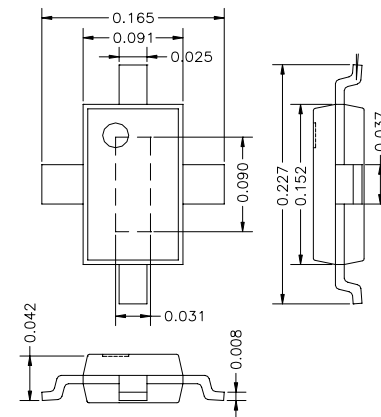




## DESCRIPTION

AMCOM's AM036MX-QG-R is a part of the QG series of GaAs MESFETs. This part has a total gate width of 3.6mm. The AM036MX-QG-R is designed for high power microwave applications, operating up to 6 GHz. The QG series is in a plastic package with all leads bent in a surface mounting style on PC Board. The bottom of the package serves simultaneously as DC ground, RF ground, and thermal path. For frequencies above 5 GHz, we recommend to mount the device directly on a metal heat sink, which is also RF ground, to avoid the inductance of via holes on PCB. This FET is RoHS Compliant.



(All dimensions in inch)

## FEATURES

- High Frequency Operation up to 6 GHz
- High Gain and High Power,  $P_{1dB}=29.5\text{dBm}$  @3.5GHz
- Plastic Package for Low Cost
- 3 Heat Sink Paths for Effective Heat Removal

## APPLICATIONS

- Wireless Local Loop Network
- PCS Base Stations
- WLAN, Repeaters & HYPERLAN
- C-Band VSAT

## RF PERFORMANCE @ 3.5 GHz, ( $V_{ds} = 5\text{V}$ , $I_{ds} = 0.5 I_{dss}$ )

Parameters	MIN	TYP
$P_{1dB}$ * (dBm)	28.5	29.5
Eff @ $P_{1dB}$	38%	42%
Small Signal Gain (dB)	11	12
IP3 (dBm)	40	42

\* Power typically remains the same as frequency changes.

## ABSOLUTE MAXIMUM RATING

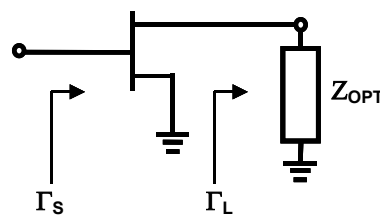
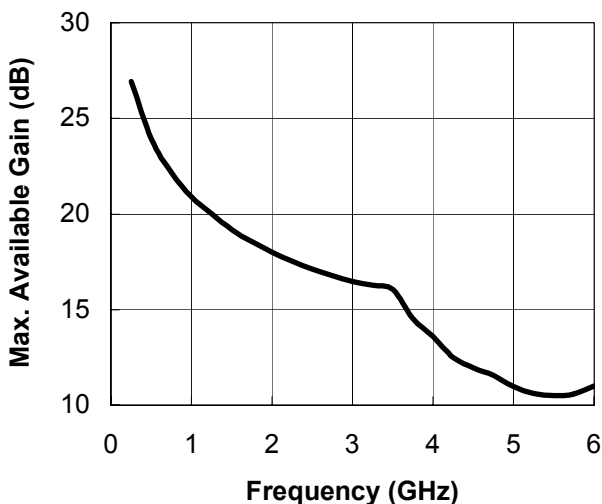
Parameters	Symbol	Rating
Drain-Source Voltage (V)	$V_{ds}$	8
Gate-Source Voltage (V)	$V_{gs}$	-5
Drain Current (mA)	$I_{ds}$	1140
Continuous Dissipation At Room Temp. (W)	$P_t$	6
Operating Temp. ( $^{\circ}\text{C}$ )	$T_A$	-55 to +85
Max. Channel Temp. ( $^{\circ}\text{C}$ )	$T_{ch}$	+175

## DC PARAMETERS

Parameters	Conditions	MIN	TYP	MAX
Saturation Current $I_{dss}$ (mA)	$V_{ds} = 3\text{V}$ $V_{gs} = 0\text{V}$	660	840	1140
Pinch-off Voltage $V_p$ (V)	$V_{ds} = 3\text{V}$ $I_{ds} = 2.5\% I_{dss}$	-2.6	-2	-1.0
Drain to Gate Breakdown Voltage $BV_{gd}$ (V)	$I_{dg} = 0.1\text{mA/mm}$	11	15	
Drain to Source Voltage $V_{ds}$ (V)	Mounted on PCB		5	
Drain to Source Voltage $V_{ds}$ (V)	Mounted on Heat Sink		7	
Thermal Resistance ( $^{\circ}\text{C/W}$ )		23.1		

S-Parameters for AM036MX-QG-R @ 5V / 0.5 I<sub>dss</sub> (s2p file downloadable from the web)

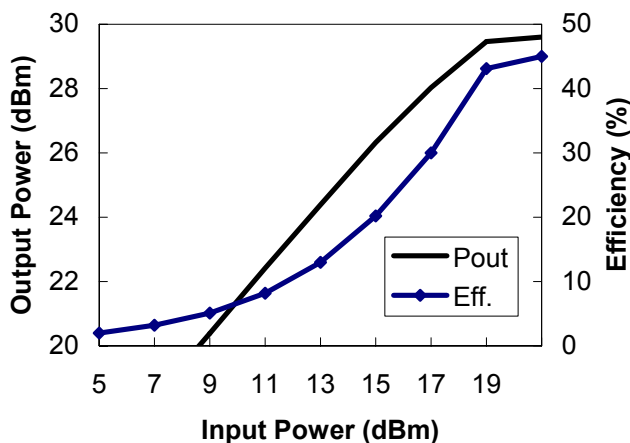
Freq (MHz)	MAG (S11)	ANG(S11)	MAG (S21)	ANG(S21)	MAG (S12)	ANG(S12)	MAG (S22)	ANG(S22)
1000	0.886	-154.852	5.179	89.68	0.04	16.656	0.593	179.953
2000	0.894	177.344	2.753	63.916	0.042	6.883	0.592	163.438
3000	0.891	157.195	1.877	43.496	0.042	1.283	0.604	153.398
4000	0.895	141.078	1.461	25.077	0.041	-1.8	0.62	143.625
5000	0.886	126.523	1.226	6.067	0.047	-2.035	0.609	131.758
6000	0.882	107.852	1.1	-14.958	0.051	-15.536	0.61	117.039



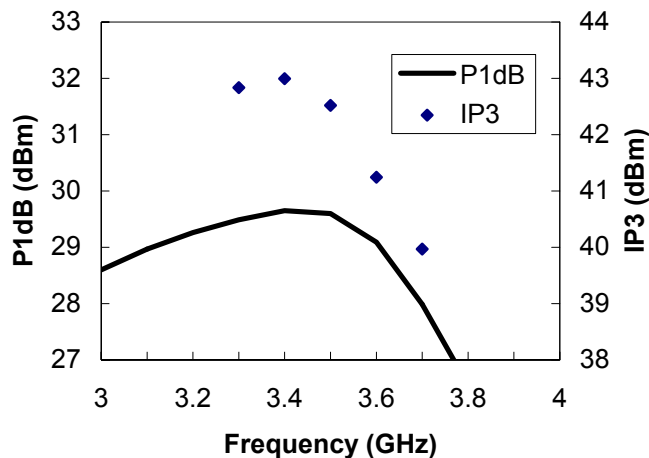
OPTIMUM LOADS

Freq GHz	Γ <sub>s</sub> MAG	Γ <sub>s</sub> ANG	Γ <sub>L</sub> MAG	Γ <sub>L</sub> ANG
1	0.943	-149.8	0.666	-173.7
2	0.937	-176.8	0.664	-167.2
3	0.934	168.1	0.661	-160.3
4	0.930	155.7	0.655	-152.8
5	0.925	143.9	0.647	-144.4
6	0.919	131.9	0.635	-134.8

V<sub>ds</sub>=5V, I<sub>ds</sub>=0.5 I<sub>dss</sub> @ 3.5 GHz



V<sub>ds</sub>=5V, I<sub>ds</sub>=0.5 I<sub>dss</sub>, Test CKT @ 3.5 GHz



Specifications subject to change without notice.