

# MGFC40V3742

## 3.7 ~ 4.2GHz BAND 10W INTERNALLY MATCHED GaAs FET

### DESCRIPTION

The MGFC40V3742 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 = 10W (TYP.) @ f=3.7~4.2GHz
- High power gain  
GLP = 11 dB (TYP.) @ f=3.7~4.2GHz
- High power added efficiency  
P.A.E. = 32 % (TYP.) @ f=3.7~4.2GHz
- Low distortion [ item -51 ]  
IM3= -45 dBc(TYP.) @Po=29(dBm) 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)

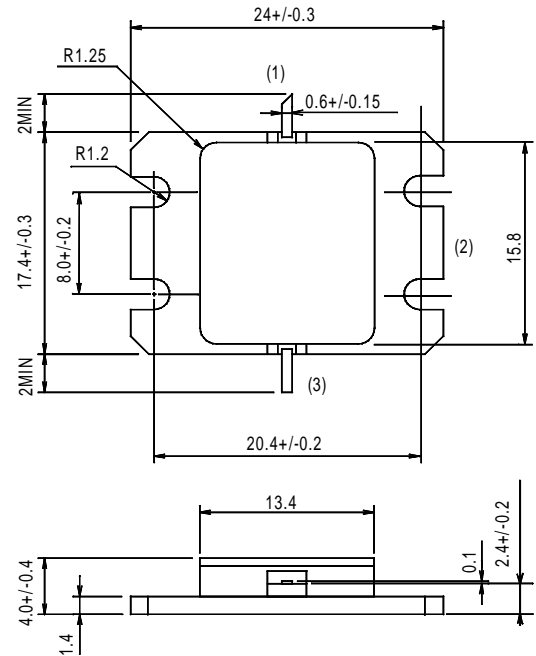
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	4.5	6	A
gm	Transconductance	VDS=3V, ID=2.2A	-	2	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=40mA	-2	-3	-4	V
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=2.4A, f=3.7~4.2GHz	39.5	40.5	-	dBm
GLP	Linear power gain		9	11	-	dB
ID	Drain current		-	2.4	-	A
P.A.E.	Power added efficiency		-	32	-	%
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=29dBm Single Carrier Level, f=4.2GHz, Delta f=10MHz

\*2 : Channel to case

### OUTLINE DRAWING

Unit: millimeters (inches)



GF-18

- (1): GATE
- (2): SOURCE (FLANGE)
- (3): DRAIN

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