MGFC36V6472A

PRELIMINARY
Notice: This is not a final specification.
Some parametric limits are subject to change.

6.4~7.2GHz BAND 4W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFC36V6472A is an internally impedance-matched GaAs power FET especially designed for use in 6.4~7.2GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

- Class A operation
- Internally matched to 50Ω system
- High output power
  P_{1dB} = 4W(TYP) @6.4~7.2GHz
- High power gain
  G_{LP} = 9dB(TYP) @6.4~7.2GHz
- High power added efficiency
  η_{add} = 30%(TYP) @6.4~7.2GHz
- Hermetically sealed metal-ceramic package
- Low distortion [Item : −51]
  IM_3 = −45dBc(TYP) @ P_o = 25(dBm) S.C.L.

APPLICATION

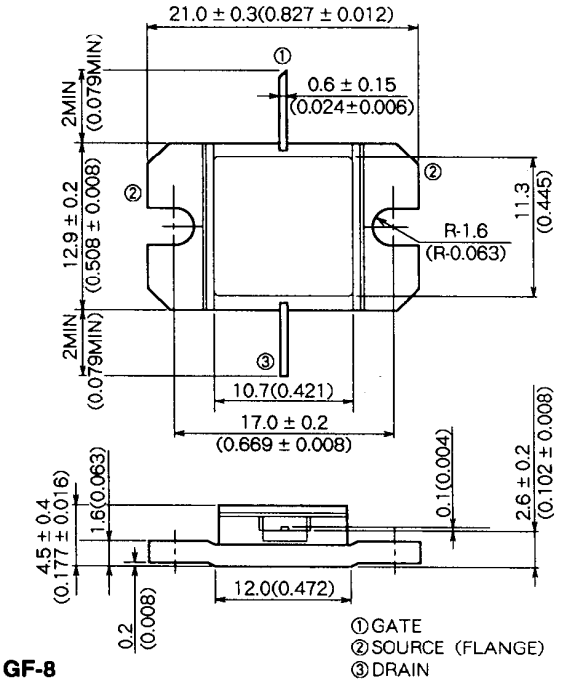
Item-01 : 6.4~7.2GHz band power amplifier
Item-51 : Digital radio communication

QUALITY GRADE

- IG

OUTLINE DRAWING

Unit : millimeters (inches)



GF-8

RECOMMENDED BIAS CONDITIONS

- V_{DS} = 10V
- I_D = 1.2A
- R_G = 100(Ω)
- Refer to Bias Procedure

ABSOLUTE MAXIMUM RATINGS (Ta = 25℃)

Symbol	Parameter	Ratings	Unit
V_{GDO}	Gate to drain voltage	−15	V
V_{GSO}	Gate to source voltage	−15	V
I_D	Drain current	3.75	A
I_{GR}	Reverse gate current	−10	mA
I_{GF}	Forward gate current	21	mA
P_T	Total power dissipation *1	25	W
T_{ch}	Channel temperature	175	℃
T_{stg}	Storage temperature	−65~+175	℃

*1 : T_C = 25℃

ELECTRICAL CHARACTERISTICS (Ta = 25℃)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{DSS}	Saturated drain current	V_{DS} = 3V, V_{GS} = 0V	−	−	3.75	A
g_m	Transconductance	V_{DS} = 3V, I_D = 1.1A	−	1	−	S
$V_{GS(off)}$	Gate to source cut-off voltage	V_{DS} = 3V, I_D = 10mA	−	−	−4.5	V
P_{1dB}	Output power at 1dB gain compression	V_{DS} = 10V, I_D = 1.2A, f = 6.4~7.2GHz	35	36	−	dBm
G_{LP}	Linear power gain		8	9	−	dB
I_D	Drain current		−	−	1.8	A
η_{add}	Power added efficiency		−	30	−	%
IM_3	3rd order IM distortion *1		−42	−45	−	dBc
$R_{th(ch-c)}$	Thermal resistance *2	△V_f method	−	5	6	℃/W

*1 : Item-51, 2-tone test P_o = 25dBm Single Carrier Level f = 7.2GHz △f = 10MHz *2 : Channel to case

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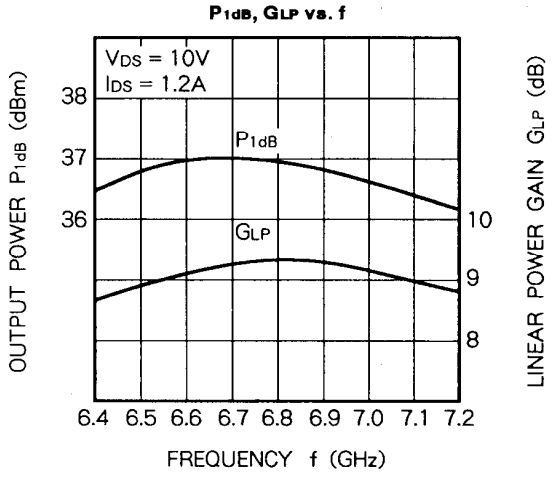
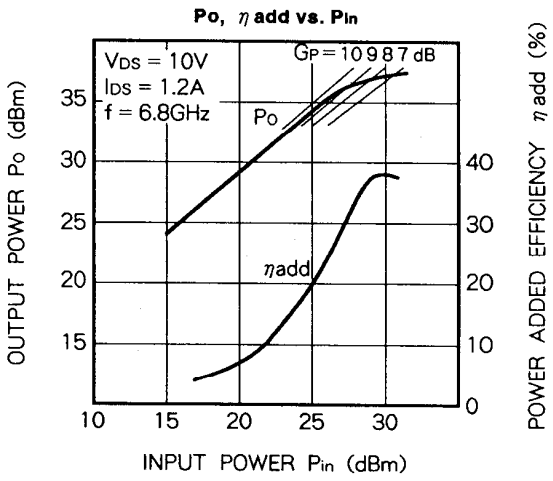
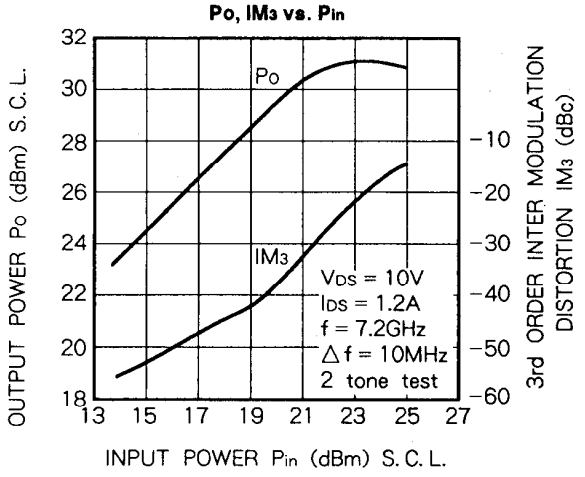
TYPICAL CHARACTERISTICS







S PARAMETERS (Ta = 25℃, VDS = 10V, IDS = 1.2A)

f (GHz)	S parameters							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
6.4	0.50	178	2.68	−61	0.078	−110	0.15	48
6.5	0.43	162	2.76	−75	0.084	−124	0.18	32
6.6	0.36	143	2.83	−90	0.088	−138	0.21	15
6.7	0.30	122	2.88	−104	0.090	−152	0.24	−1
6.8	0.25	99	2.93	−119	0.092	−165	0.27	−17
6.9	0.21	77	2.92	−133	0.095	−179	0.29	−31
7.0	0.18	53	2.87	−148	0.098	167	0.30	−47
7.1	0.15	31	2.80	−162	0.101	153	0.31	−62
7.2	0.12	1	2.71	−177	0.102	137	0.32	−79

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