

# MONOLITHIC AMPLIFIERS 50 Ω

## BROADBAND DC to 6 GHz



up to +18.5 dBm output

MODEL NO.	FREQ. (MHz)	GAIN (dB) Typical at MHz				MAXIMUM POWER (dBm)		DYNAMIC RANGE	VSWR (:1) Typ.		ABSOLUTE MAXIMUM RATING <sup>6</sup> (25°C)		DC OPERATING POWER <sup>7</sup> at Pin 3		THERMAL RESISTANCE <sup>5</sup> θ <sub>jc</sub> °C/W	CASE STYLE Note B1	CONNECTION	PRICE \$ Qty. (30)
		100	1000	2000	Note 1 Min.	Output (1 dB Comp.) Typ.	Input (no damage)		NF (dB) Typ.	IP3 (dBm) Typ.	In	Out	I <sub>P</sub> (mA)	P (mW)				
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	1.04
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	1.17
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	1.24
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	1.34
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	1.21
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	1.36
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	1.32
NEW 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	1.62
MAV-11A	50-2000	12.5	11.5	10.2	9.0	+18.5	+13	4.8 +35.0	1.4	1.1	80	550	60	5.50	130	DH820	cb	1.29

see suggested PCB layout PL-075 for MAR models

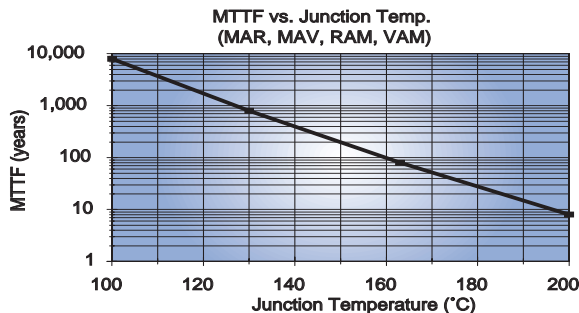
### NOTES:

- ◆ Aqueous washable
- \* RAM models are hermetically sealed.
- ☆ Increases below 1500 MHz.
- # 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, except VNA-25
- 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-77, VAM-93 at 2 GHz. Full temperature range, except room temperature for Dash-4 models.
  2. Model number designated by 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-77, VAM-93, 1000 MHz for all other models.
  4. Dash-6 models potentially unstable with very high VSWR terminations.
  5. Thermal resistance θ<sub>jc</sub> 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](http://minicircuits.com/application.html). Reliability predictions are applicable at specified current & normal operating conditions.

### model identification

Model	marking (see note below)
MAR-1SM	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
MAV-11A	11
VAM-3	03
VAM-6	06
VAM-7	07
VAM-77	77
VAM-93	93

Notes:  
- Prefix letter (optional) designates assembly location.



## Surface Mount



\* RAM



VAM

up to +12.7 dBm output

MODEL NO.	FREQ. (MHz)	GAIN (dB) Typical at MHz					MAXIMUM POWER (dBm) Output (1 dB Comp.) Typ.	Input (no damage)	DYNAMIC RANGE NF (dB) Typ.	IP3 (dBm) Typ.	VSWR (:1) Typ.		ABSOLUTE MAXIMUM RATING <sup>5</sup> (25°C) I (mA)		DC OPERATING POWER <sup>7</sup> at Pin 3 Current (mA)		THERMAL RESIS- TANCE <sup>5</sup> $\theta_{jc}$ °C/W	CASE STYLE Note B1	CON- NECT- ION	PRICE \$ Qty. (1-9)	
		100	1000	2000	3000	Note 1 Min.					In	Out	P (mW)	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	4.95		
* 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	4.95		
* 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	4.95		
* 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	4.95		
* 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	4.95		
* 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	4.95		
* 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	4.95		
																			Qty. (30)		
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	1.19		
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	1.16		
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	1.31		
NEWVAM-77	DC-6000	13.9	13.6	12.9	12.5	11.2	9.9	11.0	+4.0	+13	3.8	+18.0	1.3	1.5**	50	175	194	MMM168	cb	1.19	
NEWVAM-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	1.19

see suggested PCB layouts: PL-075 for RAM models

### features

- cascadable
- excellent repeatability
- wide bandwidth, up to 6000 MHz
- unconditionally stable, most models
- hermetically sealed, RAM models
- high output power, up to +12.7 dBm typ
- low cost

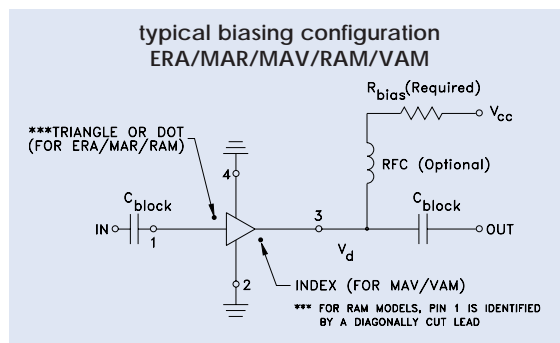
### pin connections

PORT	cb
RF IN	1
RF OUT	3
DC	3
GND EXT	2,4

### 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

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