

MITSUBISHI SEMICONDUCTOR <GaAs FET>

MGFC36V5964A

5.9 ~ 6.4GHz BAND 4W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFC36V5964A is an internally impedance-matched GaAs power FET especially designed for use in 5.9 ~ 6.4 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

- Class A operation
- Internally matched to 50(ohm) system
- High output power
P1dB = 4W (TYP.) @ f=5.9~6.4GHz
- High power gain
GLP = 10.5 dB (TYP.) @ f=5.9~6.4GHz
- High power added efficiency
P.A.E. = 30 % (TYP.) @ f=5.9~6.4GHz
- Low distortion [item -51]
IM3= -45 dBc(TYP.) @Po=25dBm S.C.L.
- Thermal Resistance
Rth(ch-c)=5 deg.C/W(TYP.)

APPLICATION

- item 01 : 5.9~6.4 GHz band power amplifier
- item 51 : 5.9~6.4 GHz band digital radio communication

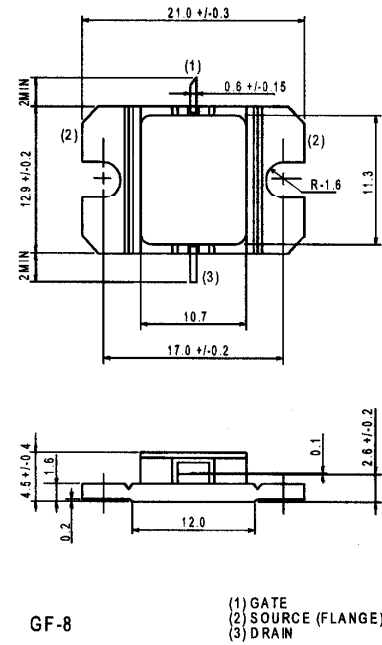
QUALITY GRADE

IG

RECOMMENDED BIAS CONDITIONS

- VDS = 10 V
- ID = 1.2 A Refer to Bias Procedure
- RG = 100 ohm

OUTLINE DRAWING Unit : millimeters



ABSOLUTE MAXIMUM RATINGS (Ta=25 deg.C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain voltage	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain current	3.75	A
IGR	Reverse gate current	-10	mA
IGF	Forward gate current	21	mA
PT	Total power dissipation *1	25	W
Tch	Channel temperature	175	deg.C
Tstg	Storage temperature	-65 ~ +175	deg.C

*1 : Tc=25 deg.C

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ELECTRICAL CHARACTERISTICS (Ta=25 deg.C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	-	3.75	A
gm	Transconductance	VDS=3V, ID=1.1A	-	1	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=10mA	-	-	-4.5	V
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=1.2A, f=5.9~6.4GHz	35	37	-	dBm
GLP	Linear power gain		9	10.5	-	dB
ID	Drain current		-	-	1.8	A
P.A.E.	Power added efficiency		-	30	-	%
IM3	3rd order IM distortion *1		-42	-45	-	dBc
Rth(ch-c)	Thermal resistance *2	Delta Vf method	-	5	6	deg.C/W

*1 : item -51, 2 tone test, Po=25dBm Single Carrier Level, f=6.4GHz, Delta f=10MHz

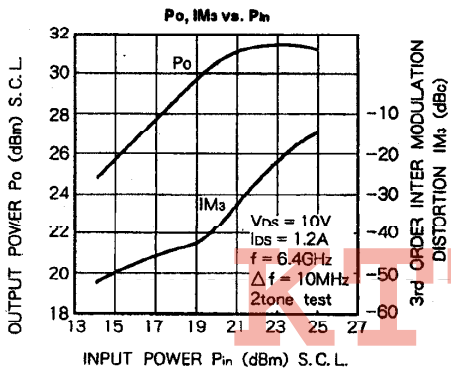
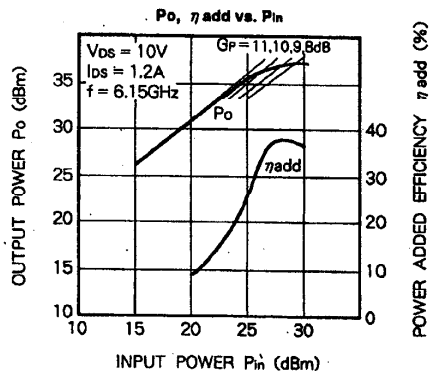
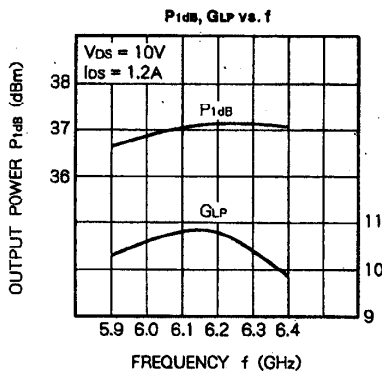
*2 : Channel to case



June/2004

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TYPICAL CHARACTERISTICS



S PARAMETERS ($T_a = 25^\circ C$, $V_{DS} = 10V$, $I_{DS} = 1.2A$)

f (GHz)	S parameters							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
5.9	0.22	-171	3.29	-27	0.079	-70	0.47	-172
6.0	0.12	145	3.40	-44	0.081	-89	0.41	178
6.1	0.12	60	3.49	-59	0.082	-104	0.34	166
6.2	0.23	20	3.49	-75	0.084	-120	0.27	153
6.3	0.35	-1	3.32	-91	0.081	-135	0.19	139
6.4	0.44	-16	3.08	-106	0.079	-149	0.13	124



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