

MGFC44V3642

3.6-4.2GHz BAND 24W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFC44V3642 is an internally impedance-matched GaAs power FET especially designed for use in 3.6-4.2 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 = 24W (TYP.) @ f=3.6-4.2 GHz
- High power gain
GLP = 11 dB (TYP.) @ f=3.6-4.2GHz
- High power added efficiency
PAE = 35 % (TYP.) @ f=3.6-4.2GHz
- Low distortion [item -51]
- IM3=-42dBc(min.) @ Po=33.5dBm S.C.L.

Thermal Resistance

Rth(ch-c)=1.6 deg.C/W(MAX.)

APPLICATION

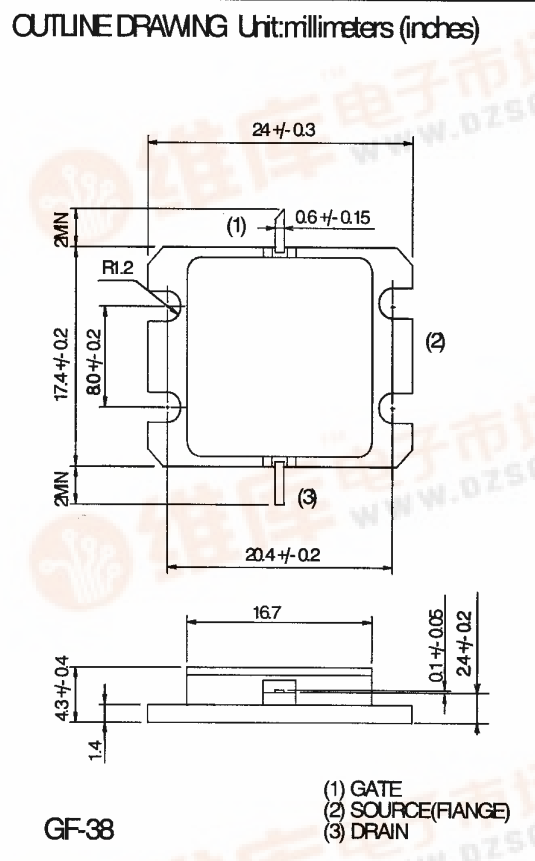
- item 01 : 3.6-4.2 GHz band power amplifier
- item 51 : 3.6-4.2 GHz band digital ratio communication

QUALITY GRADE

IG

RECOMMENDED BIAS CONDITIONS

- VDS = 10V
- ID = 6.4 A
- RG=25 ohm



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	20	A
I _{GR}	Reverse gate current	-60	mA
I _{GF}	Forward gate current	126	mA
PT	Total power dissipation	93	W
T _{ch}	Channel temperature	175	deg.C
T _{stg}	Storage temperature	-65/+175	deg.C

*1 : Tc=25 deg.C

ELECTRICAL CHARACTERISTICS

(Ta=25 deg.C)

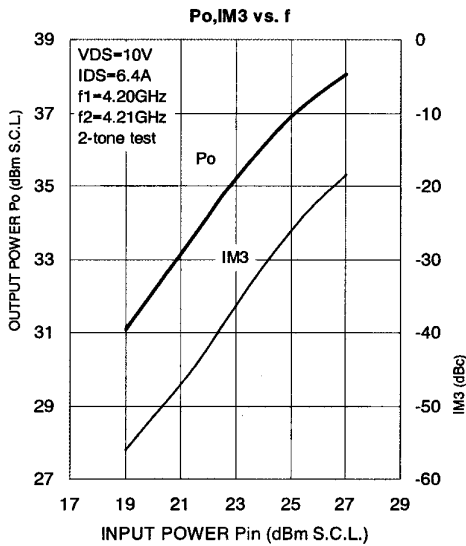
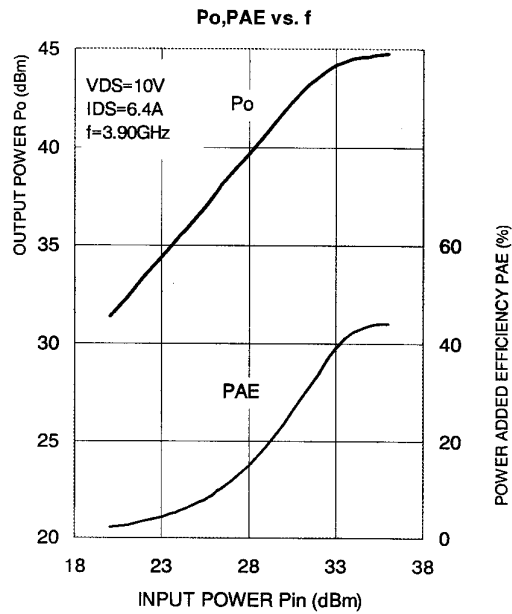
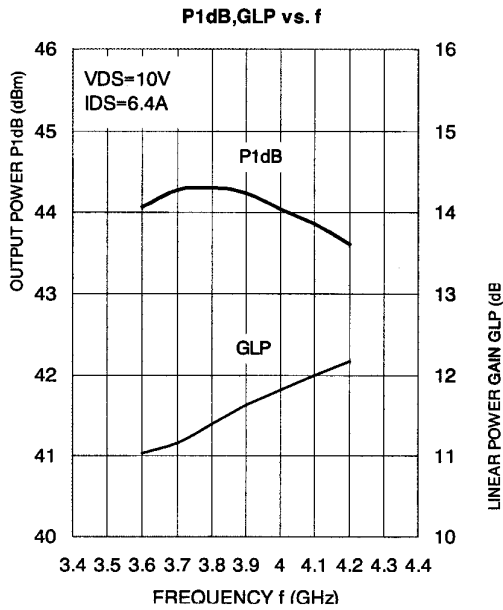
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	18	-	A
Gm	Transconductance	VDS=3V, ID=6.4A	-	6.5	-	V
VGS(off)	Gate to source cut-off voltage	VDS = 3V, ID = 120mA	-2	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=6.4A, f=3.6-4.2GHz	43	44	-	dBm
GLP	Linear power gain		10	11	-	dB
PAE	Power added efficiency		-	35	-	%
IM3 *1	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c)	Thermal resistance *2	Delta Vf method	-	-	1.6	deg.C/W

*1: Item -51, 2 tone test, Po=33.5dBm Single Carrier Level, f=4.2GHz, Delta f=10MHz *2: Channel-case

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TYPICAL CHARACTERISTICS (Ta=25deg.C)



S PARAMETERS (Ta=25deg.C, VDS=10V, ID=6.4A)

f (GHz)	S Parameters (TYP.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
3.6	0.75	-23	2.91	-54	0.035	-102	-0.45	-16
3.7	0.72	-44	3.09	-77	0.038	-133	0.38	-40
3.8	0.70	-69	3.37	-102	0.049	-169	0.28	-75
3.9	0.61	-95	3.51	-129	0.052	176	0.23	-113
4.0	0.53	-122	3.65	-155	0.059	147	0.25	-153
4.1	0.42	-149	3.85	177	0.063	122	0.29	178
4.2	0.27	173	3.91	147	0.069	92	0.32	154

