



Space & High-Reliability



**PRODUCT SELECTION
GUIDE**

MACOM®

Partners from RF to Light

macom.com

MACOM continues to build upon our legacy of providing high-reliability products to the Aerospace and Defense industry by adding to our product portfolio and capabilities with high-reliability products for the military, defense, satellite and aerospace industries.

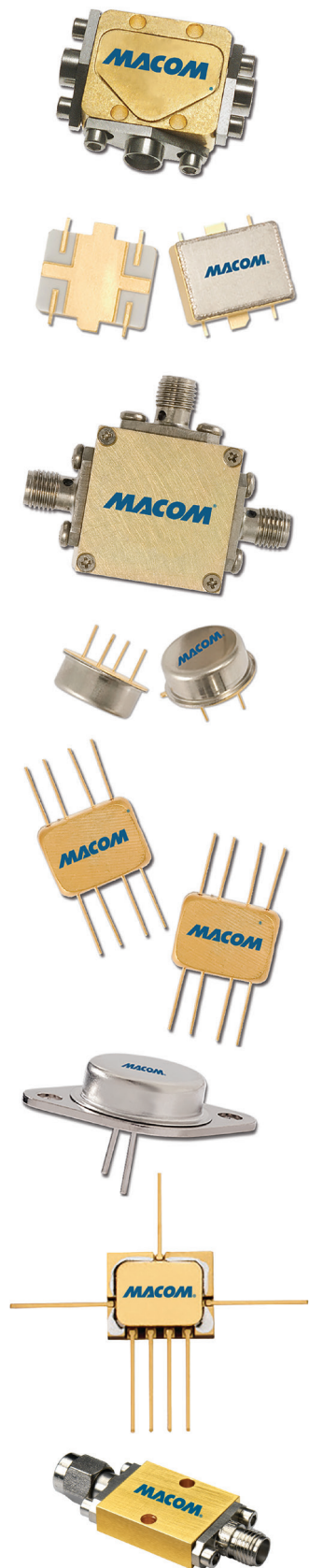
MACOM also offers customer-specific design capabilities. Environmental screening is available on most products. Additionally, we have expertise in replacement designs for obsolete or discontinued products. Our applications engineering support team is responsive, flexible, innovative and ready to help you with your next project.

Additional product information can be found on our website at macom.com. Contact our worldwide sales offices, authorized representatives and industry-leading distributors to request samples, test boards and application support. All contacts are listed on our website at: macom.com/contact

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The products listed herein are subject to US Export Controls set forth by the Arms Export Control Act and the Export Administration Act.

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A Spectrum of Aerospace and Defense Solutions

Discrete Components, MMICs and Diodes

MACOM continues to build upon our legacy of providing high-reliability semiconductor products to the Aerospace and Defense industry by adding to our product portfolio and capabilities.

MACOM's standard line of RF and microwave components provides solutions to meet the requirements commonly found on airborne applications, high MTBF ground-based equipment and space applications.

From our US Trusted Foundry in Lowell, Massachusetts, we continue to improve our ability to provide the highest quality aerospace and defense products.

When program screening requirements call for more than MACOM's standard catalog screening, custom screening programs can be created by adding screening options or by generating a program specific sequence.

MACOM's Space & High-Reliability Evolution

Watkins Johnson Company/Stellex Microwave Systems/Tyco Electronics/Anzac/ RHG/Phoenix Microwave/Metelics/Micrometrics/Hi-Rel Components & MACOM

1960s

- Pioneered production of TWT's for Pioneer, Voyager and DSCS satellites

1970s

- First solid state flight qualified production amplifiers and mixers

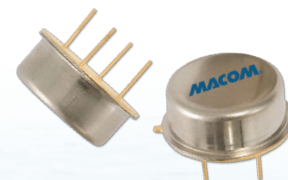
1980s/1990s/through today

- Participated in more than 85 programs (USA & International)
- Provided hundreds of space qualified solid state space component models

High-Reliability Catalog Screened Products

- 40+ year history of proven Hi-Rel manufacturing processes supporting both thin film & solder circuit assemblies
- Same proven manufacturing processes as used in equivalent component designs for custom military and space programs
- Long established cost effective standardized screening programs for catalog products available in a variety of hermetically sealed metal package styles
- Available for screening: hybrid amplifiers, hybrid mixers, switches, diodes, MMIC bare die and packaged products
- MACOM has an extensive "in-house" environmental screening capability
- US Screening Lab to perform specific environmental test requirements
- Working to expand our partner network
- Custom environmental screening plans available for hermetically-sealed, packaged products (MIL-PRF-19500, MIL-PRF-38534, MIL-DTL- 28837B, MIL-STD-202, etc.)
- Screening available for our die catalog products to MIL-PRF-38534 Element Evaluation
- Plastic Encapsulated Module (PEM) qualification to PEM-INST-001 Level 1, 2 and 3

Please contact your local sales representative to discuss any environmental screening options.



SPACE & HIGH-RELIABILITY

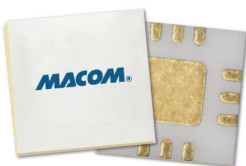
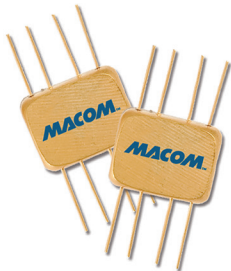
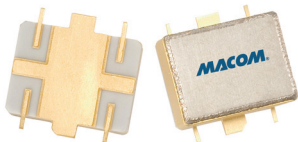


Product Screening Programs

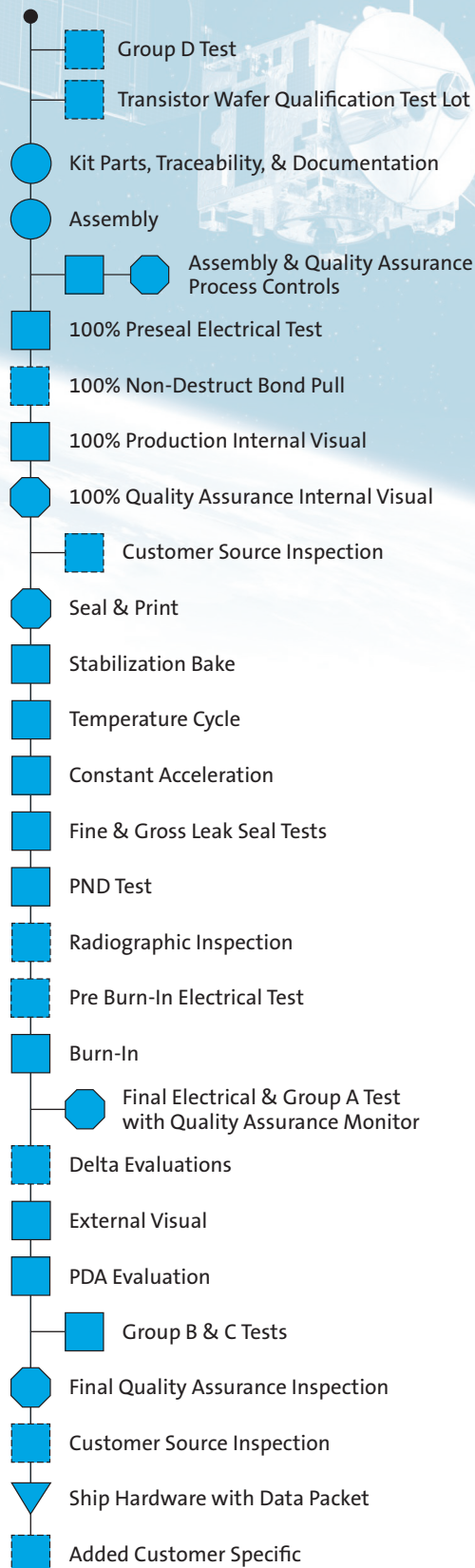
- > Standard Catalog Environmental Screening Plans
- > Customer Specific Environmental Screening Plans

Standard Requirements Supported

- > ESA/ESCC Specifications
- > MIL-PRF-38534 Performance/General Specification for Hybrid Microcircuits
- > MIL-PRF-38535 Performance/General Specification for Integrated Circuits
- > MIL-PRF-19500 General Specification for Semiconductor Devices
- > MIL-DTL-28837 General Specification for Radio Frequency Mixer Stages
- > MIL-STD-883 Test Methods
- > MIL-STD-750 Test Methods
- > MIL-STD-202 Test Methods
- > MIL-DTL-23971 Power Dividers/Couplers Specification
- > PEM-INST-001 NASA Plastic Qualification
- > Customer Source Control Drawings



Manufacturing & Screening Flow Chart Customer Specific High-Reliability Programs



Gain Block Hybrid Amplifiers					
Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Package
A75-2	5	250	21	19	TO-8
EA54	5	250	27	16	TO-5
A181	10	250	16.5	35	TO-8
CA181	10	250	16.5	35	Connectorized-SMA
SMA181	10	250	16.5	35	SMT
A79	5	300	14	38	TO-8
CA79	5	300	14	38	Connectorized-SMA
SMA79	5	300	14	38	SMT
EA2	5	400	13.5	21	TO-5
A56	5	400	26	27	TO-8
A87	10	400	14	33	TO-8
CA87	10	400	14	33	Connectorized-SMA
SMA87	10	400	14	33	SMT
AMC-151-SMA	5	500	12	36	Connectorized-SMA
A5	5	500	14.8	22	TO-8
A72	5	500	15	26	TO-8
SMA72	5	500	15	26	SMT
A54	5	500	15.5	21	TO-8
A77	5	500	16.5	30	TO-8
CA77	5	500	16.5	30	Connectorized-SMA
SMA77	5	500	16.5	30	SMT
A88	5	500	18.7	30	TO-8
SMA88	5	500	18.7	30	SMT
A74-2	5	500	26	10	TO-8
SMA74-2	5	500	26	10	SMT
RA89	5	500	26.5	35	TO-8
CRA89	5	500	26.5	35	Connectorized-SMA
SMRA89	5	500	26.5	35	SMT
EA54-2	5	500	29.5	20	TO-5
PA511	10	500	12.7	40	TO-8
SMPA511	10	500	12.7	40	SMT
A55	10	500	14.7	24	TO-8
A57	10	500	14.7	28	TO-8
SMA57	10	500	14.7	28	SMT
PA512	10	500	18	40	TO-8
MAAM-007502-CPA512	10	500	18	40	Connectorized-SMA
MAAM-007502-SPA512	10	500	18	40	SMT0-8
SMA513	10	500	20	30	SMT
AMC-146-SMA	10	500	21	35	Connectorized-SMA
RA89-1	10	500	30	36	TO-8
CRA89-1	10	500	30	36	Connectorized-SMA
SMRA89-1	10	500	30	36	SMT
MAAM-008200-000A83	10	500	30	10	TO-8
A77-1	5	600	16	30	TO-8
CA77-1	5	600	16	30	Connectorized-SMA
SMA77-1	5	600	16	30	SMT

Gain Block Hybrid Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Package
A5-6	6	600	15.5	21	TO-8
SMA5-6	6	600	16	21	SMT
A59-1	10	700	10.5	36	TO-8
SMA59-1	10	700	10.5	36	SMT
A89	50	800	22	30	TO-8
SMA89	100	800	22	30	SMT
AMC-184-SMA	5	1000	20	20	Connectorized-SMA
AMC-145-SMA	10	1000	10.7	32	Connectorized-SMA
A19-1	10	1000	11.5	35	TO-8
CA19-1	10	1000	11.5	35	Connectorized-SMA
SMA19-1	10	1000	11.5	35	SMT
A17	10	1000	12	27	TO-8
CA17	10	1000	12	27	Connectorized-SMA
SMA17	10	1000	12	27	SMT
RA69	10	1000	25	34	TO-8
CRA69	10	1000	25	34	Connectorized-SMA
SMRA69	10	1000	25	34	SMT
A1021	10	1000	26	26	TO-8
CA1021	10	1000	26	26	Connectorized-SMA
SMA1021	10	1000	26	26	SMT
A66-1	10	1000	27.5	28	TO-8
CA66-1	10	1000	27.5	28	Connectorized-SMA
SMA66-1	10	1000	27.5	28	SMT
RA66	10	1000	37	30	TO-8
CRA66	10	1000	37	30	Connectorized-SMA
SMRA66	10	1000	37	30	SMT
AMC-155-SMA	300	1000	12.3	30	Connectorized-SMA
A66	10	1200	23.5	28	TO-8
CA66	10	1200	23.5	28	Connectorized-SMA
SMA66	10	1200	23.5	28	SMT
A64	10	1200	26	20	TO-8
CA64	10	1200	26	20	Connectorized-SMA
SMA64	10	1200	26	20	SMT
A27	5	1500	8.5	28	TO-8
CA24	5	1500	20	21	TO-8
A24	5	1500	20	21	TO-8
SMA24	5	1500	20	21	SMT
A29-1	10	1500	9	32	TO-8
CA29-1	10	1500	9	32	Connectorized-SMA
SMA29-1	10	1500	9	32	SMT
A28	10	1500	11	29	TO-8
CA28	10	1500	11	29	Connectorized-SMA
SMA28	10	1500	11	29	SMT
A26	10	1500	20.5	27	TO-8
CA26	10	1500	20.5	27	Connectorized-SMA
SMA26	10	1500	20.5	27	SMT

Gain Block Hybrid Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	OIP3 (dBm)	Package
A39	10	2000	7.5	34	TO-8
SMA39	10	2000	7.5	34	SMT
A38	10	2000	9.5	30	TO-8
CA38	10	2000	9.5	30	Connectorized-SMA
SMA38	10	2000	9.5	30	SMT
A35	10	2000	10	21	TO-8
CA35	10	2000	10	21	Connectorized-SMA
SMA35	10	2000	10	21	SMT
A37	10	2000	10	28	TO-8
SMA37	10	2000	10	28	SMT
A34	100	2000	16	18	TO-8
SMA34	100	2000	16	18	SMT
A36	100	2000	16.5	23	TO-8
SMA36	100	2000	16.5	23	SMT
RA36	100	2000	24	22	TO-8
CRA36	100	2000	24	22	Connectorized-SMA
SMRA36	100	2000	24	22	SMT
SMPA2010	200	2000	10	33	SMT
A36-1	100	2300	16.2	23	TO-8
CA36-1	100	2300	16.2	23	Connectorized-SMA
SMA36-1	100	2300	16.2	23	SMT
A33-1	2	2400	9	19	TO-8
CA33-1	2	2400	9	19	Connectorized-SMA
SMA33-1	2	2400	9	19	SMT
CA3010	0	2500	9.5	35	Connectorized-SMA
MAAM-007947-CA3602	100	2600	15	30	Connectorized-SMA
A36-2	100	2600	15	30	TO-8
SMA36-2	100	2600	15	30	SMT
PA38-2	200	2600	8.5	33	TO-8
SMPA38-2	200	2600	8.5	33	SMT
A43	100	3200	11.5	21	TO-8
SMA43	100	3200	11.5	21	SMT
RA46	0	4000	25.5	30	TO-8
PA48	1000	4000	16	34	TO-8
CPA48	1000	4000	16	34	Connectorized-SMA
SMPA48	1000	4000	16	34	SMT
SMRA46	1000	4000	25.5	30	SMT
SMRA62	2000	6000	16	28	SMT

Low Noise Hybrid Amplifiers

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
A101	5	100	17	3	36	TO-8
SMA101	5	100	17	3	36	SMT
AM-162-PIN	10	100	12.5	1.1	32	TO-8
AMC-162-SMA	10	100	12.5	1.5	30	Connectorized-SMA
AMS-162-PIN	10	100	12.5	1.5	30	SF-1
A80-1	10	200	27.3	2	28	TO-8

Low Noise Hybrid Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
SMA80-1	10	200	27.3	2	28	SMT
MAAM-007844-OCA801	10	200	27.3	2	28	Connectorized-SMA
A70	10	250	8	1.6	24	TO-8
SMA70	10	250	8	1.6	24	SMT
A70-1	10	250	8	1.8	28	TO-8
SMA70-1	10	250	8	1.8	28	SMT
A70-2	10	250	8	2.2	38	TO-8
CA70-2	10	250	8	2.2	38	Connectorized-SMA
A231	10	250	26	1.7	22	TO-8
CA231	10	250	26	1.7	22	Connectorized-SMA
SMA231	10	250	26	1.7	22	SMT
A83-1	10	250	35.5	2.5	9	TO-8
CA83-1	10	250	35.5	2.5	9	Connectorized-SMA
SMA83-1	10	250	35.5	2.5	9	SMT
A70-3	20	250	8	2.8	40	TO-8
A82-1	20	250	19	2.8	26	TO-8
SMA82-1	20	250	19	2.8	26	SMT
SMA81	20	250	24.5	2.6	28	SMT-TO-8
A81-1	20	250	25	2.5	27	TO-8
SMA81-1	20	250	25	2.5	27	SMT
A82	20	250	25	2.8	31	TO-8
CA82	20	250	25	2.8	31	Connectorized-SMA
SMA82	20	250	25	2.8	31	SMT
A81	20	250	25.5	3	28	TO-8
A78	5	300	14	3.5	35	TO-8
CA78	5	300	14	3.5	35	Connectorized-SMA
SMA78	5	300	14	3.5	35	SMT
SMA70-2	10	300	8	2.2	38	SMT-TO-8
A87-2	10	300	16	2.9	24	TO-8
SMA87-2	10	300	16	2.9	24	SMT
SMA70-3	15	300	8	2.8	40	SMT-TO-8
PAW1027	35	350	38.5	3.7	43	SOT115J
EA1	5	400	14	4.3	13	TO-5
MAAM-008199-000A51	10	400	15	2.7	10	TO-8
A411	10	400	15.8	3	24	TO-8
SMA411	10	400	15.8	3	24	SMT
A87-1	10	400	16	3.4	31	TO-8
CA87-1	10	400	16	3.4	31	Connectorized-SMA
SMA87-1	10	400	16	3.4	31	SMT
AMC-123-SMA	5	500	10	5.5	30	Connectorized-SMA
A58	5	500	11.5	4	34	TO-8
SMA58	5	500	11.5	4	34	SMT
AM-131-PIN	5	500	11.5	4	34	TO-8
A59	5	500	11.5	4.3	36	TO-8
SMA59	5	500	11.5	4.3	36	SMT
AMC-143-SMA	5	500	15.8	2.5	20	Connectorized-SMA
A1	5	500	16	2.4	11	TO-8

Low Noise Hybrid Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
SMA1	5	500	16	2.4	11	SMT
AMC-147-SMA	5	500	17	3.4	33	Connectorized-SMA
EA53-2	5	500	19	3.6	24	TO-5
A75	5	500	21	2.1	21	TO-8
CA75	5	500	21	2.1	21	Connectorized-SMA
SMA75	5	500	21	2.1	21	SMT
A76-1	5	500	27.5	3	26	TO-8
SMA76-1	5	500	27.5	3	26	SMT
A515	5	500	27.5	3.5	33	TO-8
MAAM-007272-OCA515	5	500	27.5	3.5	33	Connectorized-SMA
MAAM-007272-SMA515	5	500	27.5	3.5	33	SMT0-8
A76	5	500	28	3	28	TO-8
CA76	5	500	28	3	28	Connectorized-SMA
SMA76	5	500	28	3	28	SMT
A514	5	500	28	4	32	TO-8
MAAM-007272-OCA514	5	500	28	4	32	Connectorized-SMA
MAAM-007272-SMA514	5	500	28	4	32	SMT0-8
A74	5	500	30	3	20	TO-8
CA74	5	500	30	3	20	Connectorized-SMA
SMA74	5	500	30	3	20	SMT
A73	5	500	32	3.5	15	TO-8
SMA73	5	500	32	3.5	15	SMT
A180	10	500	16.5	3.4	33	TO-8
CA180	10	500	16.5	3.4	33	Connectorized-SMA
SMA180	10	500	16.5	3.4	33	SMT
A511	10	500	17	3.4	33	TO-8
CA511	10	500	17	3.4	33	Connectorized-SMA
A75-3	10	500	20.5	1.7	16	TO-8
SMA75-3	10	500	20.5	1.7	16	SMT
A531	10	500	31.7	2	14	TO-8
CA531	10	500	31.7	2	14	Connectorized-SMA
A81-3	20	500	17	4	20	TO-8
A81-2	20	500	24.5	3	28	TO-8
CA81-2	20	500	24.5	3	28	Connectorized-SMA
SMA81-2	20	500	24.5	3	28	SMT
A80	20	500	29	2.3	27	TO-8
SMA80	10	550	29	2.3	27	SMT0-8
A67-1	10	600	15	3.7	30	TO-8
CA67-1	10	600	15	3.7	30	Connectorized-SMA
SMA67-1	10	600	15	3.7	30	SMT
A611	5	700	15	3.2	24	TO-8
SMA611	5	700	15	3.2	24	SMT
A67	10	800	14	4	30	TO-8
AMC-176-SMA	5	1000	13.2	4	27	Connectorized-SMA

Low Noise Hybrid Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
A11	5	1000	14.7	3.1	10	TO-8
SMA11-2	5	1000	16	2.5	10	SMT
A63	5	1000	16	3	15	TO-8
SMA63	5	1000	16	3	15	SMT
AMC-182-SMA	5	1000	28.2	3.5	20	Connectorized-SMA
A18-1	10	1000	14.7	3.8	30	TO-8
CA18-1	10	1000	14.7	3.8	30	Connectorized-SMA
SMA18-1	10	1000	14.7	3.8	30	SM
A12	10	1000	16	2.8	22	TO-8
A66-3	10	1000	26	3	13	TO-8
CA66-3	10	1000	26	3	13	Connectorized-SMA
SMA66-3	10	1000	26	3	13	SMT
A1031	10	1000	28.5	2.7	22	TO-8
SMA1031	10	1000	28.5	2.7	22	SMT
MAAM-008198-OCA162	10	1200	13	3.5	18	Connectorized-SMA
MAAM-008198-SMA162	10	1200	13	3.5	18	SMT0-8
A1211	10	1200	14	2.8	20	TO-8
CA12	10	1200	14	2.8	20	Connectorized-SMA
SMA1211	10	1200	14	2.8	20	SMT
A1212	100	1200	14	1.8	29	TO-8
CA1212	100	1200	14	1.8	29	Connectorized-SMA
SMA1212	100	1200	14	1.8	29	SMT
A25-1	2	1500	13.5	3	22	TO-8
A28-2	10	1500	14	3.5	24	TO-8
CA28-2	10	1500	14	3.5	24	Connectorized-SMA
SMA28-2	10	1500	14	3.5	24	SMT
A31-1	10	2000	11.5	3.5	9	TO-8
MAAM-007501-0A2002	20	2700	11.5	2.5	40	TO-8
MAAM-007501-CA2002	20	2700	11.5	2.5	40	Connectorized-SMA
MAAM-007501-SA2002	20	2700	11.5	2.5	40	SMT0-8
A32-1	100	2000	11.5	2.5	25	TO-8
CA32-1	100	2000	11.5	2.5	25	Connectorized-SMA
SMA32-1	100	2000	11.5	2.5	25	SMT
A32	100	2000	13	2.1	32	TO-8
CA32	100	2000	13	2.1	32	Connectorized-SMA
SMA32	100	2000	13	2.1	32	SMT
PA38	200	2000	10	4	34	TO-8
CPA38	200	2000	10	4	34	Connectorized-SMA
SMPA38	200	2000	10	4	34	SMT
A4011	1000	4000	15.5	2	29	TO-8
SMA4011	1000	4000	15.5	2	29	SMT
A45-1	1000	4000	17.5	4	26	TO-8
SMA45	1000	4000	17.5	4	29	SMT
SMA45-1	1000	4000	17.5	4	26	SMT

Low Noise Hybrid Amplifiers (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (mA)	OIP3 (dBm)	Package
A45	1000	4000	17.5	4	29	TO-8
CA45	1000	4000	17.5	4	29	Connectorized-SMA
A4012	1000	4000	18	3.5	26	TO-8
SMA4012	1000	4000	18	3.5	26	SMT
SMA6011	1500	6000	14.8	1.5	30	SMT0-8
A61	2000	6000	7.5	3.2	25	TO-8
SMA61	2000	6000	7.5	3.2	25	SMT
A6011	2000	6000	14.8	1.5	30	TO-8
CA6011	2000	6000	14.8	1.5	30	Connectorized-SMA

Hybrid Mixers					
Part Number	Min Freq RF/RO (MHz)	Max Freq RF/RO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	Package
M6D-50	0.05	200	0	200	Relay Header
SM6D	0.05	200	0	200	SMT
MAC-50-PIN	0.2	200	0	200	TO-5
MDS-222-PIN	0.2	200	0.2	200	SF-1
SM6V	0.4	500	0	500	SMT
M9BC	0.5	500	0	500	Relay Header
MD-161-PIN	1	500	0	500	FP-2
M6E-50	5	500	0	500	Relay Header
MAC-51-PIN	5	500	0	500	TO-5
MDS-223-PIN	10	500	10	500	SF-1
M1H	180	620	0	200	SMA
M6EH	5	750	0	500	Relay Header
SM6EH	5	750	0	500	SMT
M2E	10	1000	0	600	TO-8
M2EC	10	1000	0	600	SMA
SM2E	10	1000	0	600	SMT
MD-160-PIN	1	1500	1	1000	RH-3
MDS-158-PIN	5	1500	—	—	SF-1
M9H	10	1500	0	600	TO-8
M9HC	10	1500	0	600	SMA
M2AC	10	1500	0	800	SMA
M4A	10	1500	0	1000	Flatpack-SMT
MD-148-PIN	10	1500	10	1500	FP-2
MDS-148-PIN	10	1500	10	1500	SF-1
MD-149-PIN	10	1500	10	1500	FP-2
MDS-149-PIN	10	1500	10	1500	SF-1
SM4A	10	1500	0	1000	SMT
SM4B	10	1500	0	1000	SMT
M2B	10	1600	0	800	TO-8
M2BC	10	1600	0	800	SMA
M2TC	10	2400	1	1000	SMA
SM4G	800	2400	0	1500	SMT
MD-123-PIN	10	3000	10	3000	FP-2
M4TH	1	3400	1	2000	Flatpack-SMT
M8T	1	3400	1	2000	TO-8
M8TC	1	3400	1	2000	SMA
M8TH	1	3400	1	2000	TO-8
M8THC	1	3400	1	2000	SMA
SM4T	1	3400	1	2000	SMT
SM4T17	1	3400	1	2000	SMT
SM4TH	1	3400	1	2000	SMT
MDS-169-PIN	1	3500	5	1500	SF-1
MD-169-PIN	1	3500	1	3500	FP-2
MD-189-PIN	1	3500	1	3500	FP-2
MDC-169-SMA	1	3500	1	3500	C-7
MDS-189-PIN	1	3500	1	3500	SF-1

Hybrid Mixers (continued)

Part Number	Min Freq RF/RO (MHz)	Max Freq RF/RO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	Package
M2G	800	3500	0	1500	TO-8
M2GC	800	3500	0	1500	SMA
MD-179-PIN	1	4000	5	1500	FP-2
MDC-179-SMA	1	4000	5	1500	C-7
M8H-3	3700	4200	0	2000	TO-8
SM5T	50	5000	50	3000	SMT
SM5T17	50	5000	50	3000	SMT
SM5TH	50	5000	50	3000	SMT
MZ6310C	250	5500	0	1500	SMA
M63C	2500	5500	0	1500	SMA
M8H-7	2400	6000	0	2000	TO-8
M8HC-7	2400	6000	0	2000	SMA
MDC-162-SMA	1000	7000	10	2000	C-2
MY63	2500	7000	0	15000	Versapac
MY63C	2500	7000	0	15000	SMA
M63H	2500	7500	0	1500	Minpac
M63HC	2500	7500	0	1500	SMA
MY63H	2500	7500	0	1500	Versapac
MY63HC	2500	7500	0	1500	SMA
M76H	4500	8500	0	2000	Minpac
M76HC	4500	8500	0	2000	SMA
MY76H	4500	8500	0	2000	Versapac
MY76HC	4500	8500	0	2000	SMA
M76	4500	9500	0	2000	Minpac
M76C	4500	9500	0	2000	SMA
MY76	4500	9500	0	2000	Versapac
MY76C	4500	9500	0	2000	SMA
MY84	1800	10000	0	1000	Versapac
MY84C	1800	10000	0	1000	SMA
M77C	8000	12500	0	2500	SMA
MY77	8000	12500	0	2500	Versapac
MY77C	8000	12500	0	2500	SMA
M14A	6000	14000	0	2000	SMA
M67C	9000	15000	0	2500	SMA
M83	1000	18000	30	5000	Minpac
M83C	1000	18000	30	5000	SMA
MY88HC	1000	18000	1000	8000	SMA
M89C	1000	18000	1000	8000	SMA
M85	2000	18000	0	1000	Minpac
M85C	2000	18000	0	1000	SMA
MY85	2000	18000	0	1000	Versapac
MY85C	2000	18000	0	1000	SMA
M93C	2000	18000	30	4000	SMA
MY93	2000	18000	30	4000	Versapac
MY93C	2000	18000	30	4000	SMA
MY83H	2000	18000	30	5000	Versapac
MY83HC	2000	18000	30	5000	SMA

Hybrid Mixers (continued)					
Part Number	Min Freq RF/RO (MHz)	Max Freq RF/RO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	Package
MY82	2000	18000	30	5000	Versapac
MY82C	2000	18000	30	5000	SMA
MZ9310	2000	18000	30	5000	Versapac
MZ9310C	2000	18000	30	5000	SMA
MZ9313	2000	18000	30	5000	Versapac
MZ9313C	2000	18000	30	5000	SMA
M88C	2000	18000	1000	8000	SMA
MY88	2000	18000	1000	8000	Versapac
MY88C	2000	18000	1000	8000	SMA
MZ8810C	2000	18000	1000	8000	SMA
MZ8813	2000	18000	1000	8000	Versapac
M88H	2000	18000	2000	8000	Minpac
M88HC	2000	18000	2000	8000	SMA
MY89	2000	18000	2000	8000	Versapac
MY89C	2000	18000	2000	8000	SMA
M50A	2000	18000	2000	18000	Minpac
M50AC	2000	18000	2000	18000	SMA
M86C	3500	18000	0	3000	SMA
M80C	4000	18000	0	3000	SMA
M79C	5000	18000	0	3000	SMA
M79H	5000	18000	0	3000	Minpac
M79HC	5000	18000	0	3000	SMA
MZ7407	6000	18000	0	3000	Versapac
MZ7407C	6000	18000	0	3000	SMA
MZ7410	6000	18000	0	3000	Versapac
MZ7410C	6000	18000	0	3000	SMA
MZ7420	6000	18000	0	3000	Versapac
MZ7420C	6000	18000	0	3000	SMA
M74	7000	18000	0	3000	Minpac
M74C	7000	18000	0	3000	SMA
M87C	500	19000	30	5000	SMA
MY87	500	19000	30	5000	Versapac
MY87C	500	19000	30	5000	SMA
M52C	2000	24000	100	5000	SMA
MY52	2000	24000	100	5000	Versapac
MY52C	2000	24000	100	5000	SMA
M51C	2000	24000	1000	15000	SMA
MY51	2000	24000	1000	15000	Versapac
MY51C	2000	24000	1000	15000	SMA
M53C	2000	26000	100	6000	SMA
MY50A	2000	26000	1000	12000	Versapac
MY50AC	2000	26000	1000	12000	SMA
MZ5010	2000	26000	1	15000	Versapac
MZ5010C	2000	26000	1	15000	SMA
M50C	2000	26000	1000	15000	SMA
MY50	2000	26000	1000	15000	Versapac
MY50C	2000	26000	1000	15000	SMA

Mixers							
Part Number	Min Freq RF/LO (MHz)	Max Freq RF/LO (MHz)	Min Freq IF (MHz)	Max Freq IF (MHz)	Conversion Loss/ Gain (dBm)	LO Drive (dBm)	Package
CGY2180UH	700	3700	0	1700	-7	15	Hermetic, DIE
CGY2181UH	1000	4500	0	2500	-7	—	Hermetic, DIE
CGY2183UH	100	6000	0	3000	11	-5	Hermetic, DIE
CGY2184UH	100	6000	0	3000	18	0	Hermetic, DIE
CGY2182UH	3000	10000	0	3000	-7	—	Hermetic, DIE
CGY2470UH	92000	96000	5100	6000	-3	—	DIE
CGY2471UH	92000	96000	5200	6000	-10	—	DIE

Varactor Tuning Diodes						
Part Number	Total Capacitance (pF)	Gamma	Quality Factor @ 50 MHz, Min	Breakdown Voltage (V)	Package	
MA46600-134	0.3	0.5	8000	30	ODS-134 DIE	
MA46603-134	0.6	0.5	6500	30	ODS-134 DIE	
MA46H070-1056	0.6	0.75	4500	20	ODS-1056	
MA46H071-1056	1	0.75	4500	20	ODS-1056	
MA46416-134	1.8	1.5	2500	18	ODS-134 DIE	
MA46H072-1056	3	0.75	3000	20	ODS-105	
MA46H073-1056	5	0.75	2200	20	ODS-1056	
Multiplier Step Recovery Diodes						
Part Number	Total Capacitance Max (pF)	Total Capacitance Min (pF)	Reverse Voltage (V)	Lifetime (Typ vs Min) (ns)	Tt (Typ vs Max) (ps)	Package
MMDB45-B11	0.2	0.11	25	8	40	B11
MMDB35-B11	0.2	0.13	16	4	35	B11
MMDB30-B11	0.25	0.15	14	4	30	B11
MMD840-C11	0.4	0.2	15	7	70	DIE
MSD700	0.4	0.2	15	8	60	DIE/Various
MMD837-C11	0.4	0.2	20	5	70	DIE
MSD710	0.4	0.2	20	11	70	DIE/Various
MSD720	0.4	0.2	30	17	100	DIE/Various
MMD840-H27	0.52	0.32	15	7	70	H27
MMD837-H27	0.52	0.32	20	5	70	H27
MMD840-T86	0.58	0.38	15	7	70	T86
MMD837-T86	0.58	0.38	20	5	70	T86
MSD701	0.6	0.4	15	8	60	DIE/Various
MSD711	0.6	0.4	20	11	70	DIE/Various
MSD731	0.6	0.4	40	21	150	DIE/Various
MMD835-C11	0.7	0.3	15	10	70	DIE
MMD0840-A15	0.75	0.6	15	20	75	A15
MMD832-C11	0.8	0.4	20	10	80	DIE
MSD722	0.8	0.6	30	17	100	DIE/Various
MMD0151-A15	0.8	0.7	15	15	100	A15
MMD835-H20	0.92	0.42	15	10	70	H20
MMD835-T86	0.98	0.48	15	10	70	T86
MMD832-H20	0.98	0.58	20	10	60	H20
MMD832-T86	0.98	0.58	20	10	60	T86
MSD703	1	0.8	15	8	60	DIE/Various
MSD723	1	0.8	30	17	100	DIE/Various
MSD733	1	0.8	40	21	150	DIE/Various
MMD830-T86	1.18	0.68	25	30	60	T86
MMD830-H20	1.18	0.68	25	15	80	H20
MSD724	1.4	1	30	17	100	DIE/Various
MMD820-C12	1.7	1	40	30	100	DIE
MMD820-H20	1.88	1.18	40	30	100	H20
MMD820-T86	1.88	1.18	40	30	100	T86
MMD810-T86	2.68	1.68	50	40	250	T86
MSD726	3	2	30	17	100	DIE/Various
MSD736	3	2	40	21	150	DIE/Various
MMD0815-A15	4.15	3.15	50	135	320	A15

PIN Switch and Attenuator Diodes								
Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	TI (ns)	Breakdown Voltage Min (V)	Package
MMP7078	0.1	100	—	1	0.5	2500	400	DIE/Various
MA4P504-30	1	500	7.5	0.4	0.6	1000	500	ODS-30
MA4P504-186	1	500	7.5	0.4	0.6	1000	500	ODS-186
MA4P504-255	1	500	7.5	0.4	0.6	1000	500	ODS-255
MA4P505-255	1	500	10.7	0.55	0.5	2000	500	ODS-255
MA4P506-30	1	500	13.6	0.95	0.3	3000	500	ODS-30
MA4P506-31	1	500	13.6	0.95	0.3	3000	500	ODS-31
MADP-000015-000030	1	500	15	0.55	0.4	2000	500	ODS-30
MA4P604-255	1	500	15	0.6	1	3000	1000	ODS-255
MA4P606-30	1	500	15	0.8	0.7	4000	1000	ODS-30
MA4P606-36	1	500	20	0.99	0.7	4000	1000	ODS-36
MA4P607-296	1	500	25	2.35	0.4	5000	1000	ODS-296
MA47047-54	1	1000	0.3	0.3	1.5	1000	200	ODS-54
MA47266-146	1	1000	0.5	1.5	0.6	4000	200	ODS-146
MA4P606-4	1	1000	1	0.7	0.7	4000	1000	ODS-4
MA4P606-131	1	1000	15	0.6	0.7	4000	1000	ODS-131 DIE
MADP-000488-13740W	100	1500	15	0.16	1.6	4000	900	ODS-1374 DIE
MADP-000135-01340W	100	1500	50	0.15	1.2	440	200	ODS-134 DIE
MPN3001	—	2000	—	0.25	1	—	200	A15
MA4P404-30	5	2000	7.5	0.4	0.6	1000	250	ODS-30
MADP-042505-130600	50	2000	1.3	0.6	0.8	210	80	ODS-1306 DIE
MADP-042508-130600	50	2000	1.3	0.6	0.9	310	100	ODS-1306 DIE
MADP-000165-01340W	100	2000	50	0.06	2.5	200	200	ODS-134 DIE
MA4P604-30	1	2500	15	0.5	1	3000	1000	ODS-30
MADP-000506-014400	1	4000	10	0.7	0.3	100	500	ODS-144
MA4P506-131	1	4000	13.6	0.7	0.3	3000	500	ODS-131 DIE
MA4P505-36	1	4000	15	0.55	0.5	2000	500	ODS-36
MA4P303-186	20	4000	0.3	0.35	1.5	200	200	ODS-186
MA4P303-120	20	4000	5	0.35	1.5	200	200	ODS-120
MA4P203-1056	30	4000	0.3	0.35	1.5	100	100	ODS-1056
MA4P203-30	30	4000	5	0.35	1.5	100	100	ODS-30
MA4P202-120	50	4000	0.3	0.25	2.5	60	100	ODS-120
MADP-042405-130600	50	4000	1.3	0.27	0.8	210	80	ODS-1306 DIE
MMP7092	1	6000	—	0.2	0.6	1000	500	DIE/Various
MMP7024	1	6000	—	0.25	0.5	60	70	DIE/Various
MADP-017015-1314	1	6000	5	0.32	0.7	1300	115	ODS-1314 DIE
MPN7420	1	6000	2.5	0.06	1	1000	400	C12
MPN7453A	1	6000	3	0.1	0.7	700	300	C22
MPN7453B	1	6000	3	0.15	0.6	2500	400	C22
MPN7453C	1	6000	3	0.18	0.4	1000	300	C22
MADP-017025-1314	1	6000	5	0.23	1	2300	1335	ODS-1314 DIE
MPN7380	1	6000	10	0.4	0.3	2500	800	C38
MPN7360	1	6000	10	0.8	0.2	2500	600	C37
MPN7370	1	6000	10	2	0.2	5000	700	C39
MA4P505-131	1	6000	10.7	0.35	0.5	2000	500	ODS-131 DIE
MADP-030015-13140P	1	6000	11.5	0.78	0.5	1600	115	ODS-1314 DIE
MADP-030025-1314	1	6000	11.5	0.5	0.7	2800	135	ODS-1314 DIE

PIN Switch and Attenuator Diodes (continued)								
Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	TI (ns)	Breakdown Voltage Min (V)	Package
MPN7320-H2O	5	6000	1	0.2	3	120	150	H2O
MPN7345	5	6000	4	0.3	0.3	500	300	C40
MPN7315-H2O	10	6000	1	0.26	1.2	180	150	H2O
MPN7312A-H2O	20	6000	1	0.26	1.2	150	120	H2O
MPN7312B-H2O	20	6000	1	0.36	0.8	250	120	H2O
MADP-042305-130600	50	6000	1	0.14	1.3	180	80	ODS-1306 DIE
MADP-042308-130600	50	6000	1	0.14	1.3	280	100	ODS-1306 DIE
MPN7306-H2O	100	6000	1	0.26	1.2	50	70	H2O
MPN7302-H2O	500	6000	1	0.26	1.2	8	20	H2O
MMP7023	1	8000	—	0.2	0.7	60	70	DIE/Various
MA47222	1	8000	3.8	0.4	1.6	160	150	ODS-144
MA47223	1	8000	7.5	0.4	0.6	1000	500	ODS-144
MA4P504-144	1	8000	7.5	0.4	0.6	1000	500	ODS-144
MA4P604-131	1	8000	15	0.3	1	3000	1000	ODS-131 DIE
MNP0012A-T54P	5	8000	0.25	0.36	0.6	650	350	T54p
MNP0012A-T55P	5	8000	0.25	0.31	0.6	650	350	T55p
MNP0012A-T89P	5	8000	0.25	0.43	0.6	650	350	T89p
MNP0012A	5	8000	1	0.18	0.6	650	350	C22p
MA47416-132	DC	10000	5	0.15	6	2000	200	ODS-132 DIE
MMP7022	1	10000	—	0.15	0.9	60	70	DIE/Various
MNP0014A	1	10000	0.1	0.18	0.8	1400	500	C32p
MNP0014-T55P	1	10000	0.1	0.25	0.8	750	450	T55p
MNP0014-T54P	1	10000	0.1	0.32	0.8	750	450	T54p
MNP0014-T89P	1	10000	0.1	0.37	0.8	750	450	T89p
MNP0014	1	10000	1.5	0.12	1.3	750	500	C22p
MA4P504-132	1	10000	7.5	0.2	0.6	1000	500	ODS-132 DIE
MA47418-134	5	10000	6	0.15	3	1000	200	ODS-134 DIE
MA4P404-132	5	10000	7.5	0.2	0.7	600	250	ODS-132 DIE
MNP0012-T55P	5	12000	0.25	0.21	3.5	350	300	T55p
MNP0012-T54P	5	12000	0.25	0.28	3.5	350	300	T54p
MNP0012-T89P	5	12000	0.25	0.33	3.5	350	300	T89p
MPN7320	5	12000	1	0.02	3	120	150	C01
MNP0012	5	12000	1	0.08	3.5	350	300	C12p
MNP0010-T55P	10	12000	0.25	0.21	2	300	150	T55p
MNP0010-T54P	10	12000	0.25	0.28	2	300	150	T54p
MNP0010-T89P	10	12000	0.25	0.33	2	300	150	T89p
MPN7312B	20	12000	1	0.18	0.8	250	120	C12
MNP0008-T55P	100	12000	0.25	0.21	2	150	100	T55p
MNP0008-T54P	100	12000	0.25	0.28	2	150	100	T54p
MNP0008-T89P	100	12000	0.25	0.33	2	150	100	T89p
MPN7306	100	12000	1	0.08	1.2	50	70	C12
MMP7011	200	12000	—	0.15	0.8	10	25	DIE/Various
MPN7302	500	12000	1	0.08	1.2	8	20	C11
MMP7021	1	14000	—	0.1	1	60	70	DIE/Various
MADP-042905-130600	50	16000	0.8	0.06	3.1	140	80	ODS-1306 DIE
MADP-042908-130600	50	16000	0.8	0.06	3.1	230	100	ODS-1306 DIE
MMP7025	1	18000	—	0.03	1.9	100	100	DIE/Various

PIN Switch and Attenuator Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	CW Power Dissipation (W)	Total Capacitance (pF)	Resistance (Ω)	TI (ns)	Breakdown Voltage Min (V)	Package
MMP7020	1	18000	—	0.05	1.2	60	70	DIE/Various
MA4P303-134	20	18000	5	0.15	1.5	200	200	ODS-134 DIE
MA4P203-134	30	18000	5	0.15	1.5	100	100	ODS-134 DIE
MADP-000402-12530P	50	18000	1	0.04	4.5	200	70	ODS-1253 DIE
MA4SPS402	50	18000	1	0.04	5	200	100	ODS-1253 DIE
MADP-000402-12530G	50	18000	1	0.04	5	200	1000	ODS-1253 DIE
MADP-064908-131000	50	18000	1	0.05	5	200	100	ODS-1310 DIE
MA4P7493-134	50	18000	2.5	0.05	1.8	80	150	ODS-134 DIE
MA4PBL027	100	18000	0.2	0.03	4	150	90	Beam Lead DIE
MA4P161-134	100	18000	2.3	0.1	1.5	150	100	ODS-134 DIE
MMPN080045	2000	20000	—	—	—	—	200	C50
MA4SPS302	1	26000	0.8	0.4	1.3	460	100	SURMOUNT™ DIE
MA4SPS502	1	26000	35	0.14	2.4	2800	275	ODS-1270
MA4SPS552	50	26000	1	0.06	1.7	2500	200	ODS-1270
MMPN080150	2000	35000	—	—	—	—	200	C51
MA4AGBLP912	100	40000	0.1	0.02	4	5	50	Beam Lead DIE
MA4GP030	100	40000	0.3	0.06	2	25	100	ODS-277
MA4GP022	100	40000	0.3	0.15	1	20	50	ODS-277
MMSPN050-C53	1000	40000	40	—	0.6	4000	200	C53
MMSPN050-C54	1000	40000	40	—	0.6	4000	200	C54

PIN Limiter Diodes

Part Number	Incident Power, Max (W)	Thermal Resistance	Junction Capacitance (pF)	Resistance (Ω)	Lifetime (ns)	V _B (V)	Package
MADL-04L401-0113W0	—	25	0.3	1.2	800	—	ODS-134 DIE
MADL-000301-0113W0	—	30	0.2	1.5	200	—	ODS-134 DIE
MLP7140	50	100	0.12	2	7	30 – 40	DIE/Various
MLP7100	50	100	0.2	1.5	5	20 – 45	DIE/Various
MLP7130	50	120	0.12	2	5	15 – 30	DIE/Various
MA4L011-134	80	175	0.18	2.1	10	—	ODS-134 DIE
MADL-000011-13880G	80	175	0.18	2.1	10	—	ODS-13880G DIE
MA4L011-186	80	175	0.33	2.1	10	—	ODS-186
MA4L011-30	80	175	0.36	2.1	10	—	ODS-30
MA4L011-31	80	175	0.36	2.1	10	—	ODS-31
MA4L011-1056	80	175	0.38	2.1	10	—	ODS-1056
MA4L011-32	80	175	0.48	2.1	10	—	ODS-32
MA4L022-134	90	175	0.19	2	10	—	ODS-134 DIE
MA4L021-134	90	175	0.2	2.1	10	—	ODS-134 DIE
MADL-011021-14210G	90	175	0.2	2.1	10	—	ODS-1056
MA4L022-120	90	175	0.32	2	10	—	ODS-120
MA4L021-120	90	175	0.33	2.1	10	—	ODS-120
MA4L022-186	90	175	0.34	2	10	—	ODS-186
MA4L022-30	90	175	0.37	2	10	—	ODS-30
MA4L021-31	90	175	0.38	2.1	10	—	ODS-31
MADL-000021-003000	90	175	0.38	21	10	—	ODS-30
MA4L022-1056	90	175	0.39	2	10	—	ODS-1056
MA4L021-1056	90	175	0.4	2.1	10	—	ODS-1056
MA4L022-32	90	175	0.49	2	10	—	ODS-32

PIN Limiter Diodes (continued)							
Part Number	Incident Power, Max (W)	Thermal Resistance	Junction Capacitance (pF)	Resistance (Ω)	Lifetime (ns)	V _B (V)	Package
MLP7102	100	55	0.7	1	10	20 – 45	DIE/Various
MLP7141	100	70	0.2	1.5	7	30 – 60	DIE/Various
MLP7131	100	80	0.2	1.5	5	15 – 30	DIE/Various
MLP7101	100	80	0.5	1.2	10	20 – 45	DIE/Various
MA4L032-134	125	150	0.2	2.5	15	—	ODS-134 DIE
MA4L031-134	125	150	0.21	2	20	—	ODS-134 DIE
MADL-000031-13880G	125	150	0.21	2.1	20	—	ODS-1388
MADL-000032-003000	125	150	0.21	2.1	20	—	ODS-3000
MADL-011010-01340W	125	150	0.24	1.5	15	—	ODS-134
MA4L032-186	125	150	0.35	2.5	15	—	ODS-186
MA4L031-186	125	150	0.36	2	20	—	ODS-186
MA4L031-31	125	150	0.39	2	20	—	ODS-31
MA4L032-1056	125	150	0.4	2.5	15	—	ODS-1056
MA4L031-1056	125	150	0.41	2	20	—	ODS-1056
MA4L032-31	125	150	0.38	2.5	15	—	ODS-31
MA4L032-32	125	150	0.5	2.5	15	—	ODS-32
MLP7110	200	80	0.2	1.5	10	45 – 75	DIE/Various
MA4L062-134	200	150	0.15	2.5	10	—	ODS-134 DIE
MADL-000062-13880G	200	150	0.15	2.5	10	—	ODS-13880G DIE
MADL-011011-01340W	200	150	0.17	2.3	10	—	ODS-134
MADL-000062-105600	200	150	0.35	2.5	10	—	ODS-1056
MA4L101-134	250	30	0.15	2	90	—	ODS-134 DIE
MADL-000101-13880G	250	30	0.15	2	90	—	ODS-13880G DIE
MA4L101-186	250	30	0.3	2	90	—	ODS-186
MA4L101-30	250	30	0.33	2	90	—	ODS-30
MLP7111	400	60	0.5	1.2	15	45 – 75	DIE/Various
MADL-000301-01340W	500	30	0.2	1.5	200	—	ODS-134 DIE
MADL-000301-13870G	500	30	0.2	1.5	200	—	ODS-1370
MA4L301-31	500	30	0.38	1.5	200	—	ODS-31
MA4L301-1056	500	30	0.4	1.5	200	—	ODS-1056
MADL-011052-14280W	500	36	0.19	2	222	—	ODS-134 DIE
MLP7112	795	40	0.7	1	20	45 – 75	DIE/Various
MA4L401-134	1000	25	0.3	1.2	800	—	ODS-134 DIE
MADL-000401-13870G	1000	25	0.3	1.2	800	—	ODS-13870G DIE
MA4L401-120	1000	25	0.43	1.2	800	—	ODS-32
MA4L401-30	1000	25	0.48	1.2	800	—	ODS-30
MA4L401-31	1000	25	0.48	1.2	800	—	ODS-31
MA4L401-1056	1000	25	0.5	1.2	800	—	ODS-1056
MLP7120	1000	40	0.2	1.5	50	120 – 180	DIE/Various
MLP7121	2000	20	0.6	1	50	120 – 180	DIE/Various
MLP7122	4000	15	0.8	0.5	100	120 – 180	DIE/Various
Schottky Mixer and Detector Diodes							
Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance (Ω)	V _F (V)	V _B (V)	Package
MA4E932A-186	DC	18000	.25	40	—	1.0	ODS-186
MA4E932B-186	DC	18000	.25	40	—	1.0	ODS-186
MA4E929A-119	DC	18000	.25	40	0.41	1.0	ODS-119

Schottky Mixer and Detector Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance (Ω)	V _F (V)	V _B (V)	Package
MA4E929B-119	DC	18000	.25	40	0.41	1.0	ODS-119
MGR703	DC	1000	1	—	0.41	20	DIE/Various
MGR700	DC	1000	1.2	—	0.34	8	DIE/Various
MGR705	DC	1000	1.2	—	0.41	70	DIE/Various
MA40261	DC	3000	0.32	0.32	0.41	70	ODS-186
MA4E2811	DC	3000	1.2	—	0.41	15	ODS-56
MA4E2812-54	DC	3000	1.2	—	0.55	20	ODS-57
MADS-002811-00540T	DC	3000	1.2	—	—	70	ODS-55
1N5711	DC	3000	1.2	2	-1.45	70	ODS-54
MSS20-054-C15	DC	8000	0.2	80	—	0.8	C15P
MSS20-055-C15	DC	8000	0.2	80	—	0.8	C15P
MZB600-32	DC	8000	0.2	3500	0.3	3	CS32
MZB604-11	DC	8000	0.2	5000	0.3	4	CS11
MZB604-B11	DC	8000	0.2	5000	0.3	4	B11
MSS20-054-H27	DC	8000	0.35	80	—	0.8	H27
MSS20-055-H27	DC	8000	0.35	80	—	0.8	H27
MSS20-054-T86	DC	8000	0.41	80	—	0.8	T86p
MSS20-055-T86	DC	8000	0.41	80	—	0.8	T86p
MA40205-119	DC	10000	0.32	—	0.15	3.0	Various
MSS20-050-C15	DC	12000	0.15	80	—	0.8	C15P
MSS20-051-C15	DC	12000	0.15	80	—	0.8	C15P
MSS39-152-B10B	DC	12000	0.18	—	0.38	3.5	B10Bp
MSS39-048-P55	DC	12000	0.3	—	0.4	5	P55p
MSS20-050-H27	DC	12000	0.3	80	—	0.8	H27
MSS20-051-H27	DC	12000	0.3	80	—	0.8	H27
MSS20-054-0805	DC	12000	0.3	80	—	0.8	0805-2
MSS20-046-T86	DC	12000	0.31	80	—	0.8	T86p
MSS20-047-T86	DC	12000	0.31	80	—	0.8	T86p
MSS39-048-P86	DC	12000	0.32	—	0.4	5	P86p
MSS39-148-H20	DC	12000	0.33	—	.38	3.5	H20
MSS20-050-T86	DC	12000	0.36	80	—	0.8	T86p
MSS20-051-T86	DC	12000	0.36	80	—	0.8	T86p
MA40215-120	DC	16000	0.32	—	0.39	5	ODS-1200
MADS-011030-14280W	DC	16000	0.33	6.5	100	3.5	DIE
MSS39-045-C15	DC	18000	0.1	—	0.4	5	C15p
MSS30-442-B42	DC	18000	0.1	22	0.29	2	B42
MSS30-442-H40	DC	18000	0.1	22	0.29	2	H40
MSS40-141-B10B	DC	18000	0.1	22	0.42	3	B10B
MSS30-442-B41	DC	18000	0.1	22	0.4	4	B41
MSS20-046-C15	DC	18000	0.1	80	—	0.8	C15P
MSS20-047-C15	DC	18000	0.1	80	—	0.8	C15P
MSS30-142-B10B	DC	18000	0.1	22	0.29	2	B10B
MSS30-242-B20	DC	18000	0.1	22	0.29	2	B20
MSS39-148-B10B	DC	18000	0.12	—	0.38	3.5	B10Bp
MSS40-045-C15	DC	18000	0.12	15	0.42	3	C15
MSS30-046-C15	DC	18000	0.12	18	0.29	2	C15
MSS30-PCB46-B48	DC	18000	0.12	20	0.3	2	B48

Schottky Mixer and Detector Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance (Ω)	V _F (V)	V _B (V)	Package
MSS40-PCB46-B48	DC	18000	0.12	20	0.47	3	B48
MSS40-244-B20	DC	18000	0.12	22	0.44	3	B20
MSS40-CR46-B49	DC	18000	0.125	22	0.47	3	B49
MSS30-B46-B45	DC	18000	0.125	25	0.3	2	B45
MSS50-B46-B45	DC	18000	0.13	20	0.5	4	B45
MSS30 PCR46-B47	DC	18000	0.13	22	0.29	2	B47
MSS40-PCR46-B47	DC	18000	0.13	22	0.47	3	B47
MSS40-B46-B45	DC	18000	0.13	25	0.47	3	B45
MSS30-148-B10B	DC	18000	0.15	15	0.27	2	B10B
MSS30-248-B20	DC	18000	0.15	15	0.27	2	B20
MSS30-448-B41	DC	18000	0.15	15	0.4	2	B41
MSS30-448-B42	DC	18000	0.15	15	0.3	2	B42
MSS40-048-C15	DC	18000	0.15	15	0.42	3	C15
MSS40-148-B10B	DC	18000	0.15	17	0.4	3	B10B
MSS40-248-B20	DC	18000	0.15	17	0.44	3	B20
MSS40-448-B42	DC	18000	0.15	17	0.4	3	B42
MSS30-050-C15	DC	18000	0.18	15	0.27	2	C15
MSS39-144-H27	DC	18000	0.24	—	0.38	3.5	H27
MSS39-146-H27	DC	18000	0.25	—	0.38	3.5	H27
MSS30-154-B10B	DC	18000	0.25	12	0.25	2	B10B
MSS30-454-B40	DC	18000	0.25	12	0.3	2	B40
MSS50-448-B40	DC	18000	0.25	14	0.5	4	B40
MSS30-B53-B45	DC	18000	0.25	15	0.3	2	B45
MSS30-CR53-B49	DC	18000	0.25	15	0.3	2	B49
MSS30 PCR53-B47	DC	18000	0.25	15	0.29	2	B47
MSS40-B53-B45	DC	18000	0.25	15	0.43	3	B45
MSS50-B53-B45	DC	18000	0.25	15	0.5	4	B45
MSS50-CR53-B49	DC	18000	0.25	15	0.5	4	B49
MSS50-PCR53-B48	DC	18000	0.25	15	0.5	4	B47
MSS20-046-H27	DC	18000	0.25	80	—	0.8	H27
MSS20-047-H27	DC	18000	0.25	80	—	0.8	H27
MSS39-045-P86	DC	18000	0.27	—	0.4	5	P86p
MSS40-045-P55	DC	18000	0.28	15	0.42	3	P55
MSS50-046-P55	DC	18000	0.28	20	—	4	P55
MSS40-045-P86	DC	18000	0.3	15	0.42	3	P86
MSS30-346-B21	DC	18000	0.3	16	0.27	2	B21
MSS40-455-B40	DC	18000	0.3	17	0.38	3	B40
MSS30-046-P55	DC	18000	0.3	18	0.29	2	P55
MSS40-141-H20	DC	18000	0.3	18	0.42	3	H20
MSS30-142-H20	DC	18000	0.31	22	0.29	2	H20
MSS30-242-H30	DC	18000	0.31	22	0.29	2	H30
MSS40-455-H40	DC	18000	0.32	14	0.38	3	H40
MSS40-048-P86	DC	18000	0.33	15	0.4	3	P86
MSS30-046-P86	DC	18000	0.33	18	0.3	2	P86
MSS30-CR46-H40	DC	18000	0.33	22	0.3	2	H40
MSS50-146-H20	DC	18000	0.34	18	0.5	4	H20
MSS30-050-P55	DC	18000	0.35	15	0.27	2	P55

Schottky Mixer and Detector Diodes (continued)

Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance (Ω)	V _F (V)	V _B (V)	Package
MSS30-448-H40	DC	18000	0.35	15	0.3	2	H40
MSS40-CR46-H40	DC	18000	0.35	15	—	3	H40
MSS50-B46-H40	DC	18000	0.35	20	—	4	H40
MSS30-B46-H40	DC	18000	0.35	25	0.3	2	H40
MSS39-152-H20	DC	18000	0.36	—	0.38	3.5	H20
MSS50-448-E45	DC	18000	0.36	10	0.5	4	E45
MSS30-148-H20	DC	18000	0.36	15	0.27	2	H20
MSS30-248-H30	DC	18000	0.36	15	0.27	2	H30
MSS40-448-H40	DC	18000	0.36	15	0.4	3	H40
MSS50-B53-E45	DC	18000	0.36	15	0.5	4	E45
MSS40-155-0402	DC	18000	0.38	14	0.38	3	0402
MSS30-050-P86	DC	18000	0.38	15	0.27	2	P86
MSS30-154-H20	DC	18000	0.46	12	0.25	2	H20
MSS30-254-H30	DC	18000	0.46	12	0.25	2	H30
MSS30-454-H40	DC	18000	0.46	12	0.3	2	H40
MSS30-B53-H40	DC	18000	0.46	15	0.3	2	H40
MSS50-CR53-H40	DC	18000	0.46	15	0.5	4	H40
MSS50-448-H40	DC	18000	0.48	10	0.5	4	H40
MSS50-B53-H40	DC	18000	0.48	15	0.29	4	H40
MSS30-346-H20	DC	18000	0.5	16	0.29	2	H20
MSS40-155-H20	DC	18000	0.51	14	0.38	3	H20
MSS39-146-B10B	DC	26000	0.1	—	0.38	3.5	B10Bp
MA4E2513L-1289	DC	26000	0.12	10	-0.7	3	ODS-1289
MA4E2501L-1290	DC	26000	0.12	10	0.33	5	ODS-1290
MA4E2502H-1246	DC	26000	0.12	11	0.65	3	ODS-1246
MA4E2502M-1246	DC	26000	0.12	12	-1.58	3	ODS-1246
MA4E2514M-1116	DC	26000	0.12	12	0.47	3	ODS-1116
MA4E2502L-1246	DC	26000	0.12	16	0.33	3	ODS-1246
MA4E2514L-1116	DC	26000	0.12	16	0.33	3	ODS-1116
MNM207	DC	26000	0.14	20	0.425	4	DIE/Various
MA4E2532M-1113	DC	26000	0.16	10	0.47	5	ODS-1113
MNM201	DC	26000	0.2	20	0.4	3	DIE/Various
MNM212	DC	26000	0.21	20	0.475	5	DIE/Various
MA4E2508H-1112	DC	26000	0.24	6	0.7	5	ODS-1112
MA4E2508M-1112	DC	26000	0.24	12	0.42	5	ODS-1112
MA4E2508L-1112	DC	26000	16	0.24	-1.7	5	ODS-1112
MSS39-144-B10B	DC	40000	0.08	—	0.38	3.5	B10Bp
MSS25-141-B10D	DC	40000	0.08	65	0.28	3	B10D
MSS20-140-B10D	DC	40000	0.08	80	—	0.8	B10D
MSS20-141-B10D	DC	40000	0.08	80	—	0.8	B10D
MSS25-143-B10D	DC	40000	0.1	60	0.26	3	B10D
MSS25-047-C15c	DC	40000	0.1	65	0.26	3	C15c
MSS20-142-0402	DC	40000	0.1	80	—	0.8	0402
MSS20-142-B10D	DC	40000	0.1	80	—	0.8	B10D
MSS20-143-B10D	DC	40000	0.1	80	—	0.8	B10D
MSS20-145-B10D	DC	40000	0.12	80	—	0.8	B10D
MSS20-146-B10D	DC	40000	0.12	80	—	0.8	B10D

Schottky Mixer and Detector Diodes (continued)							
Part Number	Min Freq (MHz)	Max Freq (MHz)	Total Capacitance (pF)	Dynamic Resistance (Ω)	V _F (V)	V _B (V)	Package
MSS25-049-C15c	DC	40000	0.12	52	0.22	3	C15c
MSS25-145-B10D	DC	40000	0.12	52	0.22	3	B10D
MGS912	DC	60000	0.03	28	2.9	20	B89
MGS906	DC	60000	0.04	14	1.5	10	B90
MGS907	DC	60000	0.04	14	1.5	10	B85
MGS908	DC	60000	0.04	14	1.5	10	B86
MA4E2037	DC	60000	0.05	4	0.8	4.5	Beam Lead
MA4E2039	DC	60000	0.05	4	0.8	4.5	Beam Lead
MA4E2040	DC	60000	0.05	4	0.8	4.5	Beam Lead
MGS901	DC	60000	0.06	7	0.75	5	Beam Lead
MGS903	DC	60000	0.06	7	0.75	5	Beam Lead
MGS904	DC	60000	0.06	7	0.75	5	B85
MGS905	DC	60000	0.06	7	0.75	5	B86
MGS907A	DC	60000	0.06	12	1.5	10	B85
MGS904A	DC	60000	0.08	5	0.75	5	B85
MGS902	DC	60000	0.1	7	0.75	5	Beam Lead
MGS909	DC	60000	0.1	21	2.1	15	B90
MGS910	DC	60000	0.1	21	2.1	15	B87

Switches						
Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Isolation (dB)	Input IP3 (dBm)	Package
SPST						
MASW-001150-1316	45	2500	0.3	65	40	DIE
MA4SW110	50	26500	0.6	48	40	HMIC DIE
MA4AGSW1	50	50000	0.2	43	40	DIE
MA4AGSW1A	50	50000	1.2	48	40	DIE
SPDT						
SW-313-PIN	50	3000	0.8	52	46	CR-2
SW-228-PIN	0	4000	0.7	42	46	CR-2
SW-226-PIN	0	4000	1	48	46	CR-2
MASW-010647	8000	10500	0.8	37	60	DIE
MASW-011021	6000	14000	0.7	34	60	SURMOUNT™ DIE
MASW-002102-13580	2	18000	1.8	55	40	DIE
MASW-011108-DIE	6000	18000	0.6	44	—	DIE
CGY2890SUH	6000	18000	1.5	50	—	DIE
MASW-002103-1363	50	20000	0.8	38	40	SURMOUNT™ DIE
MASW-011052	2000	26000	0.8	50	43	DIE
MA4SW210B-1	2000	26000	1.2	48	40	DIE
MASW-002100-1191	50	26500	0.3	65	40	DIE
MA4SW210	50	26500	0.6	52	40	HMIC DIE
MASW-011144-DIE	20000	40000	65	30	—	DIE
MASW-010646	26000	40000	0.6	39	60	DIE
MASW-011036	26000	40000	0.7	40	60	DIE
MA4AGSW2	50	50000	0.6	46	40	DIE
MASW-011111	80000	100000	0.8	25	—	DIE
SP3T						
MASW-003102-13590	2000	18000	0.8	50	40	DIE
MASW-011053	2000	18000	0.8	50	48	DIE
MASW-003103-1364	50	20000	0.8	40	40	SURMOUNT™ DIE
MA4SW310B-1	2000	26000	1.2	47	40	DIE
MASW-003100-1192	50	26500	0.3	65	40	DIE
MA4SW310	50	26500	0.8	48	40	DIE
MA4AGSW3	50	50000	0.6	48	40	DIE
MASW-011029	75000	100000	1.3	33	—	DIE
SP4T						
MASW-004102-12760	2	18000	1.5	50	40	DIE
MA4SW410B-1	2000	18000	0.8	48	40	DIE
MASW-004103-1365	50	20000	0.8	50	63	SURMOUNT™ DIE
MASW-004240-13170	10	24000	2.5	50	—	DIE
MASW-004100-1193	50	26500	0.3	65	40	DIE
MA4SW410	50	26500	0.7	48	40	DIE
MASW-011087	27000	30000	0.85	50	55	DIE
MA4AGSW4	50	50000	0.8	42	40	DIE
SP5T						
MASW-010351	10	4000	1.4	57	50	PQFN-24, 4 mm
MA4SW510B-1	2000	18000	0.9	40	40	DIE
MASW-005102-13600	2000	18000	0.9	40	40	DIE
MASW-006102-13610	50	26500	0.3	65	40	DIE

Switches (continued)						
Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Isolation (dB)	Input IP3 (dBm)	Package
MA4SW510	50	26500	0.9	38	40	DIE
MASW-005100-1194	50	26500	0.9	38	40	DIE
MA4AGSW5	50	50000	1.1	47	40	DIE
SP6T						
MA4SW610B-1	2000	18000	1.3	45	40	DIE
SP8T						
MA4AGSW8-1	50	50000	1.5	37	40	DIE

DIGITAL ATTENUATORS

Digital Attenuators								
Part Number	Min Freq (MHz)	Max Freq (MHz)	Attenuator Range (dB)	Insertion Loss (dB)	Bit Count	IIP3	LSB	Package
CGY2176AUH	1000	8000	31.5	5.6	6	—	—	DIE
CGY2171XBUH	1000	15000	31.5	5	6	—	—	DIE
CGY2390SUH	6000	18000	35	2.2	3	—	—	DIE
CGY2169UH	10000	18000	23.5	4	6	—	—	DIE

INTEGRATED ICs & MODULES

Radar Core Chips								
Part Number	Description	Min Freq (GHz)	Max Freq (GHz)	Transmit Gain (dB)	Transmit P1dB (dBm)	Receive Gain (dB)	Receive Noise Figure (dB)	Package
CGY2179UH	4-Bit, Ku-Band Core Chip	10.7	12.75	12	3	—	1.9	DIE
CGY2175AHV	3 Port, C-Band Integrated Core Chip	4	6	—	20	—	—	QFN
CGY2175AUH	3 Port, 6-Bit, C-Band Integrated Core Chip	4	6	—	20	—	—	DIE
CGY2170YHV	8 – 12 GHz 3 Port Core Chip	8	12	5.8	12	5.8	—	QFN
CGY2170YUH	6-Bit, X-Band Core Chip	8	12	6	11	6	—	DIE
CGY2179HV	4-Bit, Ku-Band Core Chip	11	12	12	3	—	1.9	QFN
CGY2330UH	12 – 15 GHz 2 Port Core Chip	13	15	—	—	—	—	DIE
CGY2351UH	Ka-Band Core Chip	26	30	—	—	—	—	DIE
CGY2350UH	5-Bit, Ka-Band Core Chip	34	36	3	—	—	—	DIE

POWER DIVIDERS/COMBINERS

Power Dividers/Combiners								
Part Number	Min Freq (MHz)	Max Freq (MHz)	Channels (#)	Amplitude Balance (dB)	Phase Balance (°)	Isolation (dB)	Max Input Power (dBm)	Package
M3H-50-PIN	1	100	3	0.2	1	30	30	TO-5
DS-310-PIN	0	300	4	0.2	4	25	30	FP-5
M3V-50-PIN	50	300	3	0.2	2	25	30	TO-5
DS-113-PIN	0	400	2	0.2	1	25	30	FP-2
DSS-113-PIN	0	400	2	0.2	1	25	30	SF-1
DS-318-PIN	5	500	2	0.2	1	18	30	RH-1
DS-109-PIN	10	500	2	0.2	1	25	30	FP-2
DS-319-PIN	10	500	2	0.2	1	25	30	TO-8
DSS-333-PIN	10	500	2	0.2	2	25	30	SF-1
DS-112-PIN	10	500	3	0.2	2	25	30	TO-5

POWER DIVIDERS/COMBINERS

Power Dividers/Combiners (continued)								
Part Number	Min Freq (MHz)	Max Freq (MHz)	Channels (#)	Amplitude Balance (dB)	Phase Balance (°)	Isolation (dB)	Max Input Power (dBm)	Package
DS-328-PIN	3	700	3	0.3	3	20	30	TO-8
DSS-327-PIN	5	1000	2	0.2	3	20	30	FP-2
DS-323-PIN	25	1000	3	0.4	4	24	30	FP-3
DS-324-PIN	25	1000	4	0.3	6	20	30	FP-5
DS-331-PIN	750	1500	2	0.2	6	10	30	TO-8
DS-313-PIN	10	2000	2	0.3	4	23	24	FP-2
DSS-313-PIN	10	2000	2	0.3	4	23	24	SF-1
MAPD-011062	2000	20000	2	0.2	2	15	50	PQFN-16, 3 mm

PHASE DETECTORS

Phase Detectors										
Part Number	SRD VBR Min (V)	SRD CJ Typ (pF)	SRD TL Typ (ns)	SRD TT Max (ps)	Cap CT Typ (pF)	SD CJ Typ (pF)	SD VF Typ	SD RD Typ (mV)	FMW Typ (GHz)	Package
MSPD2018-H50	15	0.35	5	55	0.6	0.1	430	16	22	H50
MSPD1012-H50	15	0.5	10	70	2.5	0.18	270	9	12	H50
MSPD1000-H50	15	1	35	95	20	0.4	270	7	0.5	H50

Low Noise Amplifiers									
Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Noise Figure (dB)	OIP3 (dBm)	Output P1dB (dBm)	Bias Voltage (V)	Bias Current (mA)	Package
CGY2106XHV	100	3000	19	0.45	35	19	2.5	50	QFN
MAAM-011229-CQ3	50	4000	19	1.3	38	19.5	5	80	QFN-12, 3 mm
CGY2105XHV	500	4000	19	0.42	35	21	3	50	QFN
CGY2108GS	500	6000	21	0.6	36	10	5	50	Hermetic Ceramic
CGY2108HV	500	6000	21.5	0.5	36	22	5	50	Hermetic Ceramic
CGY2107HV	500	6000	24	0.5	36	19	5	50	QFN
MAAL-011134-CQ3	700	6000	14.5	1.1	31.0	16.0	3.0	51.0	QFN-12, 3 mm
CGY2178UH	5000	6000	30	1	22	15	3	40	DIE
MAAM37000-A1	3500	7000	17	2.2	25	14	4	75	Ceramic-8
MAAM37000-A1G	3500	7000	17	2.2	25	14	4	75	Ceramic Gull Wing-8
CGY2120XUH	5000	7000	13	0.5	—	12	1	50	DIE
MAAM-011252-CQ3	30	8000	19.5	1.7	32.4	18.1	5	65	QFN-12, 3 mm
CGY2220UH	1000	12000	36	1.5	12	—	1.5	54	DIE
MAAM71200-H1	7500	12000	15.5	2.7	21	11	4	40	Leadless Ceramic
CGY2221UH	8000	12000	16	1.6	29	17	5	82	DIE
CGY2124UH	8000	12000	33	1.1	20	10	5	55	DIE
CGY2221HV	7500	13000	16	1.6	29	17	5	82	QFN
CGY2232UH	12750	14750	24	1.3	—	0	3	24	DIE
CGY2125AUH	13000	15000	25	1.5	—	8	3.3	20	DIE
CGY2230UH	1000	18000	35	1.5	12	0	1.5	50	DIE
CGY2290SUH	6000	18000	8.5	3	—	13	5	30	DIE
CGY2121XUH	18000	26000	19	1.3	5	7	1.5	60	DIE
CGY2128UH	24000	34000	23	1.6	17.5	8.5	3.5	47	DIE
CGY2122XUH	25000	43000	32	1.5	10	1.2	1.1	30	DIE
CGY2260UH	24000	44000	25.5	1.7	22	6	1.5	50	DIE
CGY2272UH	44000	69000	29	1.7	—	5	1.5	46	DIE
CGY2190UH	75000	110000	23	2.8	—	1	1	33	DIE
Distributed Amplifiers									
Part Number	Min Freq (MHz)	Max Freq (MHz)	Gain (dB)	Gain Flatness	Noise Figure (dB)	OIP3 (dBm)	Output P1dB (dBm)	Package	
CGY2145UH	500	45000	12.7	—	4.5	—	18	DIE	
CGY2141UH	10	46000	16	—	4	—	19	DIE	
CGY2160UH	1500	47000	14.5	—	1.5	—	17	DIE	
CGY2144UH	10	54000	13	—	2.5	—	15	DIE	
Amplifier Gain Block									
Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Output P1dB (dBm)	PsAT (dBm)	Gain (dB)	OIP3 (dBm)	Package	
MAAP-010168	10 W Power Amplifier	500	3000	39	41	24	—	Ceramic Flanged-10	
MAAM26100-B1	Power Amplifier	2000	6000	27	30.5	19	39	CR-2	
MAAM26100-P1	Power Amplifier	2000	6000	28	30.5	20	40	CR-15	
CGY2731UH	Gain Block	12000	15000	19	—	19	—	DIE	
GaN Power Amplifiers									
Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Output P1dB (dBm)	PsAT (dBm)	Gain (dB)	OIP3 (dBm)	Package	
MAAP-010168	10 W Power Amplifier	500	3000	39	41	24	—	Ceramic Flanged-10	
CGY2135UH	Power Amplifier, 33 dBm	18000	23000	31.2	33	25	—	DIE	
CGY2651UH	37 – 43 GHz 41 dBm	37000	43000	—	40	18	—	DIE	

RF Power Amplifiers: GaN: *MACOM PURE CARBIDE*

Part Number	Min Freq (MHz)	Max Freq (MHz)	Supply Voltage (V)	Output Power P _{SAT} (W)	Gain (dB)	Efficiency (%)	Test Freq (GHz)	Package
MAPC-A1511	3	300	100	3000	19	79	0.13	AC-1230
MAPC-A1502	400	460	50	1250	17	83	400	AC-1230
MAPC-A1508	900	930	50	700 (CW)	16.5	73	0.915	AC-780
MAPC-A1507	900	930	50	1400 (CW)	16	73	0.915	AC-1230
MAPC-A1501	960	1215	65	1300	17.2	64.5	1.06	AC-780B
MAPC-A1500	960	1215	65	2600	18.5	66.2	1.06	AC-1230S
MAPC-A1504	1200	1400	50	500	17	54	1400	AC-780
MAPC-A1513	1300	1850	52	450	14	59	1.6	AP-780
MAPC-A1506	2000	2400	52	450	14	58	2.9	AP-780
MAPC-A1516	2400	2500	50	500 (CW)	14.5	70	2450	AC-780
MAPC-A1103	0	2700	50	270	18.4	68.2	2.6	AC-650S
MAPC-A1000	30	2700	50	25	13	51	2.7	DFN, 7 x 6.5 mm
MAPC-A2021	1800	2700	30	8	16.2	67	2.7	QFN, 4 x 4 mm
MAPC-A1522	2700	3100	65	1000	14.5	61	2900	AP-1230S
MAPC-A1505	2700	3300	50	700	14	68	2.2	AC-1230
MAPC-A1101	0	3500	50	85	15	70	3.5	AC-360S
MAPC-A1102	0	3500	50	150	13	65	3.5	AC-360S
MAPC-A1100	1	3500	50	65	18	71	3.5	AC-360S
MAPC-S1000	30	3500	50	15	13	52.2	3.5	AQFN, 5 x 5 mm
MAPC-A2004	3300	3800	50	90	14.5	52	3.6	DFN, 7 x 6.5 mm
MAPC-A2517	3400	3800	50	29	14	52.3	3.6	AC-780S
MAPC-A2002	3400	4000	50	50	16.2	61	3.6	DFN, 7 x 6.5 mm
MAPC-A2001	3400	4000	50	50	17.2	62	3.85	DFN, 7 x 6.5 mm
MAPC-A2500	3400	4000	50	450	13	52	3.6	AC-780S
MAPC-A2506	3700	4000	50	29	12.5	52.3	3.85	AC-780S
MAPC-A2011	3700	4000	50	90	14.5	52	3.8	DFN, 7 x 6.5 mm
MAPC-S1504	5200	5900	50	60	16.7	50.5	5.6	AC-400B
MAPC-S1101	0	12000	50	15	16	58	3.5	AQFN, 3 x 3 mm

TRANSFORMERS/BALUNS

Transformers/Baluns

Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Impedance Ratio	Insertion Loss (dB)	Impedance (Ω)	Package
MABA-011115	Transmission Line Balun	5	3000	1:1	0.8	50	SMT
MABA-011116	Transmission Line Balun	5	3000	1:2	1.7	50	SMT
MABA-011125	Balun	2 GHz	20 GHz	1:2	2	50	PQFN-16, 3 mm

COUPLER

Coupler

Part Number	Description	Min Freq (GHz)	Max Freq (GHz)	Coupling, Nom (dB)	Isolation (dB)	IL (dB)	Impedance (Ω)	Package
MACP-011088	Coupler, 16.5 dB	2	18	16.5	27	0.8	50	QFN-24, 4 mm

CONNECTORIZED COMB GENERATORS

NLTL GaAs Comb Generators						
Part Number	Power Min (dBm)	Power Max (dBm)	Output Harmonics 1	Output Harmonics 2	Output Harmonics 3	Package
MLPNC-7102-SMA800	21 @ 400 MHz	23 @ 600 MHz	-8 @ 4 GHz	-16 @ 12 GHz	-20 @ 20 GHz	SMA800
MLPNC-7103-SMA800	21 @ 800 MHz	23 @ 1300 MHz	-5 @ 6 GHz	-15 @ 18 GHz	-20 @ 30 GHz	SMA800
MLPNC-7100S1-SMA800	18 @ 75 MHz	24 @ 250 MHz	-15 @ 1 GHz	-18 @ 2 GHz	-24 @ 4 GHz	SMA800
MLPNC-7100-SMA850	20 @ 100 MHz	24 @ 400 MHz	-8 @ 4 GHz	-18 @ 12 GHz	-35 @ 20 GHz	SMA850
MLPNC-7102S1-SMA800	18 @ 300 MHz	24 @ 700 MHz	-10 @ 4 GHz	-15 @ 8 GHz	-22 @ 12 GHz	SMA800
MLPNC-7103S1-SMA800	18 @ 600 MHz	24 @ 1500 MHz	-10 @ 4 GHz	-8 @ 8 GHz	-20 @ 15 GHz	SMA800

CAPACITORS

MNS Chip Capacitors				
Part Number	Capacitance (pf)	Standoff Voltage (V)	Chip Style	Package
MA4M3010	10	200	350	DIE
MA4M2020	20	200	132	DIE
MA4M3030	30	200	352	DIE
MA4M1050	50	100	132	DIE
MA4M3050	50	200	354	DIE
MA4M3100	100	50	358	DIE
MA4M1100	100	100	199	DIE
MA4M3150	150	50	359	DIE

High Q MNOS Series Chip Capacitors: 9000 Series VB >50 V & 9100 Series VB >100 V

Part Number	Capacitance (pf)	Working Voltage (V)	Chip Size + .002"	Package
910R1 thru 911R9	0.1 to 1.9	100	0.010" x 0.010" x 0.005"	DIE
912R0 thru 919R9	2 to 9.9	100	0.015" x 0.015" x 0.005"	DIE
902R0 thru 9010R	2 to 10	50	0.010" x 0.010" x 0.005"	DIE
9110R thru 9129R	10 to 29	100	0.020" x 0.020" x 0.006"	DIE
9011R thru 9029R	11 to 29	50	0.015" x 0.015" x 0.005"	DIE
9030R thru 9049R	30 to 49	50	0.020" x 0.020" x 0.006"	DIE
9130R thru 9149R	30 to 49	100	0.030" x 0.030" x 0.006"	DIE
9150R thru 9199R	50 to 99	100	0.040" x 0.040" x 0.008"	DIE
9050R thru 9099R	50 to 99	50	0.030" x 0.030" x 0.006"	DIE
90100 thru 90199R	100 to 199	50	0.040" x 0.040" x 0.008"	DIE
91100 thru 91199	100 to 199	100	0.050" x 0.050" x 0.008"	DIE
91200 thru 91399	200 to 399	100	0.070" x 0.070" x 0.008"	DIE
90200 thru 90399R	200 to 399	50	0.050" x 0.050" x 0.008"	DIE
90400 thru 90600R	400 to 600	50	0.070" x 0.070" x 0.008"	DIE

Beam Lead Capacitors: 9000 Series VB >50 V

Part Number	Capacitance Range (pf)	Package
90R1 thru 90R9	0.1 to 0.9	14-1
90R5 thru 901R0	0.5 to 1	14-2
901R0 thru 901R5	1 to 1.5	14-1
901R0 thru 902R2	1 to 2.2	14-2
902R2 thru 904R7	2.2 to 4.7	14-2
905R6M	5.6 + 20%	14-2
906R8M	6.8 + 20%	14-2

Beam Lead Capacitors: 9000 Series VB >50 V (continued)

Part Number	Capacitance Range (pf)	Package
908R2M	8.2 + 20%	14-2
9010R0M	10 + 20%	14-3
9015R0M	15 + 20%	14-3
9022R0M	22 + 20%	14-3
9033R0M	33 + 20%	14-3
9047R0M	47 + 20%	14-4
9068R0M	68 + 20%	14-4
9082R0M	82 + 20%	14-4
90100R0M	100 + 20%	14-4

DC Floating /RF Bypass Mounting Capacitors: 9100 & 9000 Series

Part Number	Capacitance Range (pF)	Chip Size A	Chip Size B	Pad Size D	Pad Size E	Customer Specified Field D
SP49	5 – 50	0.014	0.034	0.011	0.031	0.005 – 0.020
SP84	7 – 70	0.02	0.04	0.016	0.03	0.005 – 0.020
SP51	8 – 80	0.015	0.045	0.013	0.043	0.005 – 0.020
SP14	9 – 90	0.02	0.04	0.016	0.036	0.005 – 0.020
SP34	9 – 90	0.024	0.034	0.02	0.03	0.005 – 0.020
SP6	10 – 100	0.014	0.055	0.012	0.053	0.005 – 0.020
SP89	12 – 120	0.02	0.06	0.014	0.055	0.005 – 0.020
SP80	13 – 130	0.016	0.065	0.014	0.063	0.005 – 0.020
SP12	14 – 140	0.02	0.055	0.018	0.053	0.005 – 0.020
SP87	15 – 150	0.013	0.12	0.009	16	0.005 – 0.020
SP81	17 – 170	0.015	0.09	0.013	0.088	0.005 – 0.020
SP22	24 – 240	0.025	0.08	0.021	0.075	0.005 – 0.020
SP88	25 – 250	0.021	0.121	0.015	0.115	0.005 – 0.020
SP48	29 – 290	0.035	0.065	0.031	0.061	0.005 – 0.020
SP64	75 – 750	0.055	0.102	0.051	0.098	0.005 – 0.020
SP120	90 – 900	0.055	0.12	0.05	0.115	0.005 – 0.020
SP7	100 – 1000	0.085	0.085	0.081	0.081	0.005 – 0.020
SP2	150 – 1500	0.11	0.11	0.1	0.1	0.005 – 0.020
SP68	175 – 1750	0.101	0.124	0.097	0.12	0.005 – 0.020
SP5	200 – 1000	0.1	0.1	0.095	0.095	0.005 – 0.020
SP1	200 – 2000	0.11	0.14	0.1	0.13	0.005 – 0.020
SP20	200 – 2000	0.12	0.14	0.11	0.13	0.005 – 0.020
SP29	200 – 2000	0.121	0.121	0.115	0.115	0.005 – 0.020
SP38	200 – 2000	0.094	0.152	0.091	0.148	0.005 – 0.020
SP39	200 – 2000	0.12	0.134	0.11	0.13	0.005 – 0.020
SP40	200 – 2000	0.107	0.134	0.103	0.13	0.005 – 0.020
SP77	300 – 3000	0.118	0.175	0.114	0.171	0.005 – 0.020
SP52	300 – 3000	0.13	0.17	0.124	0.164	0.005 – 0.020
SP104	350 – 3500	0.142	0.171	0.138	0.167	0.005 – 0.020
SP111	350 – 3500	0.143	0.18	0.138	0.167	0.005 – 0.020
SP37	350 – 3500	0.151	0.168	0.147	0.164	0.005 – 0.020
SP44	350 – 3500	0.14	0.17	0.135	0.165	0.005 – 0.02
SP55	360 – 3600	0.117	0.22	0.113	0.216	0.005 – 0.020

MNOS Series Capacitors							
Part Number	Type	Range (pF)	Capacitance Range Min (pF)	Capacitance DvV Min (V)	IR Min (Ω)	TCC Typ (ppm/+ °C)	Package
MBC50-0.2B14	Beam Lead	0.24	0.16	50	1000	55	B14
MBC50-1.0B14	Beam Lead	1.2	0.8	50	1000	55	B14
MBC50-1B12	Beam Lead	1.2	0.8	50	1000	55	B12
MBC50-1.5B14	Beam Lead	1.8	1.2	50	1000	55	B14
MBC50-2.0B14	Beam Lead	2.4	1.6	50	1000	55	B14
MBC50-2B12	Beam Lead	2.4	1.6	50	1000	55	B12
MBC50-3B12	Beam Lead	3.6	2.4	50	1000	55	B12
MBC50-4B12	Beam Lead	4.8	3.2	50	1000	55	B12
MBC50-6B12	Beam Lead	7.2	4.8	50	1000	55	B12
MBC50-8B12	Beam Lead	9.6	6.4	50	1000	55	B12
MBC50-10B12	Beam Lead	12	8	50	1000	55	B12
MBC50-15B12	Beam Lead	18	12	50	1000	55	B12
MBC50-20B12	Beam Lead	24	16	50	1000	55	B12
MBC50-33B13	Beam Lead	39.6	26.4	50	1000	55	B13
MBC50-47B13	Beam Lead	56.4	37.6	50	1000	55	B13
MBC50-68B13	Beam Lead	81.6	54.4	50	1000	55	B13
MBC50-82B13	Beam Lead	96	65.6	50	1000	55	B13
MBC50-100B13	Beam Lead	120	80	50	1000	55	B13
MC2DXXX010-010	Chips	5	0.1	50	1000	55	DIE
MC2SXXX010-010	Chips	8	0.25	50	1000	55	DIE
MC2SXXX011-011	Chips	12	1	50	1000	55	B12
MC2DXXX015-015	Chips	15	1.5	50	1000	55	DIE
MC2RXXX010-015	Chips	20	2	50	1000	55	DIE
MC2SXXX015-015	Chips	30	3	50	1000	55	DIE
MC2SXXX016-016	Chips	35	3	50	1000	55	DIE
MC2RXXX015-020	Chips	42	5	50	1000	55	DIE
MC2DXXX020-020	Chips	50	5	50	1000	55	DIE
MC2SXXX020-020	Chips	55	5	50	1000	55	DIE
MC2SXXX022-022	Chips	60	5	50	1000	55	DIE
MC2RXXX015-032	Chips	62	5	50	1000	55	DIE
MC2SXXX025-025	Chips	100	10	50	1000	55	DIE
MC2SXXX030-030	Chips	120	10	50	1000	55	DIE
MC2RXXX022-042	Chips	120	15	50	1000	55	DIE
MC2SXXX035-035	Chips	150	15	50	1000	55	DIE
MC2SXXX040-040	Chips	200	20	50	1000	55	DIE
MC2SXXX050-050	Chips	250	25	50	1000	55	DIE
MC2SXXX055-055	Chips	300	25	50	1000	55	DIE
MC2SXXX060-060	Chips	375	35	50	1000	55	DIE
MC2SXXX070-070	Chips	550	50	50	1000	55	DIE
MC2SXXX080-080	Chips	700	70	50	1000	55	DIE
MC2RXXX097-107	Chips	999	100	50	1000	55	DIE
MC2RXXX099-138	Chips	999	100	50	1000	55	DIE
MC2SXXX100-100	Chips	999	100	50	1000	55	DIE
MC2RXXX127-145	Chips	1800	200	50	1000	55	DIE
MC2RXXX142-160	Chips	2200	200	50	1000	55	DIE
MC2B0.8020-020	Binary Chip	1.8	1.2	50	1000	55	C20
MC2B002020-020	Binary Chip	4.5	3	50	1000	55	C20

CAPACITORS



MNOS Series Capacitors							
Part Number	Type	Range (pF)	Capacitance Range Min (pF)	Capacitance Dvw Min (V)	IR Min (Ω)	TCC Typ (ppm/+ °C)	Package
MC2B004020-020	Binary Chip	9.6	6.4	50	1000	55	C20
MC2B008020-020	Binary Chip	18	12	50	1000	55	C20
MC2B016020-020	Binary Chip	36	24	50	1000	55	C20

DIGITAL PHASE SHIFTERS

Digital Phase Shifters								
Part Number	Min Freq (MHz)	Max Freq (MHz)	Insertion Loss (dB)	Bit Count	LSB (°)	IIP3 (dBm)	RMS Phase (%)	Package
CGY2177AUH	4800	6800	5	6	5.625	—	2	DIE
CGY2172XAUH	8000	12000	8	6	5.625	—	2	DIE
CGY2172XBUH	8000	12000	8	6	5.625	—	2	DIE
CGY2174UH	14000	16000	8	6	5.625	—	6	DIE
CGY2392SHV	6000	18000	10.8	6	5.625	—	1.09	QFN, 5 x 5 mm
CGY2392SUH	6000	18000	10.8	6	5.625	—	1.7	DIE
CGY2173UH	6000	18000	13	6	5.625	—	4	DIE

TRUE TIME DELAY

True Time Delay									
Part Number	Description	Min Freq (MHz)	Max Freq (MHz)	Bit Count	Min Delay (ns)	Full Delay (ns)	Insertion Loss (dB)	CTRL Interface	Package
CGY2394SUH	6 – 18 GHz	6000	18000	1	330	330	6	0/+4	DIE
CGY2393SUH	6 – 18 GHz	6000	18000	5	10	310	6	0/+4	DIE

Space-Qualified Linearizers, SSPAs and Related Hardware for the LEO, MEO and GEO Space Industries.

MACOM's high-reliability linearization technology reduces amplifier distortion and allows an amplifier to operate at reduced OPBO thus operating at higher

efficiency for a given level of linearity. MACOM provides Space Qualified Products for all downlink frequencies including UHF, Ku, Ka, Q, V, and E-Bands.

Versatile Linearized Front-End Modules

Linearizers that enable HPAs to operate efficiently at different power levels over wide bandwidths, provide system gain, and the required RF drive power to the HPA. The versatile linearizer can be temperature compensated to maintain optimum RF performance. They can be configured to correct either a TWTA or an SSPA's nonlinear transfer characteristics over multi-gigahertz and a wide dynamic range.

Linearizer Modules for UHF, L, S, C, X and Ku-Band SSPAs

Drop-in, connectorized or pin connected linearizers for GaAs or GaN SSPAs. These modules provide the correction characteristic for SSPA transfer curves over wide frequency and temperature ranges.

UHF Linearized GaAs SSPA

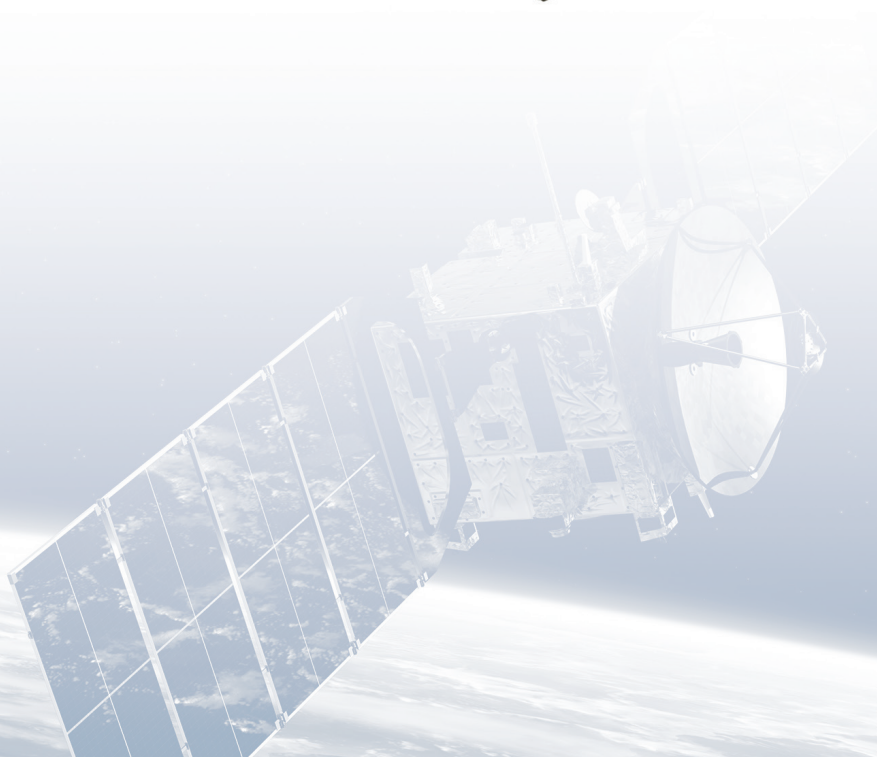
Highest efficiency UHF SSPA with built-in linearizer. SSPAs for power levels of 50 W to over 300 W with multiple EPC options available.

GPS Linearized GaN SSPA

Drop-in, connectorized or pin connected linearizers for Highest efficiency SSPA with built-in linearizer. Wideband option including full GPS band available. SSPAs for power levels of 35 W to >400 W. Commandable over 5 dB power range at high efficiency. Multiple EPC options available.

UHF Linearized GaN SSPA

Highest efficiency (>78%) UHF SSPA with built in linearizer. SSPAs for power levels of 50 W to over 300 W. Multiple EPC options available.



MACOM's Commitment to Quality

Engineering, Manufacturing and Quality Assurance Partnerships at All Levels

MACOM Technology Solutions is committed to quality through interactions between engineering, manufacturing and quality assurance groups at design, development, manufacture, test and environmental screening levels for all MACOM products.

MACOM is firmly committed to producing and providing the highest level of quality products free of defects and deviations. Our primary goal is to achieve consistently high standards and customer satisfaction based on internal and customer expectations and requirements by:

- Documenting procedures and specifications used in the manufacturing, testing and environmental screening of all MACOM products
- Calibrating equipment with standards traceable to National Institute of Standards and Technology (NIST)
- Assuring all incoming materials conform to documented specifications
- Verifying process controls at fabrication, manufacturing and test levels
- Performing environmental screening and conformance inspection up to and including space level per MIL-PRF-19500, MIL-PRF-38534, MIL-PRF-38535, PEM-INST-001 and/or customer specific requirements

Element Evaluation, Environmental Screening and Conformance Inspection

- MACOM provides standard high-reliability test programs for our semiconductor and thin film products. Element evaluations are performed in accordance with MIL-PRF-38534 Class H and Class K levels for passive components and semiconductor die. Environmental Screening and Conformance Inspection are performed in accordance with MIL-PRF-19500 requirements and/or per customer specified requirements.
- MMIC and Hybrid products use the standard process flows for class H and K devices
- Table 1 and Table 2 represent MACOM standard element evaluation, environmental screening and conformance

inspection testing. Certain process steps may be omitted or modified due to device performance restraints, packaging, or screening levels.

Please note that the tables are provided for reference. Actual CI and PI flow can be modified to meet mission requirements. MACOM reserves the right to modify these flows as appropriate.

All MACOM environmental test flows are based on the appropriate MIL-PRF for the product.

MACOM's Lowell, Massachusetts facility is ISO9001:2008 registered. A copy of our ISO certificates is available upon request.

Table 1: MIL-PRF-38534 Element Evaluation for Passive Products

Step	Class		Process	Conditions	Comments
	K	H			
1			Subgroup 1		
2	X	X	Die Electrical	Rs (Resistors), Vr, Cj (Capacitors)	100% Electrical, Remove Rejects
3			Subgroup 2		
4	X	X	Die Visual	MIL-STD-883, Meth 2032	100% Visual Inspection, Remove Rejects
5			Subgroup 3		
6	X	—	Temperature Cycling	MIL-STD-883, Meth 1010, Cond C	10 Cycles, t + 10 Minutes min, T _A = -65 °C to +150 °C
7	X	—	Constant Acceleration	MIL-STD-883, Meth 2001, Cond D	20,000 Gs, Y1 Direction
8	X	—	Aging (Capacitors Only)	MIL-STD-883, Meth 1015, Cond A	t = 240 Hours min, T _A = +125 °C, V _R = V
9	X	X	Visual Inspection	MIL-STD-883, Meth 2017	—
10	X	X	End-point Electricals	Rs (Resistors), Vr, Ir, Ct (Capacitors)	Read & Record
11			Subgroup 4		
12	X	X	Bond Strength	MIL-STD-883 Meth 2011 Bond Strength = 3G Min	.001” Au Wire or Equivalent 10 (0) Wires or 20 (1) Wires

Table 2: MIL-PRF-38534 Element Evaluation for Semiconductor Die

Step	Class		Process	Conditions	Comments
	K	H			
1			Subgroup 1		
2	X	X	Die Electrical	Per Catalog Data Sheet/Device Specification	100% Electrical
3			Subgroup 2		
4	X	X	Die Visual	MIL-STD-883, Meth 2010	100% Visual Inspection
5			Subgroup 3		
6	X	X	Internal Visual	MIL-STD-883, Meth 2010 or MIL-STD-750, Meth 2072 or 2073	10 Cycles, t + 10 Minutes min, T _A = -65 °C to +150∞ °C
7			Subgroup 4		
8	X		Temperature Cycling	MIL-STD-883, Meth 1010, Cond C	10 Cycles, t = 10 Minutes min, T _A = -65 °C to +150 °C
9	X	X	Constant Acceleration	MIL-STD-883, Meth 2001, Cond D	20,000 g Y1 Direction
10	X	X	Pre Burn-In Electrical	—	Go/No Go
11	X		HTRB	MIL-STD-883, Meth 1015, Cond A	t = 240 Hours min, T _A = +125 °C, V _R = __V
12	X	X	Post Burn-In Electrical	—	Go/No Go
13	X		Steady State Life	MIL-STD-883, Meth 1005, Cond B (when conditions provided)	t = 1000 Hours min, T _A = +125 °C, V _R = __V or I _f = mA
14	X	X	Final Electricals	—	Read & Record
15			Subgroup 5		
16	X	X	Bond Strength	MIL-STD-883, Meth 2011	10 (0) Wires or 20 (1) Wires
17			Subgroup 6		
18	X		SEM	MIL-STD-883, Meth 2018 or MIL-STD-750, Meth 2077	—

MIL-PRF-19500 100% Environmental Screening Semiconductor Packaged Diodes

Step	Process	Conditions	Comments
1	Visual Inspection	MIL-STD-750, Meth 2073	Performed at Chip Level Prior to Assembly
2	Pre-Cap Visual	MIL-STD-750, Meth 2074	—
3	Temperature Storage	MIL-STD-750 Meth 1032	t = ___ Hours, T _A = +150 °C
4	Temperature Cycling	MIL-STD-750 Meth 1051, Cond F	20 Cycles, t _{EXT} = 10 min T _A = -65 °C to +150 °C
5	Constant Acceleration	MIL-STD-750 Meth 2006	20,000g min Y1 Axis Only (Au Ribbon/Wire Bond Only)
6	PIND	MIL-STD-750 Meth 2052, Cond A	Shock Pulse = 1000 + 200g, Noise = +20 mV Peak to Peak
7	FIST/BIST (Axial Lead Diodes Only)	MIL-STD-750 Meth 2081 (FIST), 2082(BIST)	A _{CC} = __, Pulse = __, t = __mS, f = __Hz _Blows in Direction, V = __V, I = __A
8	Fine Leak	MIL-STD-750 Meth 1071, Cond H	5 x 10 ⁻⁸ atm cc ³ /s max
9	Gross Leak	MIL-STD-750 Meth 1071, Cond C	—
10	Initial Electricals	Ir (or as specified)	Read & Record Serialize Diode

MIL-PRF-19500 100% Environmental Screening Semiconductor Packaged Diodes (continued)

Step	Process	Conditions	Comments
11	HTRB1	MIL-STD-750 Meth 1038, Cond A	t = 48 Hours min, T _A = +150 °C, V _R = ___ V
12	Interim Electricals	I _r (or as specified)	Read & Record within 16 Hours from Removal of Applied Bias
13	Delta HTRB Measurements	Delta I _r = + _nA or 100% (whichever is greater)	Read & Record Delta I _r from Initial-to-Interim Electrical Test
14	PDA	PDA = 5% max, Actual PDA = ___	PDA = (Qty Rej Delta I _r /qty Acc Delta I _r) x 100
15	Forward Burn In ¹	MIL-STD-750 Meth 1038, Cond B	t = 240 Hours min, T _A = + °C, I _f = mA
16	Final Electricals	I _r (or as specified)	Read & Record w/in 96 Hours from Removal of Applied Bias
17	Delta Forward B Measurements	Delta I _r = + nA or 100% (whichever is greater)	Read & Record Delta I _r from Interim to Final Electrical Test
18	PDA	PDA = 5% max, Actual PDA = ___	
19	Fine Leak	MIL-STD-750 Meth 1071, Cond H	5 x 10 ⁻⁸ atm cc ³ /s max
20	Gross Leak	MIL-STD-750 Meth 1071, Cond C	
21	Radiography	MIL-STD-750, Meth 2076	2 Views, X and Y
22	External Visual Inspection	MIL-STD-750 Meth 2071	

Note:

1. Burn-In methods and conditions to be provided by customer and agreed upon by engineering.

MIL-PRF-19500 Group B Conformance Inspection

Group B Inspection	Sample Size ^{1, 2}	Conditions	Comments
Subgroup 1		Electrical Rejects may be used	
Physical Dimensions	22 (8)	MIL-STD-750 Meth 2066	Specified Case Outline Dimensions
Subgroup 2		Electrical Rejects may be used	
Solderability	15 (6) Leads	MIL-STD-750 Meth 2026	Leads from a Minimum of 3 Devices shall be tested
Resistance to Solvents	15 (6)	MIL-STD-750 Meth 1022	
Subgroup 3			
Temperature Cycling	22 (6)	MIL-STD-750 Meth 1051, Cond F	45 Cycles including Screening, t _{EXT} = 10 min T _A = -65 °C to +150 °C (JANS 100 Cycles)
Thermal Shock	22 (6)	MIL-STD-750 Meth 1056, Cond B	10 Cycles (JANS 25 Cycles) (Glass Axial Lead Only)
Surge	22 (6)	—	Only When Specified
Fine Leak	22 (6)	MIL-STD-750, Meth 1071, Cond H	5 x 10 ⁻⁸ atm cc ³ /s max
Gross Leak	22 (6)	MIL-STD-750 Meth 1071, Cond C	
Electrical Tests ³	22 (6)	—	Read & Record
Intermittent Operating Life	22 (12)	MIL-STD-750 Meth 1037, 2000 Cycles	Submit to 6000 Cycles to Satisfy Group C Subgroup 6 Requirement
Electrical Tests ³	22 (12)	—	Read & Record
De-cap Internal Visual	6 (6)	MIL-STD-750 Meth 2075	Decap Devices
Bond Strength	22 (12) Wires or 1 (6) Devices	MIL-STD-750 Meth 2037	Use for Die Shear
SEM	22 (12)	MIL-STD-750, Meth 2077	When Specified
Die Shear	11 (6)	MIL-STD-750, Meth 2017	Use Bond Pull Samples
Subgroup 4			
Intermittent Operating Life	22 (12)	MIL-STD-750 Meth 1037, 2000 Cycles	Submit to 6000 Cycles to Satisfy Group C Subgroup 6 Requirement
Electrical Tests	22 (12)	—	Read & Record Satisfy with Group C Subgroup 6
Subgroup 5			
Accelerated Steady State Life	22 (12)	MIL-STD-750, Meth 1027 Schottky = T _j max, 240 Hours.	t = 96 Hours, T _A = +275 °C V _R = V(pk), I _o = mA, f = Hz
Electrical Tests ³	22 (12)	—	Read & Record
Subgroup 6			
Thermal Resistance	22 (8)	MIL-STD-750 Meth 408 (Meth 3101 Option JANS)	Read & Record
High Temp Life (Non-operating)	22 (12)	MIL-STD-750 Meth 1032	t = 340 Hours, T _A = T STG (max)
Electrical Tests ³	22 (12)	—	Read & Record

Notes:

1. Small lot sample size defined in parentheses (). Group A small lot sampling. Group B small lot sampling.
2. Electrical test parameters shall be defined by product type and specific requirements; test limits at temperature may vary from those published in this catalog.
3. Endpoint electrical tests parameters shall be defined by product type and specific requirements.

Detailed specifications can be found on our website at macom.com by typing the part number into the search box. All specifications are subject to change.

MIL-PRF-19500 Group C Conformance Inspection (all levels)			
Group C Inspection	Sample Size ^{1, 2}	Conditions	Comments
Subgroup 1			
Physical Dimensions	15 (6)	MIL-STD-750, Meth 2066	—
Subgroup 2			
Thermal Shock	22 (6)	MIL-STD-750 Meth 1056, Cond A	Glass Axial Lead Only
Terminal Strength	22 (6)	MIL-STD-750 Meth 2036, Cond E	Leaded Packages Only, w = _oz.; t = _sec
Fine Leak	22 (6)	MIL-STD-750 Meth 1071, Cond H	5 x 10 ⁻⁸ atm cc ³ /s max
Gross Leak	22 (6)	MIL-STD-750 Meth 1071, Cond C	—
Moisture Resistance	22 (6)	MIL-STD-750, Meth 1021	Omit Initial Conditioning
End-point Electricals ²	22 (6)	—	Read & Record
Subgroup 3			
Shock	22 (6)	MIL-STD-750 Meth 2016	Non-operating, 1500G, 0.5 ms, 5 Blows X1, Y1, Z1
Variable Frequency	22 (6)	MIL-STD-750 Meth 2056	—
Acceleration	22 (6)	MIL-STD-750 Meth 2006	1 Minute min, 20K g X1, Y1, Z1
End-point Electricals ²	22 (6)	—	Read & Record
Subgroup 4			
Salt Atmosphere	15 (6)	MIL-STD-750, Meth 1041	Electrical Rejects may be used
Subgroup 5			
Thermal Resistance	15 (6)	MIL-STD-750, Meth 4081	Read & Record
Subgroup 6			
Intermittent Operating Life	22 (12)	MIL-STD-750, Meth 1037 6000 Cycles	Units from Group B-2000 Cycle Test may be used to Complete the 6000 Cycles
End-point Electricals ²	22 (12)	—	Read & Record
Bond Strength	11 Wires	MIL-STD-750 Meth 2037	Only when Group B Units Continue to Satisfy Group C Requirement, Read & Record
Subgroup 7			
Internal Water Vapor	3	MIL-STD-750, Meth 1018	3 Devices c = 0 or 5 Devices c = 1

Notes:

1. Small lot sample size defined in parentheses ().
2. Electrical test parameters shall be defined by product type and specific requirements; test limits at temperature may vary from those published in this catalog.

MIL-PRF-38534 100% Environmental Screening Hybrid Devices & MMICs					
Step	Process	MIL-STD-883 Test Method	Comments	K	H
1	Non Destruct Bond Pull	2023	—	X	—
2	Internal Visual	017	—	X	X
3	Temperature Cycling	1051	Cond C; 10 Cycles	X	X
4	Constant Acceleration	2001	Cond B; Y1 Only	X	X
5	PIND	2020	Cond A	X	Optional
6	Pre Burn-In Electrical Test	In Accordance with Device Specification	Read & Record, Serialize	X	X
7	Burn-In	1015	—	X	—
10	Interim Electricals	In Accordance with Device Specification	Read & Record	X	—
11	Burn-In	1015	—	X	X
12	Final Electricals	In Accordance with Device Specification	Read & Record	X	X
13	Fine Leak	1014	—	X	X
14	Gross Leak	1014	—	X	X
15	Radiography	2012	2 Views, X and Y	X	—
16	External Visual Inspection	2009	—	X	X

Notes:

1. Burn-In methods and conditions to be provided by MACOM. If provided by customer, MACOM reserves the right to review and approve conditions.
2. PDA for Class H is 10% or 1 device. Class K is 2% or 1 device.

MIL-PRF-38534 Group B Performance Inspection			
Group B Inspection	Sample Size ^{1, 2}	MIL-STD-883 Test Method	Comments
Subgroup 1	2 (0)		
Physical Dimensions		2016	
Subgroup 3	3 (0)		
Resistance to Solvents		2015	
Subgroup 4	1 (0)		
Internal Visual and Mechanical		2014	
Subgroup 5	2 (0)		
Bond Strength		2011	Condition C; 100 Cycles
Subgroup 6	2 (0)		
Die Shear Strength		2019	
Subgroup 7	1 (0)		
Solderability		2003	Solder Temperature + 245 °C + 5 °C
Subgroup 8	5 (0)		
Fine Leak		1014	Class H Only
Gross Leak		1014	Class H Only

Notes:

1. Small lot sample size with defects allowed provided in parentheses ().
2. Electrical test parameters shall be defined by product type and specific requirements; test limits at temperature may vary from those published in this catalog

MIL-PRF-38534 Group C Performance Inspection (all levels)			
Group C Inspection	Sample Size ^{1, 2}	MIL-STD-883 Test Method	Comments
Subgroup 1	5 (0)		
Resistance to Soldering Heat		2036	
External Visual		2009	
PIND		2020	Condition A
Temperature Cycle		1010	Condition C; 100 Cycles
Mechanical Shock		2002	B, Y1 Direction
Constant Acceleration		2001	5000g, Y1 Direction
Random Vibration		2026	Condition A
Fine Leak		1014	
Gross Leak		1014	
PIND		2020	A, 1 Pass
Visual Examination		1010	Omit Initial Conditioning
End-point Electricals ²			Read & Record
Subgroup 2	5 (0)	1014	
Steady State Life Test		1005	1,000 Hours @ +125 °C or Equivalent
End-point Electricals ²			Read & Record
Subgroup 3	3 (0) or 5 (1)		
Internal Water Vapor		1018	
Subgroup 4	2 (0)		
Internal Visual		2017	
Wire Bond Strength		2011	
Element Shear		2019 or 2027	
Subgroup 5	3 (0)		
End-point Electricals ²			Group A-1
ESDS		3015	
End-point Electricals ²			Group A-1

Notes:

1. Small lot sample size with defects allowed provided in parentheses ().
2. Electrical test parameters shall be defined by product type and specific requirements; test limits at temperature may vary from those published in this catalog.

MIL-PRF-38534 Group D Performance Inspection			
Group D Inspection	Sample Size ^{1, 2}	MIL-STD-883 Test Method	Comments
Subgroup 1	5 (0)		
Thermal Shock	5 (0)	2016	Condition C
Stabilization Bake	5 (0)	1008	+150 °C, 1 Hour
Lead Integrity	1 (0)	2004	
Fine Leak	5 (0)	1014	Condition A or B
Gross Leak	5 (0)	1014	Condition C or D
Subgroup 3			
Salt Atmosphere	5 (0)	1009	Condition A
Subgroup 4			
Metal Package Isolation	3 (0)	1003	600 V DC, 100 nA Maximum

PEM-INST-001					
Step	Baseline Screening Step IAW PEM-INST-001	Test Method/Condition	Level 1 (Highest)	Reliability Level Level 2	Level 3 (Lowest)
1	External Visual/Serialization	Per Requirement (per Note 1)	X	X	X
2	Temperature Cycling	MIL-STD-883 Method 1010 Cond B or Manufacturers Rated Storage Temperature Range	20	20	20
3	Radiography	Per Requirement (Note 1)	X	X	X
4	C-SAM22 (6)	Per Requirement (Note 1)	X	X	X
5	Initial Pre Burn-in Electrical Test	IAW Device Specifications at T _A = +25 °C min/max Rated Operating Temperatures	X X	X X	X
6	Engineering Review	IAW Device Specifications/Requirements Steps 1 – 5			
7	Static Burn-in	MIL-STD-883 Method 1010 Cond A or B IAW Device Specifications/Requirements	240 Hours @ 125 °C	160 Hours @ 125 °C	160 Hours @ 125 °C
8	Post Static Burn-in Electrical Test	IAW Device Specifications/Requirements Calculated Delays When Applicable at T _A = +25 °C	X	X	X
9	Dynamic Burn-In	MIL-STD-833 Method 1015 Cond D IAW Device Specifications/Requirements	240 Hours @ 125 °C	160 Hours @ 125 °C	160 Hours @ 125 °C
10	Final Electrical Test	IAW Device Specifications at T _A = +25 °C min/max Rated Operating Temperatures	X	X	X
11	Calculated PDA Steps 7 – 10	Maximum Acceptance PDA	5%	10%	10%
12	External Visual Inspection	Per Requirements (per Note 1)	X	X	X

Notes:

1. "Per Requirement" will depend upon customer/application requirements. (Default will be MIL/Aero Standards and Specifications and/or PEM-INST-001).
2. Custom screening to the above baseline table is available. (Consult with Factory)
3. IQCI will follow requirements detailed in PEM-INST-001 as well as customer/application specific requirements

MACOM is Qualified to Perform the Following MIL-STD-750 Test Methods

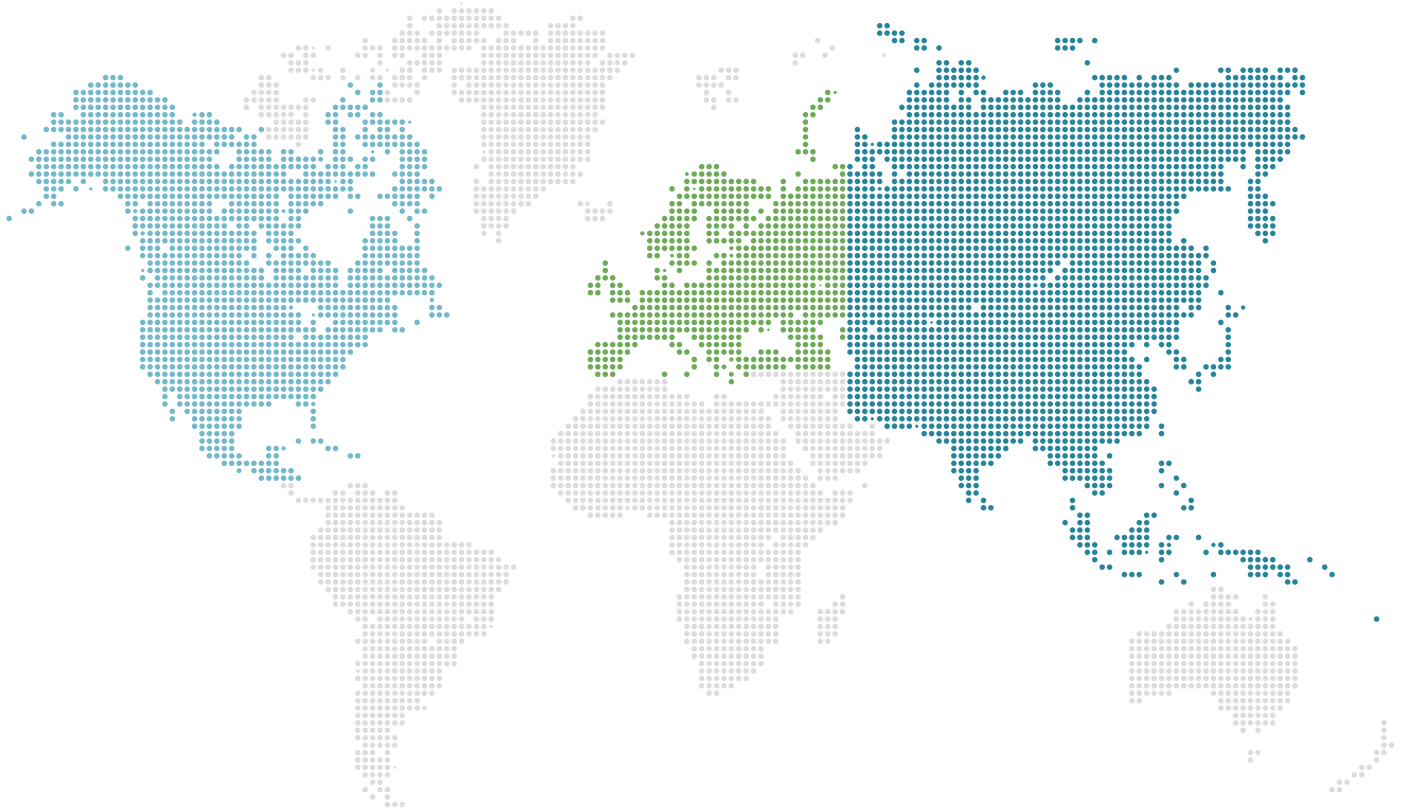
Test Method	Test Condition	MIL-STD-750 Method Title
1016		Insulation Resistance
1020		ESD Test Method
1021		Moisture Resistance
1022		Resistance to Solvents
1026		Steady-State Operation Life
1027		Steady-State Operation Life (sample plan)
1031		High Temperature Life Non-Operating
1032		High Temperature Life (non-operating)
1033	A, B	Reverse Voltage Leakage Stability
1037		Intermittent Operation Life
1038	A, B	HTRB Burn-In & Power Burn-In
1039	A, B	HTRB Power Burn-In
1040	A, B	Burn-In (Thyristors Controlled Rectifiers)/Blocking Voltage Test
1041		Salt Atmosphere
1048		Blocking Life
1051	A, F, G	Temp Cycling (Air-to-Air) and LN2
1054		Potted Environment Stress Test
1055		Monitored Mission
1056	A, B, D	Thermal Shock
1057	B	Glass Cracking
1071	A, B, E, G1	Hermetic Seal
1081		Dielectric Withstanding Voltage
2005		Axial Lead Tensile Test
2006	A thru E	Constant Acceleration
2017	A	Die Attach Integrity (Die Shear)
2026		Solderability
2031	A, B	Resistance to Soldering Heat
2036	A, E	Terminal Strength
2037	D	Bond Strength (Destructive Bond Pull Test)
2038		Surface Mount End Cap Bond Integrity
2052	A	PIND Test
2066		Physical Dimensions
2068		Visual Inspection for Non Transparent Devices
2071		Visual and Mechanical Inspection
2072		Internal Visual Inspection (Pre-Cap)
2073		Chip and Die Visual Inspection
2074		Internal Visual Inspection
2075		Decap Internal Visual Design Verification
2078		Internal Visual For Wire Bonded Diodes and Rectifiers
2101SB		DPA Procedures for Diodes (Scribe and Break only)
3001		Breakdown Voltage, Collector to Base
3011		Breakdown Voltage, Collector to Emitter
3036		Collector to Base Cutoff Current
3041		Collector to Emitter Cutoff Current
3051		Safe Operating Area
3053		Safe Operating Area (Switching)

Test Method	Test Condition	MIL-STD-750 Method Title
3061		Emitter to Base Cutoff Current
3066		Base Emitter Voltage (Saturated or Nonsaturated)
3071		Saturation Voltage and Resistance
3076		Forward-Current Transfer Ratio
3100		Junction Temperature Measurement
3101		Thermal Impedance Testing of Diodes
3131		Thermal Impedance Testing of Transistors
3181		Thermal Resistance for Thyristors
3201		Small-Signal, Short-Circuit Input Impedance
3206		Small-Signal, Short-Circuit Forward-Current Transfer Ratio
3211		Small-Signal, Short-Circuit Reverse-Voltage Transfer Ratio
3216		Small-Signal, Open-Circuit Output Admittance
3236		CIBO Measurement
3240		CIBO Measurement
3246		Noise Figure
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