

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

MITSUBISHI SEMICONDUCTOR <GaAs FET>

# MGFK39V4045

14.0~14.5GHz BAND 8W INTERNALLY MATCHD GaAs FET

## DESCRIPTION

The MGFK39V4045 is an internally impedance matched GaAs power FET especially designed for use in 14.0~14.5 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

## FEATURES

- Internally impedance matched
- High output power  
 $P_{1dB}=8W$  (TYP.) @ $f=14.0\sim 14.5GHz$
- High linear power gain  
 $GLP=5.5dB$  (TYP.) @ $f=14.0\sim 14.5GHz$
- High power added efficiency  
 $add=20\%$ (TYP.) @ $f=14.0\sim 14.5GHz$ ,  $P_{1dB}$

## APPLICATION

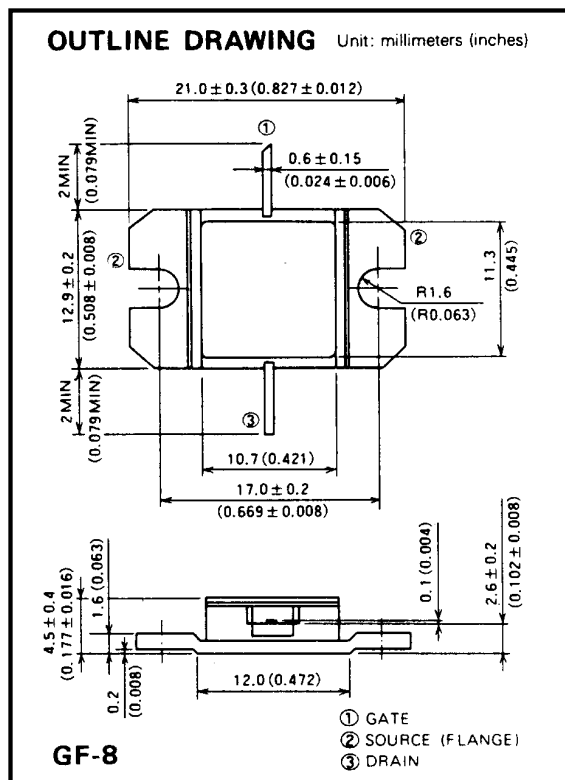
For use in 14.0~14.5GHz band amplifiers

## QUALITY GRADE

- IG

## RECOMMENDED BIAS CONDITIONS

- $V_{DS}=10V$
- $I_D=2.4A$
- Refer to Bias Procedure



## ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V <sub>GDO</sub>	Gate to drain voltage	-15	V
V <sub>GSO</sub>	Gate to source voltage	-15	V
I <sub>D</sub>	Drain current	6.0	A
I <sub>GR</sub>	Reverse gate current	-18	mA
I <sub>GF</sub>	Forward gate current	36	mA
P <sub>T</sub>	Total power dissipation *1	42.8	W
T <sub>ch</sub>	Channel temperature	175	°C
T <sub>stg</sub>	Storage temperature	-65 ~ +175	°C

\*1 : T<sub>c</sub>=25°C

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max	
I <sub>DSS</sub>	Saturated drain current	V <sub>DS</sub> =3V, V <sub>GS</sub> =0V	—	4.0	6.0	A
g <sub>m</sub>	Transconductance	V <sub>DS</sub> =3V, I <sub>D</sub> =2.4A	1.2	2.0	—	S
V <sub>GS</sub> (off)	Gate to source cut-off voltage	V <sub>DS</sub> =3V, I <sub>D</sub> =20mA	-2	—	-5	V
P <sub>1dB</sub>	Output power at 1dB gain compression	V <sub>DS</sub> =10V, I <sub>D</sub> =2.4A, f=14.0~14.5GHz	38.5	39.0	—	dBm
GLP	Linear power gain		4.5	5.5	—	dB
add	Power added efficiency		—	20	—	%
R <sub>th</sub> (ch-c)	Thermal resistance *1	V <sub>f</sub> method	—	—	3.5	°C/W

\*1 : Channel to case