

MONOLITHIC AMPLIFIERS 50 Ω

BROADBAND DC to 3 GHz



up to +17.5 dBm output

MODEL NO.	FREQ. Φ (MHz)	GAIN (dB) Typical at MHz				MAXIMUM POWER (dBm)		DYNAMIC RANGE		VSWR (:1) Typ.		ABSOLUTE MAXIMUM RATING ⁷ (25°C)		DC OPERATING POWER ⁸ at Pin 3		THERMAL RESIS- TANCE ⁵ θ_{jc} °C/W	CASE STYLE Note B1	CON- NEC- TION
		100	1000	2000	Note 1 Min.	Output (1 dB Comp.) Typ.	Input (no damage) Typ.	NF (dB) Typ.	IP3 (dBm) Typ.	In	Out	I (mA)	P (mW)	Current (mA)	Volt. Typ.			
MAR-1SM	DC-1000	18.5	15.5	—	13.0	+1.5	+13	5.5	+14.0	1.3	1.2	40	200	17	5.00	115	WW107	cb
MAR-2SM	DC-2000	12.5	12.0	11.0	8.5	+4.5	+13	6.5	+17.0	1.5	1.4	60	325	25	5.00	105	WW107	cb
MAR-3SM	DC-2000	12.5	12.0	10.5	8.0	+10.0	+13	6.0	+23.0	1.5	1.7	70	400	35	5.00	115	WW107	cb
MAR-4SM	DC-1000	8.3	8.0	—	7.0	+12.5	+13	7.0	+25.5	1.5	1.9	85	500	50	5.25	100	WW107	cb
MAR-6SM	DC-2000	20.0	16.0	11.0	9.0	+2.0	+13	3.0	+14.5	1.7	1.7	50	200	16	3.50	120	WW107	cb
MAR-7SM	DC-2000	13.5	12.5	11.0	8.5	+5.5	+13	5.0	+19.0	1.7	1.7	60	275	22	4.00	120	WW107	cb
MAR-8SM	DC-1000	32.5	22.5	—	19.0	+12.5	+13	3.3	+27.0	#	#	65	500	36	7.80	140	WW107	cb
MAV-11SM	50-1000	12.7	10.5	—	9.0	+17.5	+13	3.6	+30.0	1.5	1.7	80	550	60	5.50	125	RRR137	cb

NOTES:

- ◆ Aqueous washable.
- ☆ Increases below 1500 MHz.
- * RAM models are hermetically sealed.
- ★ Max. Voltage 7V at pin 1 (DC power). Max. voltage 10V at pins 3,6, DC or transient.
- ❖ Price of RAM models is for 1-9 quantity.
- # Dash-8 models input and output impedances are not 50 ohms, see S-parameter data. Conditionally stable, source and load VSWR<3:1 required. Dash-6 models conditionally stable, source and load VSWR<5:1 required.
- ⊕ Low frequency cutoff determined by external coupling capacitors.
- † Specification at 500 MHz.
- †† Specification at 2500 MHz.
- A. Environmental specifications and re-flow soldering information available in General Information Section.
- B1. Units are non-hermetic unless otherwise noted. Details on case dimensions & finishes in "Case Styles & Outline Drawings". Case styles VV105 or BBB123 available, consult factory.
- C. Prices and Specifications subject to change without notice.
- 1. Minimum gain at highest frequency, except VAM-93 at 2 GHz. Full temperature range, except room temperature for Dash-4 models.
- 2. Model number designated by color dot or alphanumeric code marking.
- 3. Frequency at which output power, NF and IP3 are specified: 500 MHz for MAR-1SM, MAR-6SM, RAM-1, RAM-6, MAV-11SM, VAM-6, 2 GHz for VAM-93, 1000 MHz for all other models.
- 4. Dash-6 models potentially unstable with very high VSWR terminations.
- 5. Thermal resistance θ_{jc} is from hottest junction in device to mounting surface of leads.
- 6. Permanent damage may occur if any of these limits are exceeded. These ratings are not intended for continuous normal operation.
- 7. Supply voltage must be connected to pin 3 through a bias resistor in order to prevent damage. See "Biasing MMIC Amplifiers" in minicircuits.com/application.html. Reliability predictions are applicable at specified current & normal operating conditions.

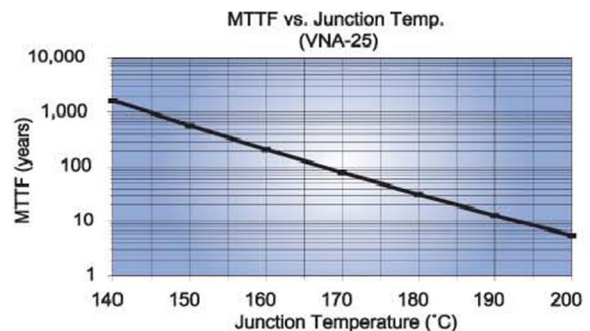
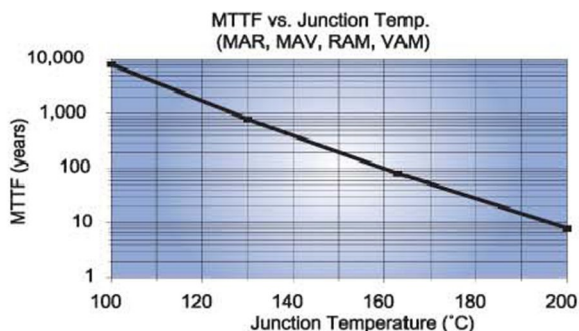
model identification

Model marking (see note below)

MAR-1SM (see note below)	01
MAR-2SM	02
MAR-3SM	03
MAR-4SM	04
MAR-6SM	06
MAR-7SM	07
MAR-8SM	08
RAM-1	1 or 01
RAM-2	2 or 02
RAM-3	3 or 03
RAM-4	4 or 04
RAM-6	6 or 06
RAM-7	7 or 07
RAM-8	8 or 08
MAV-11SM	A
VAM-3	03
VAM-6	06
VAM-7	07
VAM-93	93
VNA-25	-25

Notes:

- Prefix letter (optional) designates assembly location.
- MAR-1SM: limited availability; consult factory.



Surface Mount



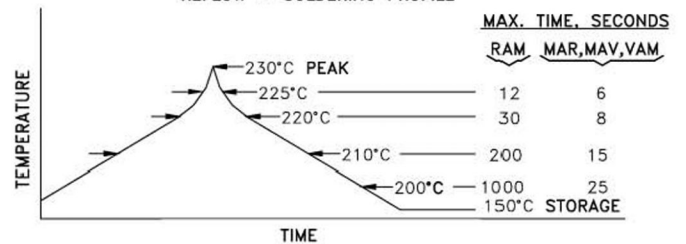
up to +18.2 dBm output

MODEL NO.	FREQ. (MHz)	GAIN (dB) Typical at MHz					MAXIMUM POWER (dBm)		DYNAMIC RANGE		VSWR (:1) Typ.		ABSOLUTE MAXIMUM RATING ⁷ (25°C)		DC OPERATING POWER ⁸ at Pin 3		THERMAL RESISTANCE ⁵ θ_{jc} °C/W	CASE STYLE Note B	CONNECTION
		100	1000	2000	3000	Note 1 Min.	Output (1 dB Comp.) Typ.	Input (no damage)	NF (dB) Typ.	IP3 (dBm) Typ.	In	Out	I (mA)	P (mW)	Current (mA)	Volt Typ.			
* RAM-1	DC-1000	19.0	15.5	—	—	13.0	+1.5	+13	5.5	+14.0	1.3	1.3	40	200	17	5.00	150	AF190	cb
* RAM-2	DC-2000	12.5	11.8	11.0	—	8.5	+4.5	+13	6.5	+17.0	1.2	1.4	60	325	25	5.00	145	AF190	cb
* RAM-3	DC-2000	12.5	12.0	10.5	—	8.0	+10.0	+13	6.0	+23.0	1.6	1.7	80	425	35	5.00	150	AF190	cb
* RAM-4	DC-1000	8.5	8.0	—	—	7.0	+12.5	+13	6.5	+25.5	1.4	1.9	100	540	50	5.25	140	AF190	cb
* RAM-6	DC-2000	20.0	16.0	11.0	—	9.0	+2.0	+13	2.8	+14.5	1.4	1.3	50	200	16	3.50	155	AF190	cb
* RAM-7	DC-2000	13.5	12.5	11.0	—	8.5	+5.5	+13	4.5	+19.0	2.0	1.8	60	275	22	4.00	155	AF190	cb
* RAM-8	DC-1000	32.5	23.0	—	—	19.0	+12.5	+13	3.0	+27.0	#	#	65	420	36	7.80	175	AF190	cb
VAM-3	DC-2000	11.5	11.0	9.5	—	7.5	+9.0	+13	6.0	+22.0	1.5	1.7	60	240	35	4.70	500	MMM168	cb
VAM-6	DC-2000	19.5	15.0	10.0	—	8.0	+2.0	+13	3.0	+14.0	1.6	1.5	40	125	16	3.30	505	MMM168	cb
VAM-7	DC-2000	13.0	12.0	9.8	—	7.8	+5.5	+13	5.0	+18.0	1.5	1.5	50	175	22	3.80	505	MMM168	cb
NEW VAM-93	DC-3000	22.3	21.2	19.1	17.1	17.0	+12.7	+13	3.7	+27.0	1.5	1.1	75	330	35	3.2	159	MMM168	cb
VNA-25	500-2500	14.0†	18.0	16.0††	—	11.5	+18.2	+10	5.5	+27.0	1.5★	1.6	105	1000	85	5.0★	125	XX211	hj

features

- cascadable
- excellent repeatability
- wide bandwidth, DC to 2500 MHz
- unconditionally stable, most models
- low cost
- hermetically sealed, RAM models
- low noise figure, 2.8 dB typ
- high output power, up to +18 dBm typ

REFLOW - SOLDERING PROFILE



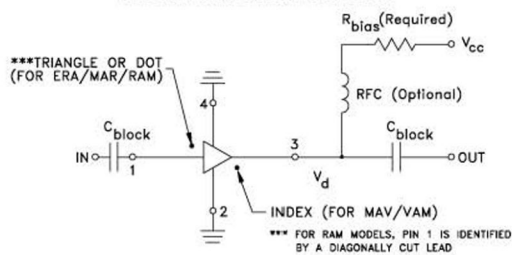
pin connections

PORT	cb	hj
RF IN	1	3
RF OUT	3	6
DC	3	1
GND EXT	2,4	2,4,5,7,8
NOT USED	—	—

NSN GUIDE

MCL NO.	NSN
MAR-1SM	5962-01-414-8635
MAR-3SM	5962-01-423-1569
MAR-6SM	5962-01-460-6063
RAM-6	5996-01-450-5504

typical biasing configuration ERA/MAR/MAV/RAM/VAM



biasing configuration VNA

