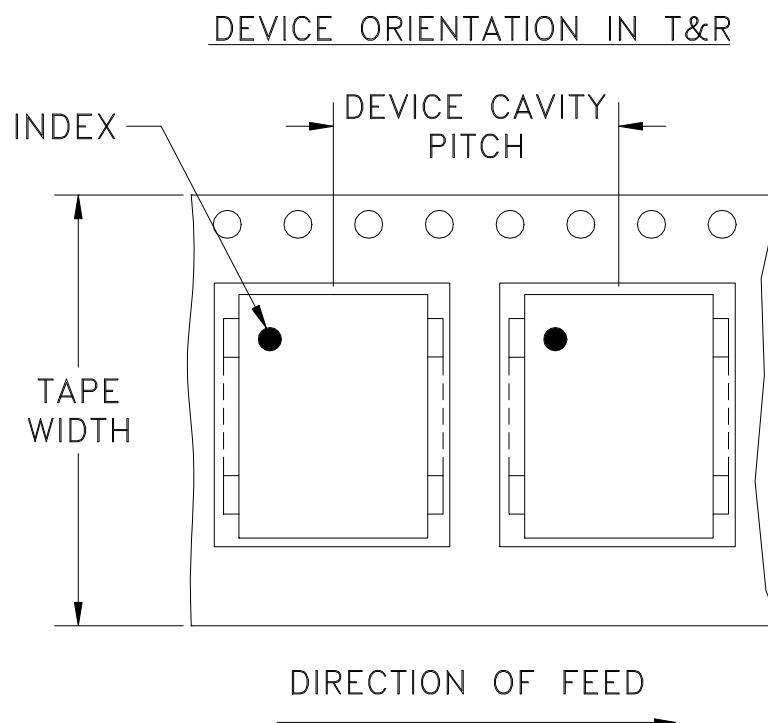
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Tape & Reel Packaging TR-F24



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
16	12	13	500

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.

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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 Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215