2SK1575

Silicon N-Channel MOS FET

HITACHI

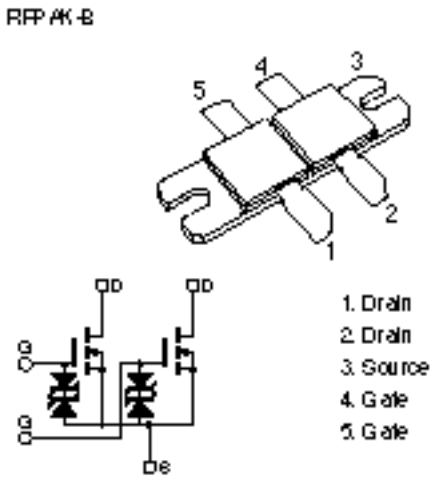
Application

VHF amplifier

Features

- High gain, high efficiency
  PG = 13 dB, ηD = 65% typ (f = 190 MHz)
- Compact package
  Suitable for push - pull circuit

Outline



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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	180	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	16	A
Channel dissipation	Pch*[1]	200	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

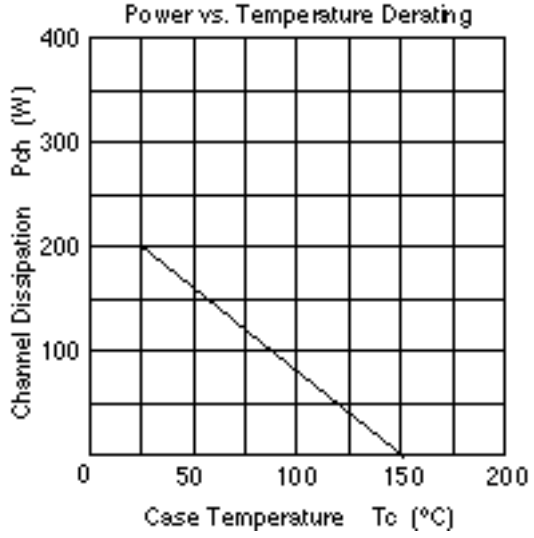
Note: 1. Value at T_C = 25°C

Electrical Characteristics (Ta = 25°C)

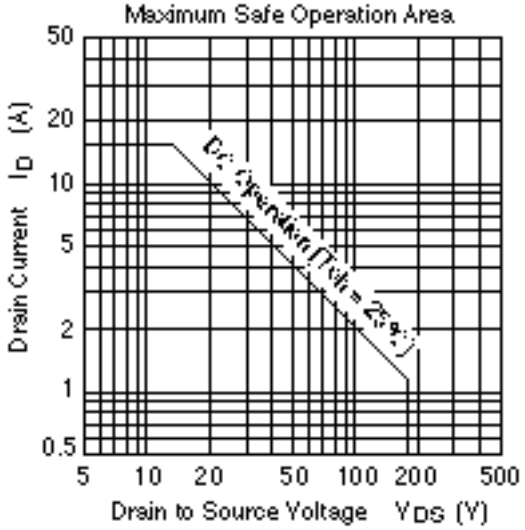
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage*[1]	$V_{(BR)DSS}$	180	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source breakdown voltage*[1]	$V_{(BR)GSS}$	±20	—	—	V	I_G = ±100 µA, V_{DS} = 0
Zero gate voltage drain current*[1]	I_{DSS}	—	—	1	mA	V_{DS} = 140 V, V_{GS} = 0
Gate to source cutoff voltage*[1]	$V_{GS(off)}$	0.5	—	2.0	V	I_D = 1 mA, V_{DS} = 10 V
Drain to source cutoff voltage*[1]	$V_{DS(on)}$	—	3.8	6.0	V	I_D = 4 A, V_{GS} = 10 V*[2]
Forward transfer admittance*[1]	$\|y_{fs}\|$	0.9	1.25	—	S	I_D = 3 A, V_{DS} = 20 V*[2]
Input capacitance*[1]	Ciss	—	440	—	pF	V_{GS} = 5 V, V_{DS} = 0 f = 1 MHz
Output capacitance*[1]	Coss	—	75	—	pF	V_{DS} = 50 V, V_{GS} = 0 f = 1 MHz
Reverse transfer capacitance*[1]	Crss	—	0.5	—	pF	V_{GD} = –50 V, f = 1 MHz
Output Power	Po	180	220	—	W	V_{DS} = 80 V, I_{DQ} = 0.2 A
Drain Efficiency	ηD	—	65	—	%	f = 190 MHz, Pin = 10 W

Notes: 1. Shows / unit FET
2. Pulse Test

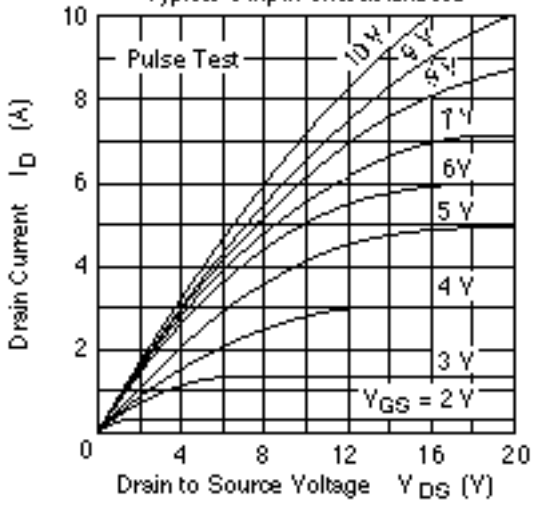
Power vs. Temperature Derating



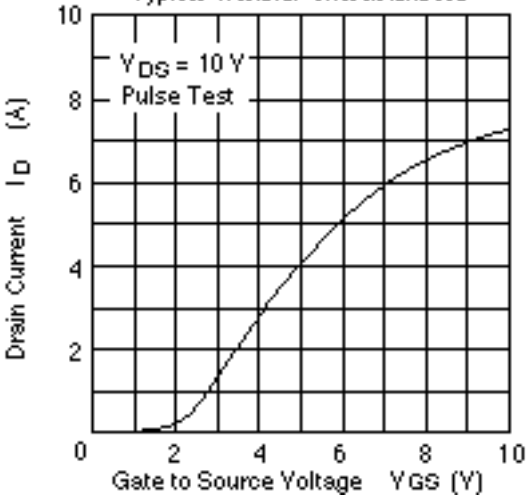
Maximum Safe Operation Area



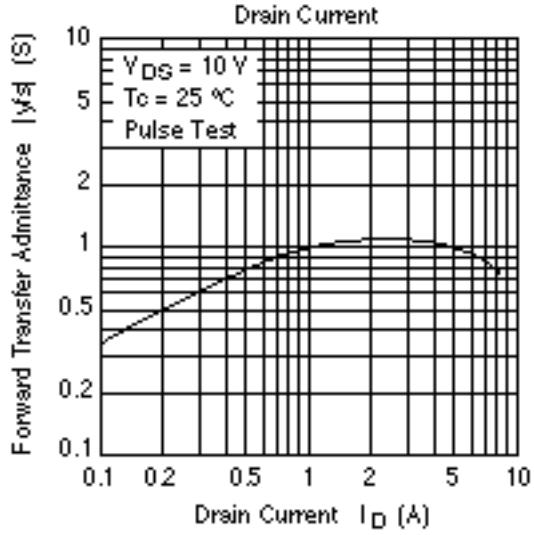
Typical Output Characteristics



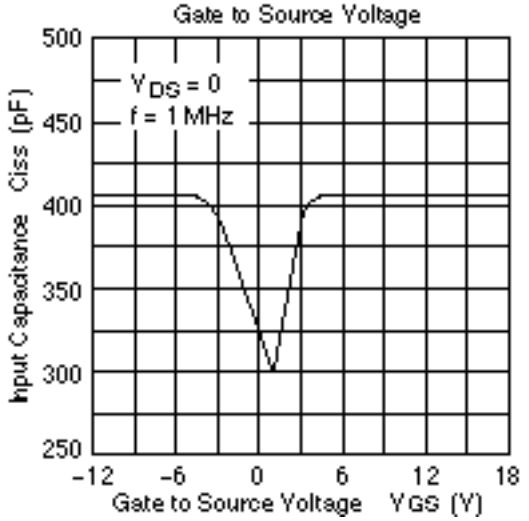
Typical Transfer Characteristics

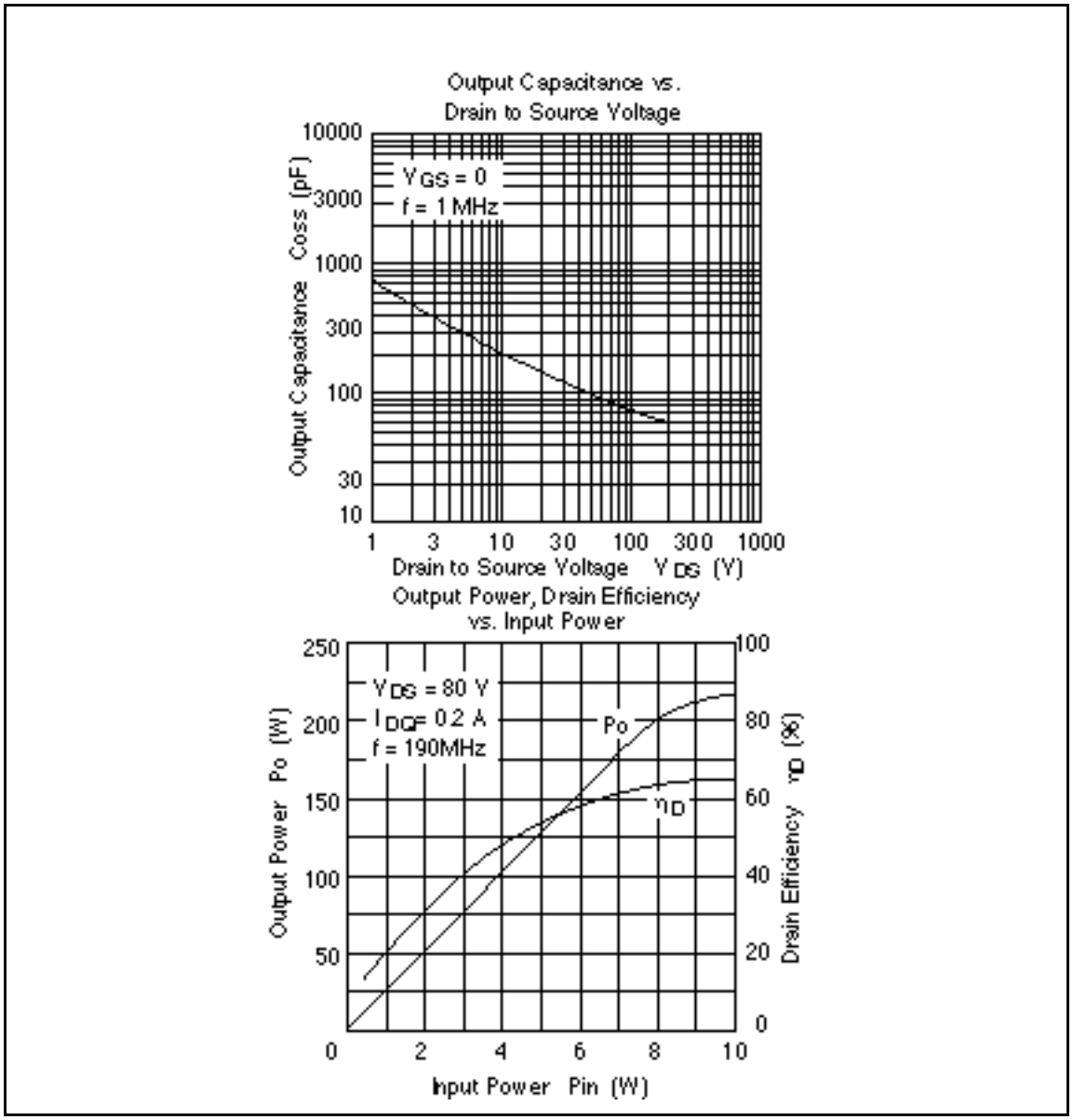


Forward Transfer Admittance vs. Drain Current



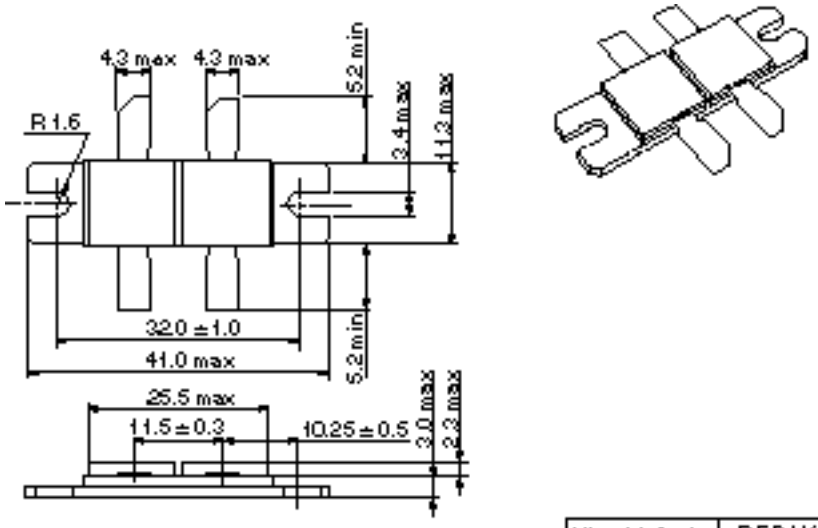
Input Capacitance vs. Gate to Source Voltage




Output Capacitance vs.
Drain to Source Voltage
Output Capacitance Coss (pF)
10000
3000
1000
300
100
30
10
VGS = 0
f = 1 MHz
1
3
10
30
100
300
1000
Drain to Source Voltage VDS (V)
Output Power, Drain Efficiency
vs. Input Power
Output Power Po (W)
250
200
150
100
50
0
VDS = 80 V
IDQ = 0.2 A
f = 190MHz
Po
ηD
100
80
60
40
20
0
Drain Efficiency ηD (%)
0
2
4
6
8
10
Input Power Pin (W)

Package Dimensions

Unit: mm



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