

5.9 - 6.4GHz BAND 16W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFC42V5964A 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

- Internally matched to 50 ohm system
- High output power
P1dB = 16W (TYP.) @ f=5.9 - 6.4 GHz
- High power gain
GLP = 9.0 dB (TYP.) @ f=5.9 - 6.4 GHz
- High power added efficiency
P.A.E. = 33 % (TYP.) @ f=5.9 - 6.4 GHz
- Low Distortion[Item-51]
IM3=-45 dBc(MIN.)@Po=31.0dBm S.C.L.

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

- $V_{DS} = 10$ (V)
- $I_D = 4.5$ (A)
- $R_g = 25$ (ohm) Refer to Bias Procedure

ABSOLUTE MAXIMUM RATINGS

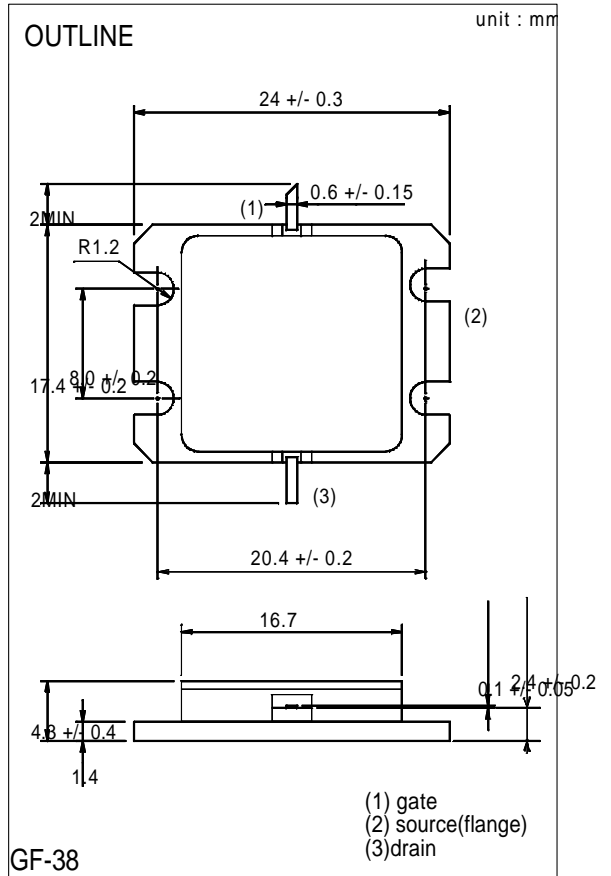
Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain voltage	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain current	15	A
IGR	Reverse gate current	-40	mA
IGF	Forward gate current	84	mA
PT	Total power dissipation	93.7	W
Tch	Channel temperature	175	deg.C
Tstg	Storage temperature	-65 / +175	deg.C

*1 : Tc=25 Deg.C

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
IDSS	Saturated drain current	$V_{DS} = 3V, V_{GS} = 0V$	-	9	12	A
Gm	Transconductance	$V_{DS} = 3V, I_D = 4.4A$	-	4	-	S
VGS(off)	Gate to source cut-off voltage	$V_{DS} = 3V, I_D = 80mA$	-2	-3	-4	V
P1dB	Output power at 1dB gain compression	$V_{DS}=10V, I_D(RF\ off)=4.5A, f=5.9-6.4GHz$	41.5	42.5	-	dBm
GLP	Linear power gain		8	9	-	dB
ID	Drain current		-	4.5	-	A
PAE	Power added efficiency		-	33	-	%
IM3	3rd order IM distortion *1		-42	-45	-	dBc
Rth(ch-c)	Thermal resistance *2	Delta Vf method	-	-	1.6	Deg.C/W

*1 : item -51,2 tone test,Po=31.0dBm Single Carrier Level,f=6.4GHz,Delta f=10MHz *2 : Channel-case

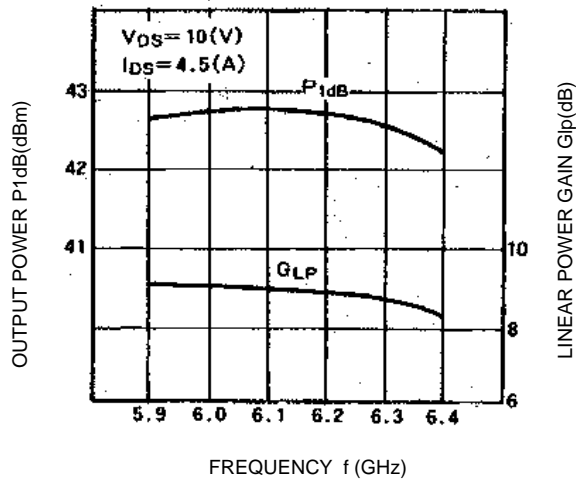


< Keep safety first in your circuit designs! >

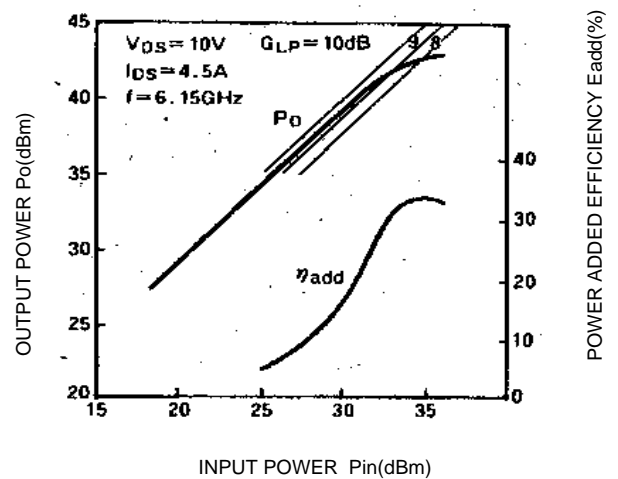
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TYPICAL CHARACTERISTICS (Ta=25 Deg.C)

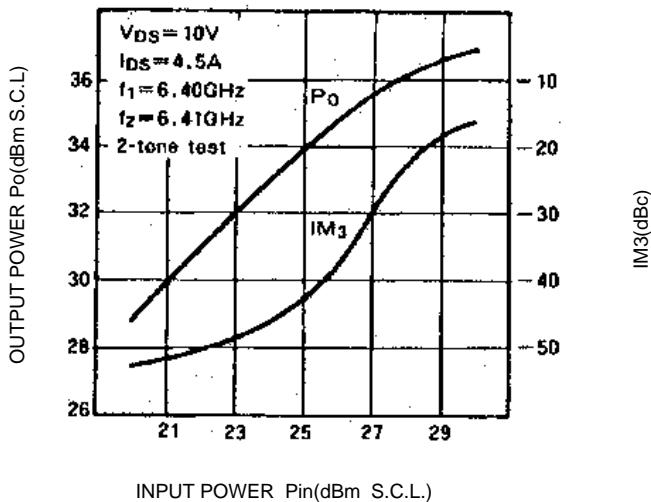
P1dB, G1p VS. f



Po, Eadd VS. Pin



Po, IM3 VS. Pin



S PARAMETERS (Ta=25 Deg.C, VDS=10V, IDS=4.5A)

f (GHz)	S Parameters (TYP.)							
	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
5.90	0.36	82	2.99	-74	0.071	-133	0.26	80
6.00	0.35	56	2.95	-91	0.071	-151	0.32	72
6.10	0.35	34	2.91	-108	0.072	-167	0.35	65
6.20	0.35	14	2.88	-124	0.078	177	0.37	58
6.30	0.34	-4	2.81	-140	0.079	161	0.41	53
6.40	0.33	-23	2.72	-157	0.079	146	0.43	48

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