

MGFC38V6472

6.4~7.2GHz BAND 6W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFC38V6472 is an internally impedance-matched GaAs power FET especially designed for use in 6.4~7.2 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

- Class A operation
- Internally matched to 50Ω system
- High output power
 $P_{1dB} = 6W$ (TYP) @ 6.4~7.2GHz
- High power gain
 $G_{LP} = 9$ dB (TYP) @ 6.4~7.2GHz
- High power added efficiency
 $\eta_{add} = 31\%$ (TYP) @ 6.4~7.2GHz, P_{1dB}
- Hermetically sealed metal-ceramic package
- Low distortion [Item: -51]
 $IM_3 = -45$ dBc (TYP) @ $P_o = 27$ (dBm) S.C.L.

APPLICATION

- Item-01: 6.4~7.2GHz band power amplifier
- Item-51: Digital radio communication

QUALITY GRADE

- IG

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Rating	Unit
V_{G00}	Gate to drain voltage	-15	V
V_{G50}	Gate to source voltage	-15	V
I_D	Drain current	5.0	A
I_{GR}	Reverse gate current	-15	mA
I_{GF}	Forward gate current	31.5	mA
P_T	Total power dissipation *1	30	W
T_{ch}	Channel temperature	175	°C
T_{stg}	Storage temperature	-65 ~ +175	°C

*1: $T_c = 25^\circ C$

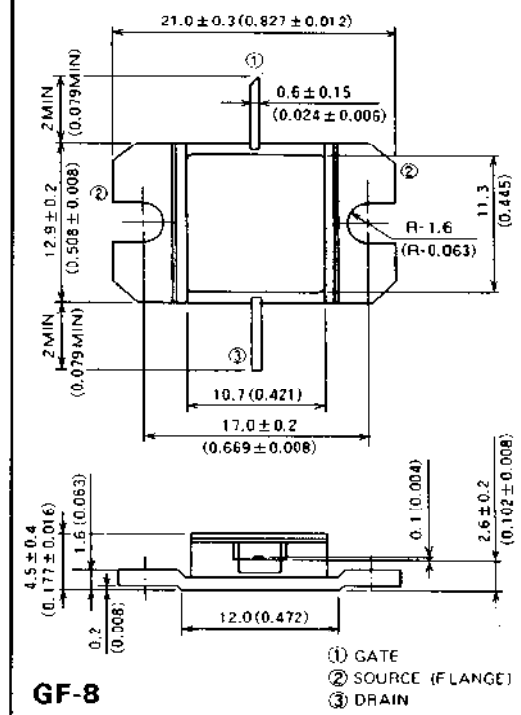
ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{DSS}	Saturated drain current	$V_{DS} = 3V, V_{GS} = 0V$	—	—	5.0	A
g_m	Transconductance	$V_{DS} = 3V, I_D = 1.5A$	—	2	—	S
$V_{GS(off)}$	Gate to source cut-off voltage	$V_{DS} = 3V, I_D = 15mA$	—	-3.5	-5.0	V
P_{1dB}	Output power at 1dB gain compression	$V_{DS} = 10V, I_D = 1.8A, f = 6.4 \sim 7.2GHz$	37	38	—	dBm
G_{LP}	Linear power gain		8	9	—	dB
I_D	Drain current		—	1.7	—	A
η_{add}	Power added efficiency		—	31	—	%
IM_3	3rd order IM distortion *1		-42	-45	—	dBc
$R_{th(ch-c)}$	Thermal resistance *2		ΔV_I method	—	—	5.0

*1: Item-51, 2-tone test $P_o = 27$ dBm Single Carrier Level $f = 7.2GHz$ $\Delta f = 10$ MHz. *2: Channel to case

OUTLINE DRAWING

Unit: millimeters (inches)



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RECOMMENDED BIAS CONDITIONS

- $V_{DS} = 10V$
- $I_D = 1.8A$
- $R_g = 100\Omega$
- Refer to Bias Procedure