

MGFK30V4045

14.0~14.5GHz BAND 1W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFK30V4045 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
- Flip-chip mounted
- High output power
 $P_{1dB} = 1.1 \text{ W (TYP.) @ } f = 14 \sim 14.5 \text{ GHz}$
- High linear power gain
 $G_{LP} = 8.0 \text{ dB (TYP.) @ } f = 14 \sim 14.5 \text{ GHz}$
- High power added efficiency
 $\eta_{add} = 24\% \text{ (TYP.) @ } f = 14 \sim 14.5 \text{ GHz, } P_{1dB}$

APPLICATION

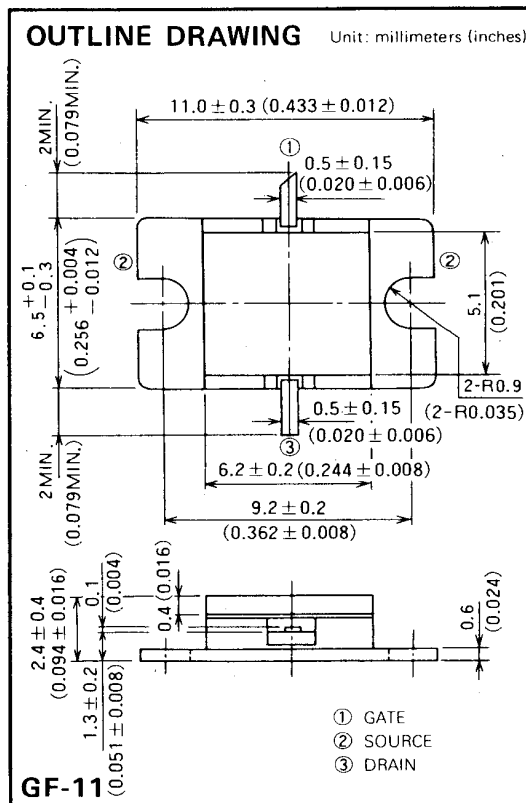
For use in 14.0 ~ 14.5 GHz-band amplifiers.

QUALITY GRADE

- IG

RECOMMENDED BIAS CONDITIONS

- $V_{DS} = 8\text{V}$
- $I_D = 350\text{mA}$
- Refer to Bias Procedure



ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Symbol	Parameter	Ratings	Unit
V_{GDO}	Gate to drain voltage	-15	V
V_{GSO}	Gate to source voltage	-15	V
I_D	Drain current	1000	mA
I_{GR}	Reverse gate current	-3.0	mA
I_{GF}	Forward gate current	5.0	mA
P_T	Total power dissipation *1	11	W
T_{ch}	Channel temperature	175	$^\circ\text{C}$
T_{stg}	Storage temperature	-65 ~ +175	$^\circ\text{C}$

*1: $T_c = 25^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{DSS}	Saturated drain current	$V_{DS} = 3\text{V}, V_{GS} = 0\text{V}$	—	800	1000	mA
$V_{GS(off)}$	Gate to source cut-off voltage	$V_{DS} = 3\text{V}, I_D = 2\text{mA}$	-2	—	-5	V
g_m	Transconductance	$V_{DS} = 3\text{V}, I_D = 350\text{mA}$	—	300	—	mS
P_{1dB}	Output power at 1 dB gain compression	$V_{DS} = 8\text{V}, I_D = 350\text{mA}, f = 14.0 \sim 14.5\text{GHz}$	29.5	30.4	—	dBm
G_{LP}	Linear power gain		7.0	8.0	—	dB
η_{add}	Power added efficiency		—	24	—	%
$R_{th(ch-c)}$	Thermal resistance *1	ΔV_T method	—	—	20	$^\circ\text{C/W}$

*1: Channel to case

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TYPICAL CHARACTERISTICS (Ta=25°C)

