

# 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

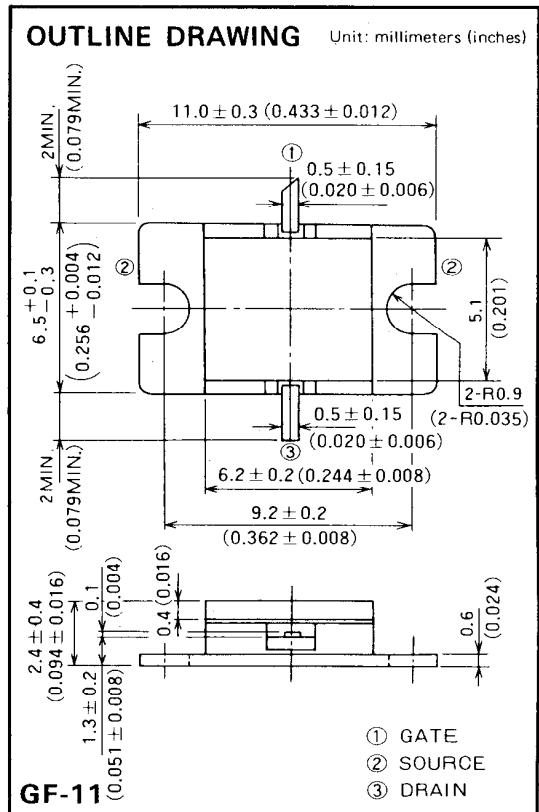
For use in 14.0 ~ 14.5 GHz-band amplifiers.

### 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
* $\eta_{add}$	Power added efficiency		—	25	—	%
$R_{th(ch-c)}$	Thermal resistance *1		$\Delta V_T$ method	—	—	40

\* 1: Channel to case

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

