

## Thin Film Surface Mount Amplifier 1 to 1000 MHz

### Description

The **ASMA-301** is a 50 Ohm GaAs FET amplifier featuring internal biasing and feedback networks. The **ASMA-301** will find application in RF/Microwave systems up to 2.0 GHz requiring superior broadband, high linearity and excellent stability.

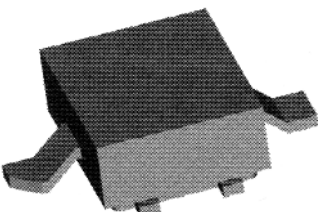
### Features

- Unconditionally Stable 50 Ohm Gain Block
- Cascadable Broadband Performance
- Single Positive Supply Operation
- Usable to 2 GHz with Simple External Matching

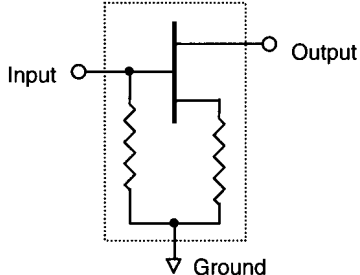
### Maximum Ratings $T_c = 25\text{ }^\circ\text{C}$

SYMBOL	RATING	UNITS
$V_D$	15	V
$P_{IN}$	+25	dBm
$T_{Ch}$	+175	$^\circ\text{C}$
$T_{SOLDER}$	+260 $^\circ\text{C}$ for 10 Seconds	$^\circ\text{C}$
$T_{STG}$	-65 to +150	$^\circ\text{C}$

**Package Style**  
Ceramic Power Pack



**Schematic**



### ELECTRICAL SPECIFICATIONS $V_D = 11.0\text{ Vdc}$

SYMBOL	Characteristics	$T_c = +25\text{ }^\circ\text{C}$ TYPICAL	$T_c = 0\text{ to }+50\text{ }^\circ\text{C}$		UNITS
			MINIMUM	MAXIMUM	
<b>BW</b>	Frequency Range	---	1	1,000	MHz
<b><math>G_p</math></b>	Small Signal Power Gain	10.5	10		dB
<b><math>\Delta G_p</math></b>	Gain Flatness	$\pm 0.6$		$\pm 1.0$	dB
<b>NF</b>	Noise Figure (100 MHz)	5.0		6.5	dB
<b><math>P_{1dB}</math></b>	Power Output at 1dB Compression	+28	+27		dBm
<b>VSWR</b>	Input	2.3:1		2.5:1	---
	Output	3.0:1		3.5:1	
<b>REV. ISOL.</b>	Reverse Isolation	22	---	---	dB
<b><math>I_{P2}</math></b>	Two Tone 2 <sup>nd</sup> Order Intercept Point	+54	---	---	dBm
<b><math>I_{P3}</math></b>	Two Tone 3 <sup>rd</sup> Order Intercept Point	+42	---	---	dBm
<b><math>H_{P2}</math></b>	Single Tone 2 <sup>nd</sup> Harmonic Intercept Point	+60	---	---	dBm
<b><math>I_D</math></b>	Device Current	200	---	240	mA



ASMA203  
26dBm, 50 Ohm Amplifier 1-300MHz

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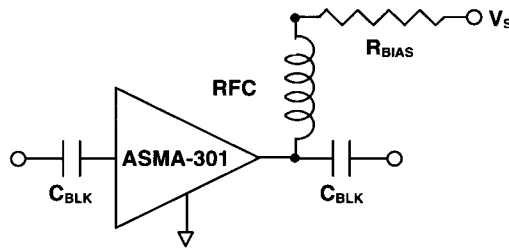
Electrical Specifications

$I_D = 250 \text{ mA}$

SYMBOL	CHARACTERISTICS	$T_C = 25^\circ\text{C}$ TYPICAL	$T_C = 0 \text{ to } 50^\circ\text{C}$		UNITS
			MINIMUM	MAXIMUM	
BW	Frequency Range	---	1	300	MHz
$G_P$	Small Signal Power Gain	13.0	12.0		dB
$\Delta G_P$	Gain Flatness	$\pm 0.2$		$\pm 0.5$	dB
NF	Noise Figure (100 MHz)	6.0			dB
$P_{1dB}$	Power Output at 1 dB Compression	+27	+26.0		dBm
VSWR	Input/	2.0:1		2.5:1	---
	Output	2.2:1		2.5:1	
REV ISO.	Reverse Isolation	19	---	---	dB
$I_{P2}$	Two Tone 2 <sup>nd</sup> Order Intercept Point	+53	---	---	dBm
$I_{P3}$	Two Tone 3 <sup>rd</sup> Order Intercept Point	+41	---	---	dBm
$H_{P2}$	Single Tone 2 <sup>nd</sup> Harmonic Intercept Point	+59	---	---	dBm
$V_D$	Device Voltage	12.5	11.5	13.5	V

# ASMA-301

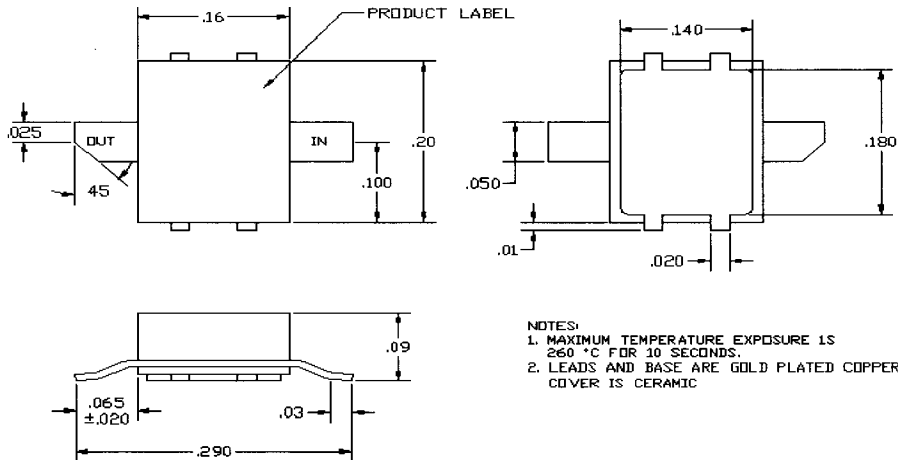
## Typical Bias Configuration



## Typical Component Values

Frequency MHz	C <sub>BLK</sub> pF	RFC μH	R <sub>BIAS</sub> Ω	V <sub>S</sub> V
100	1,500	75	5	12
500	330	15	20	15
1000	180	0.075	65	24

## Outline Drawing



- NOTES:
1. MAXIMUM TEMPERATURE EXPOSURE IS 260 °C FOR 10 SECONDS.
  2. LEADS AND BASE ARE GOLD PLATED COPPER COVER IS CERAMIC