

MGFK25V4045

14.0~14.5GHz BAND 0.3W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFK25V4045 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
 $P_{1dB} = 0.3 \text{ W (TYP.) @ } f = 14 \sim 14.5 \text{ GHz}$
- High linear power gain
 $G_{LP} = 9\text{dB (TYP.) @ } f = 14 \sim 14.5 \text{ GHz}$
- High power added efficiency
 $\eta_{add} = 25\% \text{ (TYP.) @ } f = 14 \sim 14.5 \text{ GHz, } P_{1dB}$

APPLICATION

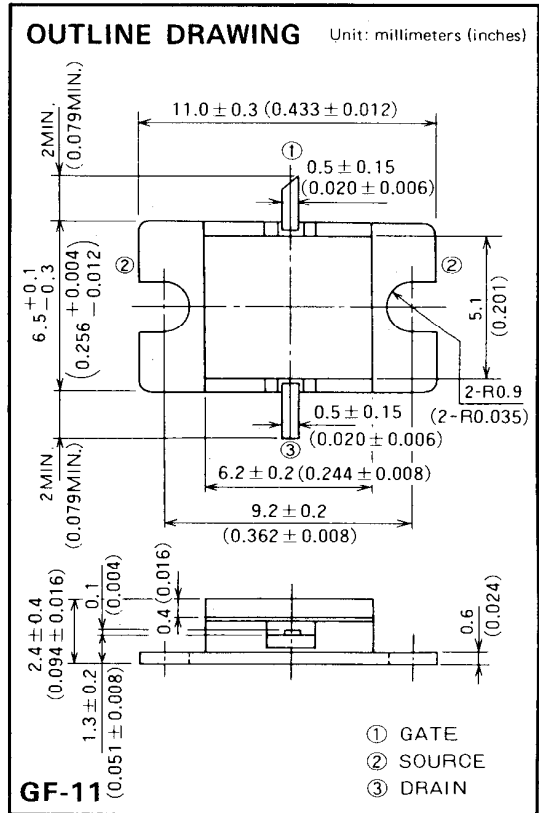
For use in 14.0 ~ 14.5 GHz-band amplifiers.

QUALITY GRADE

- IG

RECOMMENDED BIAS CONDITIONS

- $V_{DS} = 8\text{V}$
- $I_D = 80\text{mA}$
- 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	500	mA
I_{GR}	Reverse gate current	- 1.0	mA
I_{GF}	Forward gate current	1.0	mA
P_T	Total power dissipation *1	2.7	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	$V_{DS} = 3\text{V, } V_{GS} = 0\text{V}$	—	200	500	mA
$V_{GS(off)}$	Gate to source cut-off voltage	$V_{DS} = 3\text{V, } I_D = 1\text{mA}$	- 2	—	- 5	V
g_m	Transconductance	$V_{DS} = 3\text{V, } I_D = 150\text{mA}$	—	100	—	mS
P_{1dB}	Output power at 1dB gain compression	$V_{DS} = 8\text{V, } I_D = 150\text{mA, } f = 14.0 \sim 14.5\text{GHz}$	23.0	24.8	—	dBm
G_{LP}	Linear power gain		7.0	9.0	—	dB
* η_{add}	Power added efficiency		—	25	—	%
$R_{th(ch-c)}$	Thermal resistance *1	ΔV_T method	—	—	40	$^\circ\text{C/W}$

* 1: Channel to case

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

