

**DESCRIPTION**

The MGF2445A, power GaAs FET with an N-channel schottky gate, is designed for use in S to Ku band amplifiers.

**FEATURES**

- High output power  
 $P_{1dB} = 32\text{dBmW(TYP.)}$  @f=12GHz
- High linear power gain  
 $GLP = 6.0\text{dB(TYP.)}$  @f=12GHz

**APPLICATION**

- S to Ku band power amplifiers

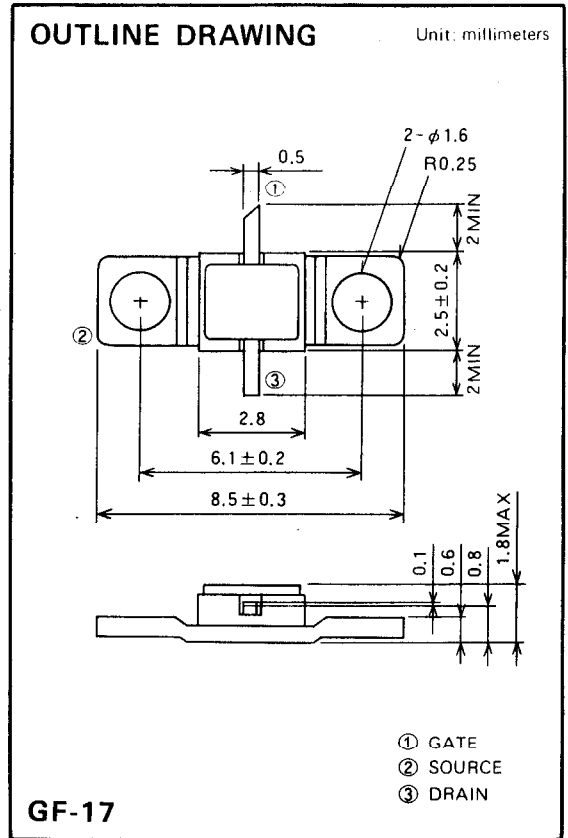
**QUALITY GRADE**

- IG

**RECOMMENDED BIAS CONDITIONS**

- $V_{DS}=10\text{V}$ ,  $I_D=450\text{mA}$

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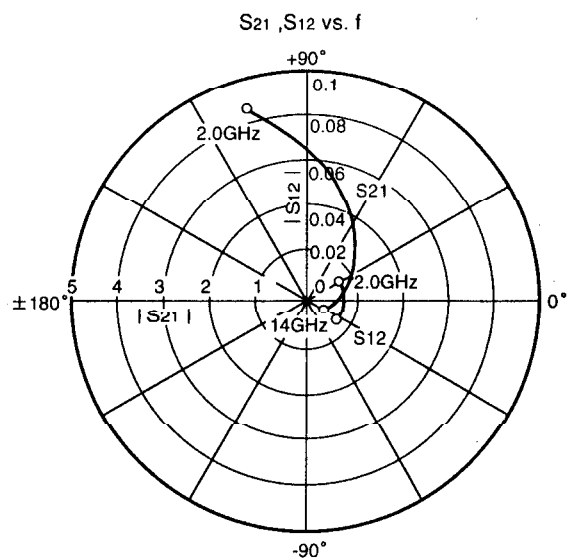
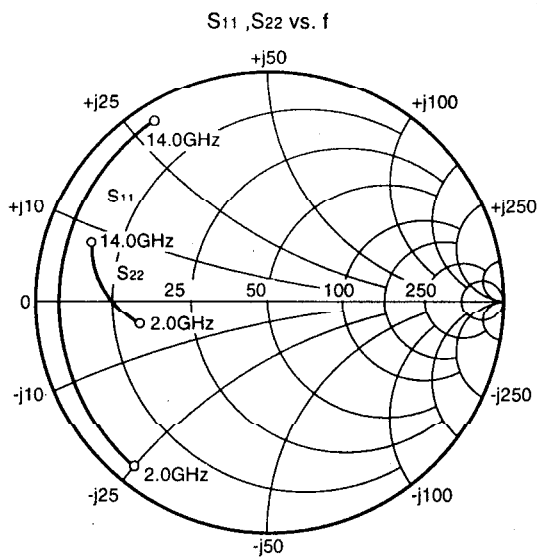
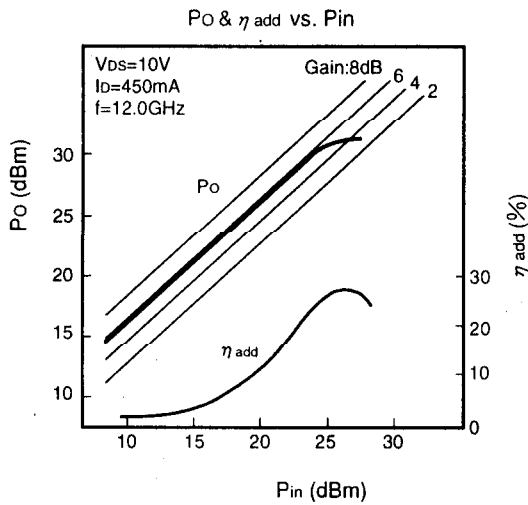
**ABSOLUTE MAXIMUM RATINGS** ( $T_a=25^\circ\text{C}$ )

Symbol	Parameter	Ratings	Unit
$V_{GDO}$	Gate to drain voltage	-15	V
$V_{GSO}$	Gate to source voltage	-15	V
$I_D$	Drain current	1500	mA
$I_{GR}$	Reverse gate current	-3.6	mA
$I_{GF}$	Forward gate current	15	mA
PT	Total power dissipation	10.0	W
$T_{ch}$	Channel temperature	175	$^\circ\text{C}$
$T_{stg}$	Storage temperature	-65~+175	$^\circ\text{C}$

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

Symbol	Parameter	Test conditions	Limits			Unit
			MIN.	TYP.	MAX.	
$I_{DSS}$	Saturated drain current	$V_{DS}=3\text{V}, V_G=0\text{V}$	--	--	1500	mA
gm	Transconductance	$V_{DS}=0\text{V}, I_D=450\text{mA}$	--	400	--	mS
$V_{GS(off)}$	Gate to source cut-off voltage	$V_{DS}=3\text{V}, I_D=3\text{mA}$	--	--	-4.5	V
$P_{1dB}$	Output power at 1dB gain compression	$V_{DS}=10\text{V}, I_D=450\text{mA}$ f=12GHz	31	32	--	dBm
GLP	Linear power gain		5.5	6.0	--	dB
$\eta_{add}$	Power added efficiency		--	20	--	%
$R_{th(ch-c)}$	Thermal resistance	$\Delta V_f$ method	--	--	15	$^\circ\text{C/W}$

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



$T_a = 25^\circ\text{C}$   
 $V_{DS} = 10\text{V}$   
 $I_D = 450\text{mA}$

**S PARAMETERS** ( $T_a = 25^\circ\text{C}$ ,  $V_{DS} = 10\text{V}$ ,  $I_D = 450\text{mA}$ )

f (GHz)	S Parameters (TYP.)							
	$S_{11}$		$S_{21}$		$S_{12}$		$S_{22}$	
	Mag.	Angle (deg.)	Mag.	Angle (deg.)	Mag.	Angle (deg.)	Mag.	Angle (deg.)
2.0	0.914	-127.4	4.336	103.4	0.011	21.9	0.589	-175.6
4.0	0.889	-167.6	2.292	71.7	0.012	0.2	0.634	-177.1
6.0	0.886	170.5	1.451	49.6	0.012	-12.4	0.682	-179.6
8.0	0.889	154.7	0.999	31.2	0.012	-22.3	0.729	176.7
10.0	0.895	141.8	0.721	14.9	0.011	-31.0	0.773	172.2
12.0	0.902	130.7	0.535	0.4	0.011	-38.8	0.811	167.3
14.0	0.910	121.1	0.406	-12.7	0.010	-45.9	0.843	162.2

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