

**PRELIMINARY**  
 Notice : This is not a final specification  
 Some parametric limits are subject to change.

# MGFC44V3436

3.4~3.6GHz BAND 25W INTERNALLY MATCHED GaAs FET

## DESCRIPTION

The MGFC44V3436 is an internally impedance matched GaAs power FET especially designed for use in 3.4~3.6 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

## FEATURES (TARGET)

- Class A operation
- Internally matched to 50 ( ) system
- High output power  
 $P_{1dB}=25W$  (TYP.) @ $f=3.4\sim 3.6GHz$
- High power gain  
 $GLP=12dB$  (TYP.) @ $f=3.4\sim 3.6GHz$
- High power added efficiency  
 $P.A.E.=36%$  (TYP.) @ $f=3.4\sim 3.6GHz$
- Low distortion [item -51]  
 $IM3= -45dBc$  (TYP.) @ $P_o=33.5dBm$  S.C.L.

## APPLICATION

item 01 : 3.4~3.6GHz band power amplifier  
 item 51 : 3.4~3.6GHz band digital radio communication

## QUALITY GRADE

- IG

## RECOMMENDED BIAS CONDITIONS

- $V_{DS}=10V$
- $I_D=6.4A$
- $R_G=25$

## ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
$V_{GDO}$	Gate to drain voltage	-15	V
$V_{GSO}$	Gate to source voltage	-15	V
$I_D$	Drain current	20	A
$I_{GR}$	Reverse gate current	-60	mA
$I_{GF}$	Forward gate current	126	mA
$P_T$	Total power dissipation *1	125	W
$T_{ch}$	Channel temperature	175	°C
$T_{stg}$	Storage temperature	-65 ~ +175	°C

\*1 :  $T_c=25°C$

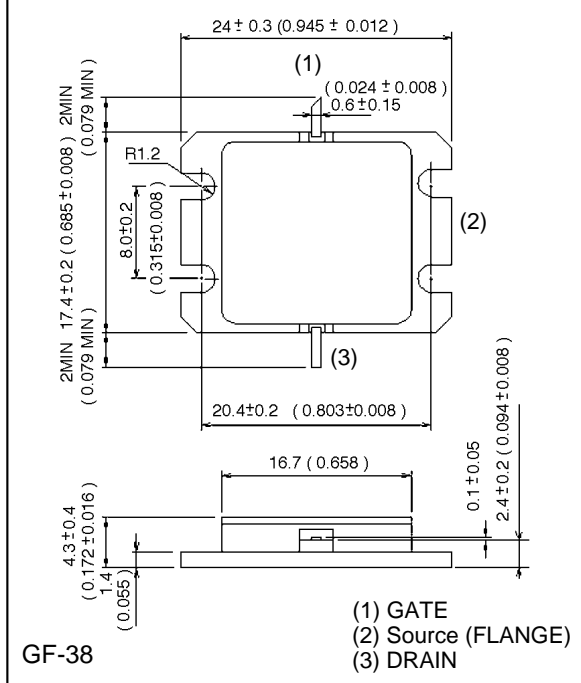
## ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
$I_{DSS}$	Saturated drain current	$V_{DS}=3V, V_{GS}=0V$	—	18	—	A
gm	Transconductance	$V_{DS}=3V, I_D=6.4A$	—	6.5	—	S
$V_{GS}$ (off)	Gate to source cut off voltage	$V_{DS}=3V, I_D=120mA$	-2	—	-5	V
$P_{1dB}$	Output power at 1dB gain compression	$V_{DS}=10V, I_D$ (RF off)=6.4A, $f=3.4\sim 3.6GHz$	43	44	—	dBm
GLP	Linear power gain		11	12	—	dB
$I_D$	Drain current		—	6.4	—	A
P.A.E.	Power added efficiency		—	36	—	%
IM3 *2	3rd order IM distortion		-42	-45	—	dBc
$R_{th}$ (ch-c)	Thermal resistance *3	$V_f$ method	—	—	1.2	°C/W

\*2 : item-51, 2 tone test,  $P_o=33.5dBm$  Single Carrier Level,  $f=3.4, 3.5, 3.6GHz, f=10MHz$

\*3 : Channel to case

## OUTLINE DRAWING Until : millimeters (inches)



< 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 injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i)placement of substitutive, auxiliary circuits, (ii)use of non-flammable material or (iii)prevention against any malfunction or mishap.