Drop-In

Monolithic Amplifiers

MAR+ SERIES

50Ω DC to 2000 MHz

CASE STYLE: VV105

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

Features

- wideband, DC to 2000 MHz
- high gain, up to 32.5 dB @ 100 MHz
- low noise
- MAR-1+, MAR-3+, MAR-4+ are equivalent to MSA-0185, MSA-0385, MSA-0485, respectively.
- cascadable
- protected by US Patent, 6,943,629 (except MAR-6+)

Applications

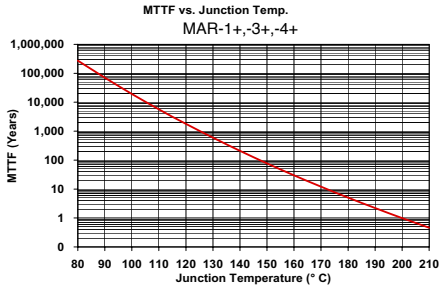
- cellular
- PCN instrumentation

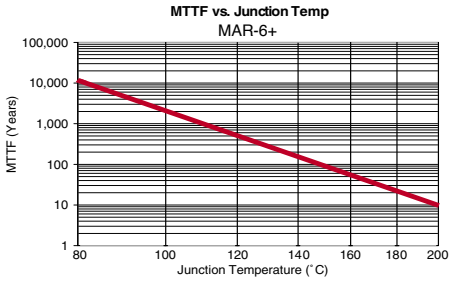
Electrical Specifications *

MODEL NO.	FREQ.[2] (MHz)		GAIN (dB) Typical at MHz				MAXIMUM POWER (dBm)		DYNAMIC RANGE		VSWR (:1) Typ.		ABSOLUTE MAXIMUM RATING[6] (25ºC)		DC OPERATING POWER[7] at Pin 3		THERMAL RESISTANCE[5]	PRICE $
	f_L	f_U	100	1000	2000	Note 1 Min.	Output (1 dB Compr.) Typ.	Input (no damage)	NF (dB) Typ.	IP3 (dBm) Typ.	In	Out	I (mA)	P (mW)	Current (mA)	Device Volt Typ.	ºC/W	Qty. (30)
MAR-1+	DC	1000	17.8	16.5	—	15	+2.5	+13	3.5	+14.0	1.3	1.2	40	200	17	5.0	115	0.99
MAR-3+	DC	2000	12.5	12.0	10.5	8.0	+10.0	+13	6.0	+23.0	1.5	1.7	70	400	35	5.0	115	1.19
MAR-4+	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	1.29
MAR-6+	DC	2000	22	20	17	15	+3.0	+13	3.0	+14.5	1.7	1.7	50	200	16	3.50	120	1.16

* Test data based on models tested with bent leads per case style WW107

NOTES:
1. Minimum gain over the full frequency range and temperature range.
2. Low frequency cutoff determined by external coupling capacitors.
3. Frequency at which output power, NF and IP3 are specified: 500 MHz for MAR-1+ and MAR-6+, 1000 MHz for all other models.
4. MAR-6+ models potentially unstable with very high VSWR terminations.
5. Thermal resistance θjc 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.





Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

Pin Connections

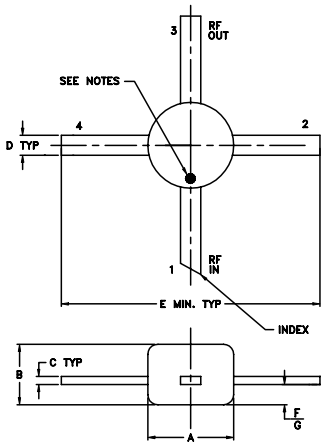
RF IN	1
RF OUT	3
DC	3
GROUND	2,4

Model Identification

Model No.	Marking†
MAR-1+	A01
MAR-3+	A03
MAR-4+	A04
MAR-6+	A06

†Prefix letter (optional) designates assembly location

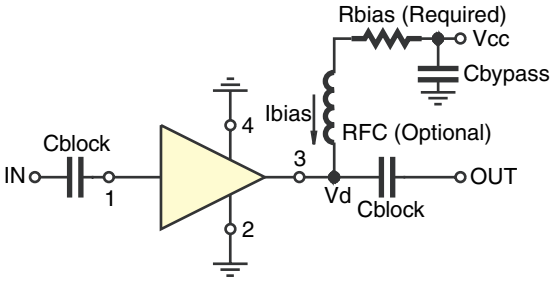
Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	wt
.085	.060	.008	.020	.250	.012	.025	grams
2.16	1.52	0.20	0.51	6.35	0.30	0.64	.015

Typical Biasing Configuration



Resistor Values (“1%” Res.)				
Vcc	**MAR-1+**	**MAR-3+**	**MAR-4+**	**MAR-6+**
7	118	57.6	34.8	215
8	178	86.6	54.9	280
9	237	115	75	340
10	294	143	95.3	402
11	357	169	115	464
12	412	200	133	536
13	464	226	154	590
14	536	255	174	665
15	590	287	196	715