



Double Balanced Mixers Space Qualified

MD-12XX Series

Electrical Specifications

Part #	MD-1213	MD-1214	MD-1215	MD-1221	MDC-1216
Frequency Range					
RF	10-3000 MHz	10-150 MHz	10-1500 MHz	0.5-500 MHz	2.6-5.2 GHz
LO	10-3000 MHz	10-1500 MHz	10-1500 MHz	0.5-500 MHz	2.6-5.2 GHz
IF	DC-3000 MHz	DC-1500 MHz	DC-1500 MHz	0.5-500 MHz	DC-300 MHz
Conversion Loss	8.7 dB Max	11.0 dB Max	11.0 dB Max	7.0 dB Max	6.0 dB Max
Isolation					
LO to RF	25 dB Min	18 dB Min	18 dB Min	25 dB Min	20 dB Min
LO to IF	20 dB Min	10 dB Min	10 dB Min	20 dB Min	18 dB Min
RF to IF	18 dB Min	7 dB Min	7 dB Min	15 dB Min	20 dB Min
RF Input					
1 dB Compression	+7 dBm	0 dBm	0 dBm	+2 dBm	+2.5 dBm
1 dB Desensitization	+5 dBm	-2 dBm	-2 dBm	-2 dBm	0 dBm
SSB Noise Figure	8.7 dB Max	11 dB Max	11 dB Max	7 dB Max	6 dB Max
Max Input Power (at +25°C)	600mW	300mW	300mW	150mW	300mW
VSWR					
RF Port	4.0:1 Max	2.0:1 Max	2.0:1 Max	2.8:1 Max	3.4:1 Max
LO Port	6.0:1 Max	2.0:1 Max	2.0:1 Max	2.8:1 Max	8.0:1 Max
IF Port	6.5:1 Max	1.8:1 Max	1.8:1 Max	3.0:1 Max	2.25:1 Max
Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Two Tone IM Ratio	56 dB Min	—	—	40 dB Min	—
Package	0.385" x 0.510" Flatpak	0.385" x 0.510" Flatpak	12-Lead T0-8	0.385" x 0.510" Flatpak	1.14" x 0.93" x 0.39" SMA Conn

Specifications Subject to Change Without Notice.

M/A-COM Inc. ■ 1011 Pawtucket Boulevard, Lowell, MA 01853 USA ■

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Test Step	Mil Spec	Method	Condition
100% Screening			
Initial Electrical	Per Detail Spec		
Stabilization Bake	Mil-Std-883 C	1008	B
Temperature Cycling	Mil-Std-883C	1010	B
Constant Acceleration	Mil-Std-883C	2001	B
PIND	Mil-Std-883C	2020	A or B
Interim Electrical	Per Detail Spec		
High Temp Burn-In (240 Hours)	Mil-Std-883C	1015	B, D, or E
Final Electrical	Per Detail Spec		
Radiographic	Mil-Std-883C	2012	
Seal Test			
Fine Leak	Mil-Std-883C	1014	A
Gross Leak	Mil-Std-883C	1014	C
External Visual	Mil-Std-883C	2009	

Quality Conformance Tests*			
Group IIC			
Thermal Shock	Mil-Std-202	204	D
Temperature Cycling	Mil-Std-883C	1010	B
Moisture Resistance	Mil-Std-883C	1004	
Seal Test			
Fine Leak	Mil-Std-883C	1014	A
Gross Leak	Mil-Std-883C	1014	C
Acceleration	Mil-Std-883C	2001	B
Vibration	Mil-Std-883C	2007	A
Seal Test			
Fine Leak	Mil-Std-883C	1014	A
Gross Leak	Mil-Std-883C	1014	C
External Visual	Mil-Std-883C	2009	
Group IIIC			
Resistance to Solvents	Mil-Std-883C	2015	
Solderability	Mil-Std-883C	2003	
Leads integrity	Mil-Std-883C	2004	B2
Seal Test			
Fine Leak	Mil-Std-883C	1014	A
Gross Leak	Mil-Std-883C	1014	C
External Visual	Mil-Std-883C	2009	
Group IV			
Operating Life (1000 Hours)	Mil-Std-883C	1015	B, D, or E

* Qualification was successfully performed on the MDC-1216.

The MD-1213, MD-1214, MD-1215 and MD-1221 were qualified by similarity to the MDC-1216.

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