

2SK317

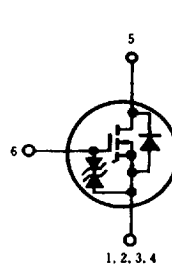
HITACHI/(OPTOELECTRONICS) 61E D

SILICON N-CHANNEL MOS FET

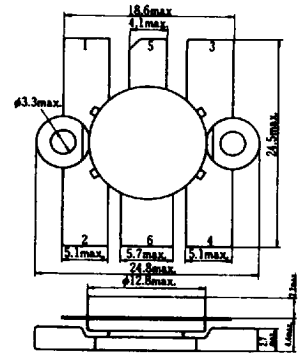
HF/VHF POWER AMPLIFIER

FEATURES

- High Breakdown Voltage.
- You Can Decrease Handling Current.
- Gate is Protected by Zener Diodes.
- No Secondary-Breakdown.
- Wide Area of Safe Operation.
- Infinite VSWR.
- No Thermal Runaway.
- Simple Bias Circuitry.



1. Source
2. Source
3. Source
4. Source
5. Drain
6. Gate
(Dimensions in mm)



(RFPK-A)

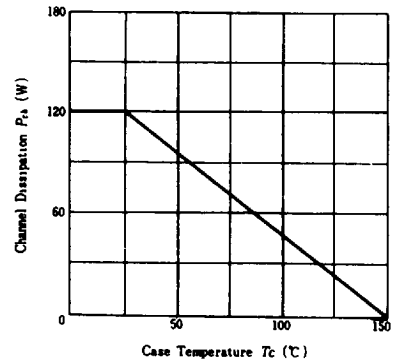
ABSOLUTE MAXIMUM RATINGS ($T_c=25^\circ\text{C}$)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	180	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	I_D	8	A
Channel Dissipation	P_{ch}^*	120	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

*Value at $T_c=25^\circ\text{C}$

POWER VS.

TEMPERATURE DERATING



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

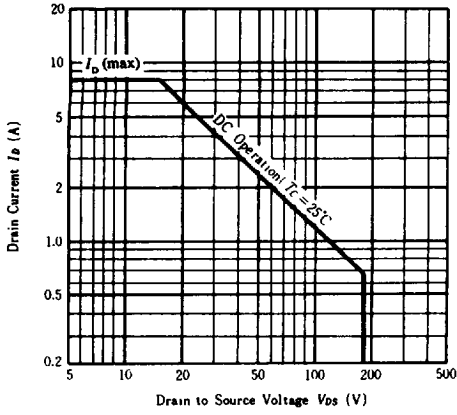
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Power Output	P_O	$V_{DS}=80\text{V}, I_{DQ}=0.1\text{A}$	120	—	—	W
Drain Efficiency	η	$P_{in}=8\text{W}, f=100\text{MHz}$	—	80	—	%
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$I_D=10\text{mA}, V_{GS}=0$	180	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GS}$	$I_G=\pm 100\mu\text{A}, V_{DS}=0$	± 20	—	—	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=140\text{V}, V_{GS}=0$	—	—	1.0	mA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=1\text{mA}, V_{DS}=10\text{V}^*$	0.5	—	3.0	V
Static Drain-Source On State Resistance	$R_{DS(on)}$	$I_D=4\text{A}, V_{GS}=10\text{V}^*$	—	0.95	1.5	Ω
Drain-Source Saturation Voltage	$V_{DS(on)}$	$I_D=4\text{A}, V_{GS}=10\text{V}^*$	—	3.8	6.0	V
Forward Transfer Admittance	$ y_{fs} $	$I_D=3\text{A}, V_{DS}=20\text{V}^*$	0.9	1.25	—	S
Input Capacitance	C_{iss}	$V_{GS}=5\text{V}, V_{DS}=0, f=1\text{MHz}$	—	600	—	pF
Output Capacitance	C_{oss}	$V_{GS}=-5\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$	—	90	—	pF
Reverse Transfer Capacitance	C_{rss}	$V_{GD}=-50\text{V}, f=1\text{MHz}$	—	0.5	—	pF

*Pulse Test

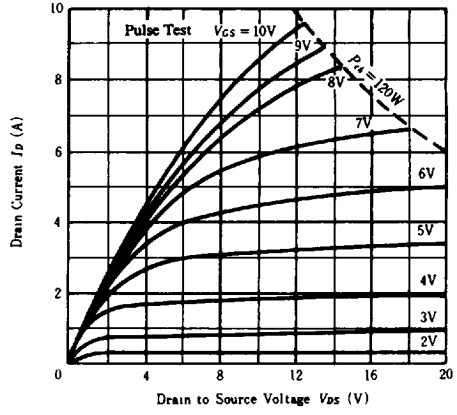
CAUTION: OPERATING HAZARDS

Beryllium Oxide Ceramics have been employed in these products. Since dust or fume of the material is highly poison to the human body, please do not treat them mechanically or chemically in the manner which might expose them to the air. And it should never be thrown out with general industrial or domestic waste.

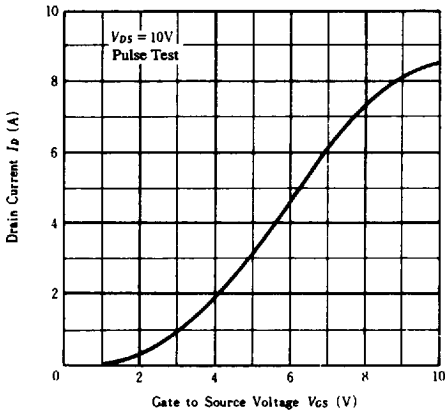
MAXIMUM SAFE OPERATION AREA



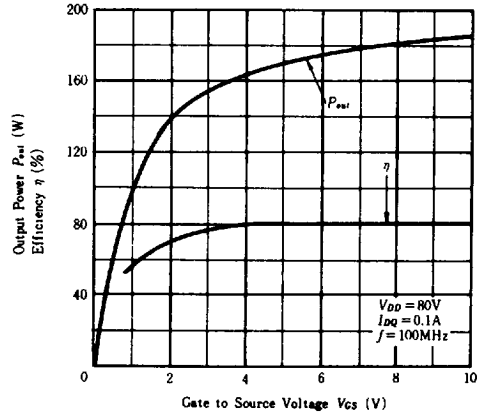
TYPICAL OUTPUT CHARACTERISTICS



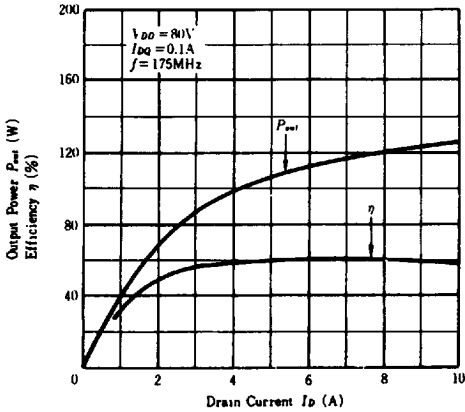
TYPICAL TRANSFER CHARACTERISTICS



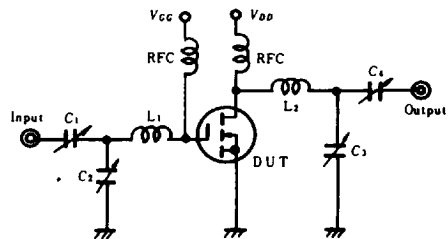
INPUT POWER VS. OUTPUT POWER (1)



INPUT POWER VS. OUTPUT POWER (2)



OUTPUT POWER TEST CIRCUIT



$C_1 = 22\text{pF}$, $C_2 = 33\text{pF}$, $C_3 = 10\text{pF}$, $C_4 = 22\text{pF}$
 $L_1, L_2, I_D = 6\text{mm}$, $d = 1\text{mm}$
 $f = 100\text{MHz}$; $L_1 = 3\text{T}$, $L_2 = 6\text{T}$
 $f = 175\text{MHz}$; $L_1 = 1\text{T}$, $L_2 = 3\text{T}$