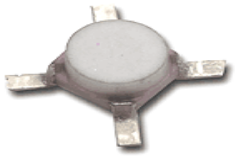
MSA-0736

6V Fixed Gain, General Purpose Amplifier

Description

Lead (PB) Free
RoHS 6 fully compliant

Lifecycle status: Active



Features

The MSA-07 is a general purpose 6V cascadable 50ohm gain block targeted for narrow and wide bandwidth IF amplifier applications. It is offered in a wide variety of plastic and ceramic packages. Bias: 6V, 22mA; f3dB = 2.5GHz; G = 13.5dB; NF = 4.5dB; P1dB = 5.5dBm; IP3i = 2dBm

MSA-0736

Cascadable Silicon Bipolar MMIC Amplifier

Data Sheet

Description

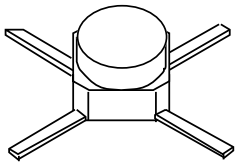
The MSA-0736 is a high performance silicon bipolar Monolithic Microwave Integrated Circuit (MMIC) housed in a cost effective, microstrip package. This MMIC is designed for use as a general purpose 50Ω gain block. Typical applications include narrow and broad band IF and RF amplifiers in industrial and military applications.

The MSA-series is fabricated using Avago's 10 GHz f_T, 25 GHz f_{MAX}, silicon bipolar MMIC process which uses nitride self-alignment, ion implantation, and gold metallization to achieve excellent performance, uniformity and reliability. The use of an external bias resistor for temperature and current stability also allows bias flexibility.

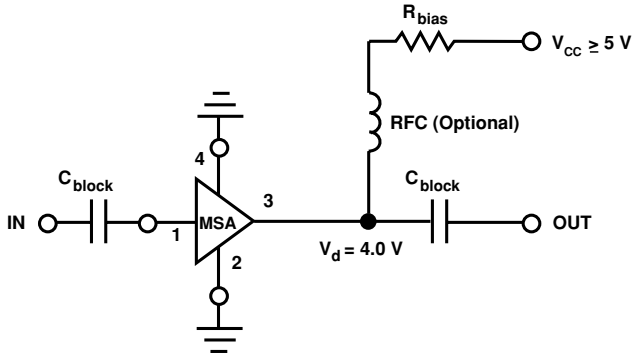
Features

- Cascadable 50Ω Gain Block
- Low Operating Voltage: 4.0 V Typical V_d
- 3 dB Bandwidth: DC to 2.4 GHz
- 13.0 dB Typical Gain at 1.0 GHz
- Unconditionally Stable (k>1)
- Cost Effective Ceramic Microstrip Package

36 micro-X Package



Typical Biasing Configuration



MSA-0736 Absolute Maximum Ratings

Parameter	Absolute Maximum[1]
Device Current	60 mA
Power Dissipation[2,3]	275 mW
RF Input Power	+13 dBm
Junction Temperature	150°C
Storage Temperature	–65 to 150°C

Thermal Resistance[2,5]:
θ_{jc} = 155°C/W

Notes:
1. Permanent damage may occur if any of these limits are exceeded.
2. T_{CASE} = 25°C.
3. Derate at 6.5 mW/°C for T_C > 157°C.
4. Storage above +150°C may tarnish the leads of this package making it difficult to solder into a circuit.
5. Ths small spot size of this technique results in a higher, though more accurate determination of θ_{jc} than do alternate methods.

Electrical Specifications[1], T_A = 25°C

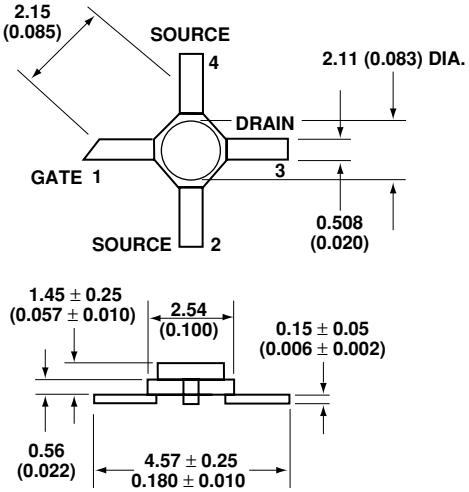
Symbol	Parameters and Test Conditions: I_d = 22 mA, Z_O = 50 Ω		Units	Min.	Typ.	Max.
G_P	Power Gain ($\|S_{21}\|^2$)	f = 0.1 GHz	dB	12.5	13.5	14.5
ΔG_P	Gain Flatness	f = 0.1 to 1.3 GHz	dB		±0.6	±1.0
$f_{3\ dB}$	3 dB Bandwidth		GHz		2.4	
VSWR	Input VSWR	f = 0.1 to 2.5 GHz			2.0:1	
	Output VSWR	f = 0.1 to 2.5 GHz			1.8:1	
NF	50 Ω Noise Figure	f = 1.0 GHz	dB		4.5	
$P_{1\ dB}$	Output Power at 1 dB Gain Compression	f = 1.0 GHz	dBm		5.5	
IP_3	Third Order Intercept Point	f = 1.0 GHz	dBm		19.0	
t_D	Group Delay	f = 1.0 GHz	psec		140	
V_d	Device Voltage		V	3.6	4.0	4.4
dV/dT	Device Voltage Temperature Coefficient		mV/°C		–7.0	

Note:
1. The recommended operating current range for this device is 15 to 40 mA. Typical performance as a function of current is on the following page.

Ordering Information

Part Numbers	No. of Devices	Comments
MSA-0736-BLKG	100	Bulk
MSA-0736-TR1G	1000	7" Reel

36 micro-X Package Dimensions



Notes:
1. Dimensions are in millimeters (inches)
2. Tolerances: in .xxx = ± 0.005
   mm .xx = ± 0.13