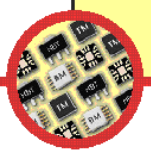
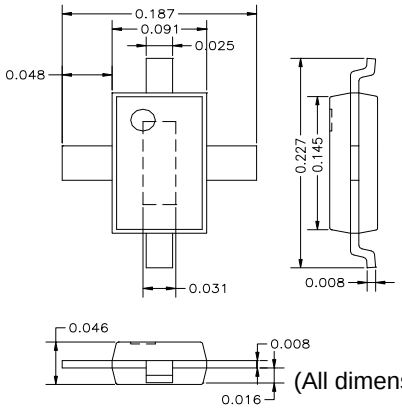
Plastic Packaged GaAs Power FET

AM006MX-QF-R
April 2010
Rev 2



DESCRIPTION

AM006MX-QF-R is a GaAs MESFET with a total gate width of 0.6mm. It is RoHS compliant (Denoted by –R). The AM006MX-QF-R is designed for high power microwave applications, operating up to 6GHz. The QF series is in a plastic package with straight leads in a drop-in mounting style. The bottom of the package serves simultaneously as DC ground, RF ground, and thermal path.



(All dimensions in inch)

FEATURES

- High Frequency Operation up to 6GHz
- High Gain and High Power, P_{1dB}=23.5dBm @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} = 7V, I_{ds} = 0.5 I_{dss})

Parameters	MIN	TYP
P_{1dB}* (dBm)	22.5	23.5
Eff @ P_{1dB}	38%	42%
Small Signal Gain (dB)	11	13
IP3 (dBm)	33	35

* Power typically remains the same as frequency changes.

ABSOLUTE MAXIMUM RATING

Parameters	Sym	Rating
Drain-Source Voltage (V)	V_{ds}	9
Gate-Source Voltage (V)	V_{gs}	-5
Drain Current (mA)	I_{ds}	180
Continuous Dissipation At Room Temp. (W)	P_t	1.1
Operating Temp. (^oC)	T_A	-55 – +85
Max. Channel Temp. (^oC)	T_{ch}	+175

DC PARAMETERS

Parameters	Conditions	MIN	TYP	MAX
Saturation Current I_{dss} (mA)	Vds = 3V Vgs = 0V	100	140	180
Pinch-off Voltage V_p (V)	Vds = 3V Ids= 2.5% Idss	-2.6	-2	-1.2
Drain to Gate Breakdown Voltage BV_{gd} (V)	Idg = 1mA/mm	11	15	
Drain to Source Voltage V_{ds} (V)	Mounted on Heat Sink		7	8
Thermal Resistance ($^oC/W$)	134			

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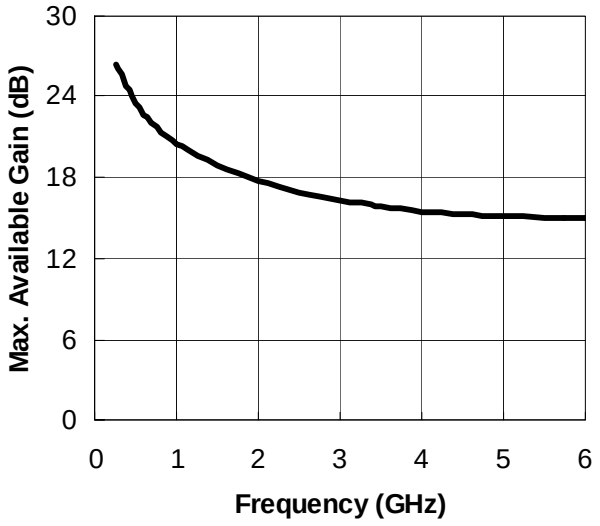
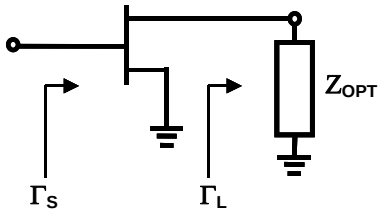
S-Parameters for AM006MX-QF-R @ 7V / 0.5 I_{dss} (s2p file downloadable from the web)

Freq (MHz)	MAG (S11)	ANG(S11)	MAG (S21)	ANG(S21)	MAG (S12)	ANG(S12)	MAG (S22)	ANG(S22)
1000	0.959	-53.385	5.559	139.984	0.047	54.824	0.576	-35.148
2000	0.876	-93.508	4.457	108.547	0.071	28.755	0.532	-62.727
3000	0.826	-122.422	3.574	83.879	0.079	10.273	0.501	-83.27
4000	0.801	-145.922	2.938	63.145	0.078	-4.938	0.486	-98.219
5000	0.807	-166.023	2.501	45.18	0.072	-16.598	0.473	-107.816
6000	0.804	176.727	2.256	28.836	0.066	-25.204	0.457	-117.547
7000	0.795	159.703	2.139	11.675	0.062	-33.604	0.458	-132.172
8000	0.781	141.047	2.046	-6.063	0.057	-41.99	0.487	-145.953





OPTIMUM LOADS

Freq GHz	Γ_S MAG	Γ_S ANG	Γ_L MAG	Γ_L ANG
1	0.969	-102.36	0.119	138.29
2	0.952	-145.24	0.198	133.73
3	0.945	-167.95	0.274	138.65
4	0.940	175.88	0.339	146.35
5	0.935	162.11	0.392	155.14
6	0.929	148.95	0.431	164.51

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