

< C band internally matched power GaAs FET >

MGFC45V3642A

3.6 - 4.2 GHz BAND / 32W

DESCRIPTION

The MGFC45V3642A 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=32W (TYP.) @f=3.6 - 4.2GHz

• High power gain

GLP=11.0dB (TYP.) @f=3.6 - 4.2GHz

• High power added efficiency

P.A.E.=36% (TYP.) @f=3.6 - 4.2GHz

• Low distortion [item -51]

IM3=-45dBc (TYP.) @Po=34.5dBm S.C.L

APPLICATION

• item 01: 3.6 - 4.2 GHz band power amplifier

• item 51: 3.6 - 4.2 GHz band digital radio communication

QUALITY

• IG

RECOMMENDED BIAS CONDITIONS

• VDS=10V • ID=8A • RG=25ohm

Absolute maximum ratings (Ta=25°C)

	Ratings	Unit
Gate to drain breakdown voltage	-15	V
Gate to source breakdown voltage	-15	V
Drain current	25	Α
Reverse gate current	-80	mA
Forward gate current	168	mA
Total power dissipation	150	W
Cannel temperature	175	°C
Storage temperature	-65 to +175	°C
(Gate to source breakdown voltage Drain current Reverse gate current Forward gate current Total power dissipation Cannel temperature	Gate to source breakdown voltage -15 Drain current 25 Reverse gate current -80 Forward gate current 168 Total power dissipation 150 Cannel temperature 175 Storage temperature -65 to +175

*1: Tc=25°C

OUTLINE 24 +/- 0.3 R1.2 (1) gate (2) source(flange) (3) drain

Keep Safety first in your circuit designs! Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measure such as (I) placement of substitutive, auxiliary circuits, (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

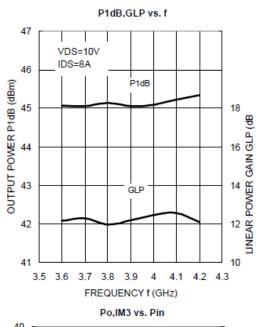
Electrical characteristics (Ta=25°C)

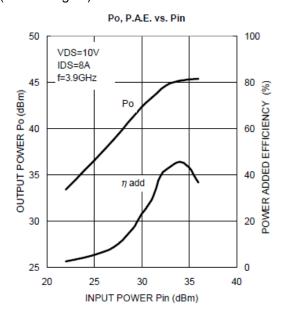
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Тур.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	24	-	Α
gm	Transconductance	VDS=3V,ID=8A	-	8	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=160mA	-2	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=10V,ID(RF off)=8A	44	45	-	dBm
GLP	Linear Power Gain	f=3.6 – 4.2GHz	10	11	-	dB
ID	Drain current		-	8	-	Α
P.A.E.	Power added efficiency		-	36	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	0.8	1	°C/W

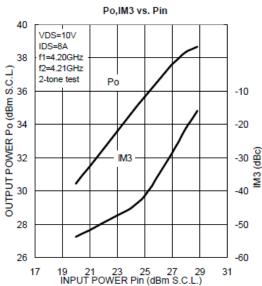
^{*2 :}item -51 ,2 tone test,Po=34.5dBm Single Carrier Level ,f=3.6,3.9,4.2GHz,delta f=10MHz

^{*3:} Channel-case

MGFC45V3642A TYPICAL CHARACTERISTICS (Ta=25deg.C)







MGFC45V3642A S-parameters(Ta=25deg.C , VDS=10(V),IDS=8.0(A))

ı	S Parameters(Typ.)							
(GHz)	S11		S21		S12		S22	
(GHZ)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
3.5	0.51	165	3.71	42	0.05	-21	0.39	-29
3.6	0.55	125	3.82	14	0.06	-52	0.29	-56
3.7	0.56	93	3.84	-15	0.07	-80	0.22	-94
3.8	0.54	67	3.81	-41	0.07	-107	0.21	-142
3.9	0.47	40	3.86	-68	0.08	-134	0.23	-177
4.0	0.37	5	3.87	-97	0.09	-162	0.26	149
4.1	0.27	-42	3.83	-125	0.09	169	0.26	122
4.2	0.26	-117	3.64	-156	0.09	141	0.21	93
4.3	0.40	-174	3.25	174	0.09	108	0.09	63

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