

**MGFC39V3742A**

3.7 ~ 4.2GHz BAND 8W INTERNALLY MATCHED GaAs FET

**DESCRIPTION**

The MGFC39V3742A is an internally impedance-matched GaAs power FET especially designed for use in 3.7 ~ 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 = 8W (TYP.) @ f=3.7~4.2GHz

High power gain

GLP = 12 dB (TYP.) @ f=3.7~4.2GHz

High power added efficiency

P.A.E. = 31 % (TYP.) @ f=3.7~4.2GHz

Low distortion [ item -51 ]

IM3= -45 dBc(TYP.) @ Po=28dBm S.C.L.

**APPLICATION**

item 01 : 3.7~4.2 GHz band power amplifier

item 51 : 3.7~4.2 GHz band digital radio communication

**QUALITY GRADE**

IG

**RECOMMENDED BIAS CONDITIONS**

VDS = 10(V)

ID = 2.4 (A)

Rg = 50(ohm) Refer to Bias Procedure

**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	7.5	A
IGR	Reverse gate current	-20	mA
IGF	Forward gate current	42	mA
PT	Total power dissipation *1	42.8	W
Tch	Channel temperature	175	deg.C
Tstg	Storage temperature	-65 / +175	deg.C

\*1 : Tc=25 deg.C

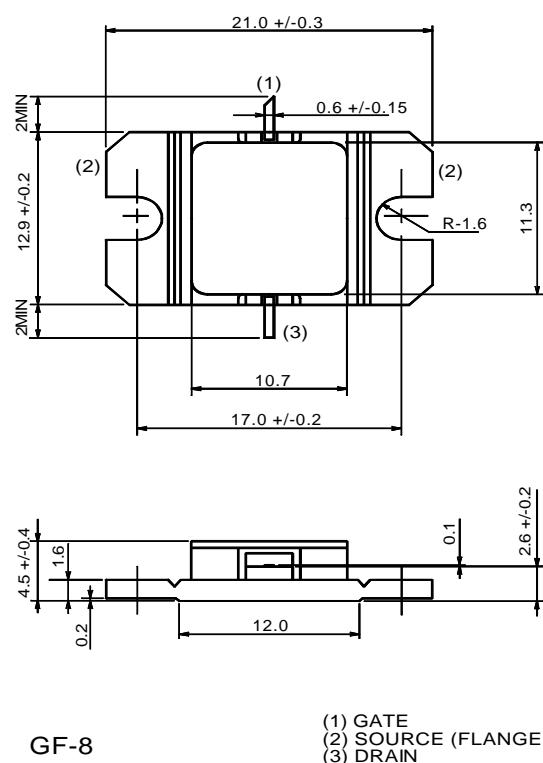
**ELECTRICAL CHARACTERISTICS**

(Ta=25 deg.C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	-	7.5	A
gm	Transconductance	VDS=3V, ID=2.2A	-	2	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=20mA	-	-	-4.5	V
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=2.4A, f=3.7~4.2GHz	38	39.5	-	dBm
GLP	Linear power gain		9	12	-	dB
ID	Drain current		-	-	3	A
P.A.E.	Power added efficiency		-	31	-	%
IM3	3rd order IM distortion *1		-42	-45	-	dBc
Rth(ch-c)	Thermal resistance *2	Delta Vf method	-	-	3.5	deg.C/W

\*1 : item -51, 2 tone test, Po=28dBm Single Carrier Level, f=4.2GHz, Delta f=10MHz

\*2 : Channel to case

**OUTLINE DRAWING** Unit : millimetersGF-8  
(1) GATE  
(2) SOURCE (FLANGE)  
(3) DRAIN

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