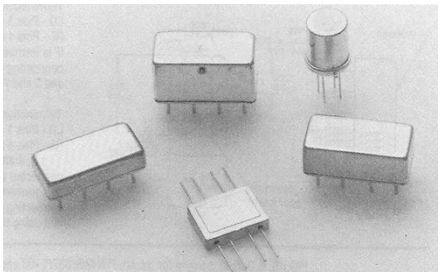
MIL-DTL-28837 MIXERS

TECHNICAL FEATURE



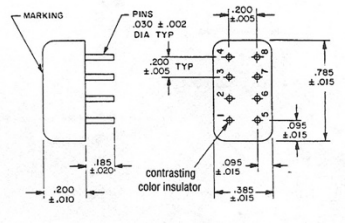
REF Suffix M-28837	Merrimac Reference Part No.	Operating Freq. Range (MHz) RF/LO	If	LO Power dBm	Conversion Loss (SSB) db	Noise Figure dB typ.	Minimum isolation (dB) L-R	L-1	R-1	for freq. (MHz)	1 dB Compression Point dB typ.	1 dB Desens. Level dB typ.	DC Polarity	Package Outline
/1-01S /1-01N	DMS-2-100/57855S DMS-2-100/57855N	0.05-200	DC-200	+4min. +7 typ. +13max.	6.5 typ. 8.5max.	6.5	45 35	40 30	N/A N/A	0.05-30 30-200	+ 2	0	neg.	Relay Package Fig. A
11-02S /1-02N	117A/57834S 117A/57834N	5-500	DC-500	+4min. +7 typ. +13max.	7.0 typ. 9.0max.	7.0	45 35	40 25	N/A N/A	5-50 50-500	+2	0	neg.	Relay Package Fig.A
/1-035 /1-03N	DMS-2-250/57852S DMS-2-250/57852N	0.5-500	DC-500	+7 typ.	7.0 typ. 8.5max.	7.0	35 30 25	30 25 20	N/A N/A N/A	0.5-1 1-250 250-500	+ 2	0	neg.	Relay Package Fig. B
/1-04S /1-04N	DMS-8-500/57835S DMS-8-500/57835N	RF 2-400 LO 2-500	DC-800	+10min. +20 typ. +23 max.	7.0 typ. 9.0max.	7.5	40 35 25	40 35 25	N/A N/A N/A	2-32 32-100 100-500	+16	+14	pos.	Relay Package Fig. C
/1-09S /1-09N	M119/57B36S M119/57836N	1-750	DC-750	+7 typ.	7.5 typ. 8.5max.	7.5	45 30 25	30 25 20	N/A N/A N/A	1-2 2-375 375-750	+ 2	0	neg.	Relay Package Fig. B
/1-105 /1-10N	DMS-4-250/57853S DMS-4-250/57853N	0.4-500	DC-500	+7min. +13 typ. +17 max.	7.0 typ. 9.0max.	7.0	45 25	40 25	N/A N/A	0.4-50 50-500	+11	+8	neg.	Relay Package Fig. D
/1-11S /1-11N	DMS-8-250/57837S DMS-8-250/57837N	1-500	DC-500	t-23 typ.	7.5 typ. 9.5max.	7.5	50 40 30 20	40 30 20 20	25 20 20 20	1-100 100-200 200-300 300-500	+16	+14	neg.	Relay Package Fig. E
/1-12S /1-12N	DMS-2-25/57838S DMS-2-25/57838N	0.002-12	DC-12	+4min. +7 typ. +13max.	6.0 typ. 8.0 max.	6.0	45 40	40 30	N/A N/A	0.002-5 5-12	+ 2	0	neg.	Relay Package Rg.C
/2-01S /2-01N	DMF-2A-505/57839S DMF-2A-505/57839N	5-1000	DC-1000	+10min. +10 typ. +17max.	7.0 typ. 8.0max.	7.0	40 30	40 25	30 15	5-100 100-1000	+ 2	0	pos.	Flatpack Fig. G
/2-02S /2-02N	DMF-2A-700/57840S DMF-2A-700/57840N	10-1500	DC-1000	+4min. +7 typ. +13 max.	7.0 typ. 9.5max.	7.0	30 25 25	30 20 18	N/A N/A N/A	10-600 600-1200 1200-1500	+ 2	0	neg.	Flatpack Fig. G
/2-04S /2-04N	DMF-2A-250/57841S DMF-2A-250/57841N	0.5-500	DC-500	+7min. +7 typ. +17 max.	7.0 typ. 8.0max.	7.0	40 35	30 20	23 20	0.5-300 0.5-500	+2	0	pos.	Flatpack Fig. G
/2-05S /2-05N	DMF-2A-250/57854S DMF-2A-250/57854N	0.5-500	DC-500 (IF-1 &IF-2)	+7min. +7 typ. +13max.	6.5 typ. 7.0 max.	6.5	35 30 25	30 25 20	25 20 15	0.5-10 10-200 200-500	+ 2	0	neg.	Flatpack Fig. F
/7-01S /7-01N	M109/57832S M109/57832N	10-500	DC-500	+7 typ.	7.0 typ. 9.0max.	7.0	40 35 30 25	35 30 25 15	25 20 15 10	10-50 50-100 100-200 200-500	+2	0	neg.	T0-5 Fig.H
/7-02S /7-02N	M109/57833S M109/57833N	350-500	DC-500	+7 typ.	7.0 typ. 9.0max.	7.0	25	15	10	350-500	+2	0	neg.	T0-5 Fig.H

Notes: 1. For complete definitive specifications refer to MIL-DTL-28837.
2. The 1 dB Compression Point and 1 dB Desensitization Levels are specified at LO levels defined in MIL-DTL-28837.

Crane Aerospace & Electronics
Microwave Solutions – Merrimac Industries
41 Fairfield Place, West Caldwell, NJ 07006
+ 1.973.575.1300 ext. 1309 • mw@craneae.com
www.craneae.com/mw

MIL-DTL-28837 MIXERS

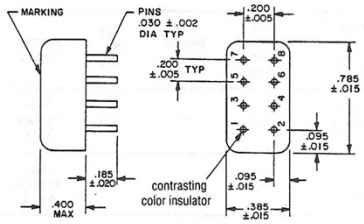
FIGURE A Outline drawing for mixers P/N M28837/1 -01 and -02.



Termination for P/N-01.
LO - Pins 1 and 5
RF - Pins 4 and 8
IF is formed by externally connecting pins 2 and 6 together and 3 and 7 together.

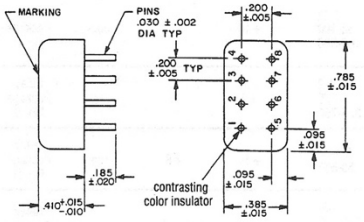
Termination for P/N-02.
LO - Pins 1 and 5
RF - Pins 4 and 8
Pins 2, 4 and 6 are internally connected to case.
IF is formed by externally connecting pins 3 and 7 together and using the case for reference.

FIGURE B Outline drawing for mixers P/N M28837/1 -03 and -09.



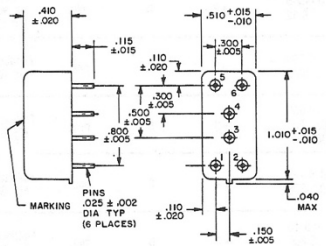
Termination for -03 and -09.
LO - Pins 7 and 8
RF - Pins 1 and 2
IF is formed by externally connecting pins 3 and 4 together and 5 and 6 together for the grounded side.

FIGURE C Outline drawing for mixers P/N M28837/1 -04 and -12.



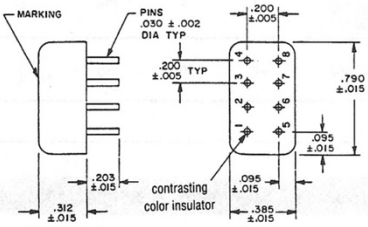
Termination for -04 and -12.
LO - Pins 1 and 5
RF - Pins 4 and 8
IF is formed by externally connecting pins 3 and 7 together for the ungrounded side and using pins 2 and 6 for the ground side.

FIGURE D Outline drawing for mixers P/N M28837/1 -10.



Termination for -10.
LO - Pins 1 and 2
RF - Pins 5 and 6
IF - Pins 3 and 4

FIGURE E. Outline drawing for mixer P/N M28837/1 -11.



Termination for P/N M28837/1 -11
LO - Pins 4 and 8
RF - Pins 1 and 5
IF - Pins 3 and 7
Pins 2, 4, and 6 are grounded.

Dimensions are in inches.

FIGURE F
Outline drawing for mixers P/N M28837/2-05.

FIGURE G
Outline drawing for mixers P/N M28837/2 -02 and -04.

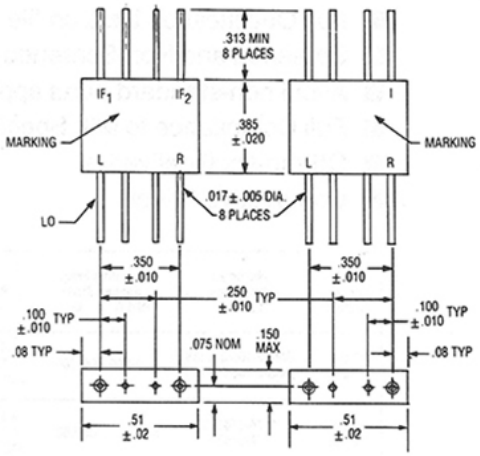
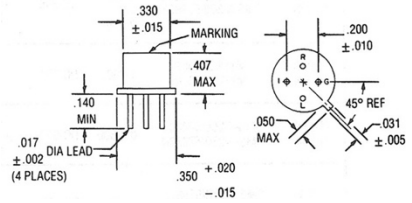


FIGURE H Outline drawing for mixers P/N M28837/7-01 and -02.



QPL MIXER TESTING & SCREENING

Crane's range of MIL-M-28837 Mixers are available in two screening levels indicated with either the N-suffix (Non-Screened) or S-suffix (Screened).

All testing Is performed in accordance with MIL-STD-202 (Environmental) and per MIL-STD-105, Inspection Level II at an AOL of 1.0 as follows:

Non-Screened Level N Testing

1. Full Merrimac Catalog Product Testing and Quality Assurance
2. Visual and Mechanical Inspection
3. Fine and Gross Leak
4. Complete Electrical Performance Testing

Additional testing For Screened Level S.

5. 24-Hour Bake
6. 96-hour powered Burn-In
7. Fine and Gross Leak Test per Method 112, Test Condition C
8. Thermal Shock per Method 107, Condition B
9. Vibration per Method 204, Test Condition D
10. Additional full Electrical Performance Test

Qualification and Group B test data Is available for all Merrimac QPL Mixers, coverIn11 the following environmental conditions:

1. 24-Hour Bake
2. 96-Hour Burn-in
3. Thermal Shock per Method 107, Test Condition B
4. Vibration per Method 204, Test Condition D
5. Shock per Method 213, Test Condition A or C (depending upon model)
6. Fine and Gross Leak Test per Method 112, Test Condition C or D
7. Solderability per Method 208
8. Resistance to Solvents per Method 215
9. Resistance to Soldering Heat per Method 210, Test Condition B
10. Electrical testing at Temperature Extremes
11. Terminal Strength per Method 211
12. Moisture Resistance per Method

CRANE AEROSPACE & ELECTRONICS