2SK2596

Silicon N-Channel MOS FET
UHF Power Amplifier

HITACHI

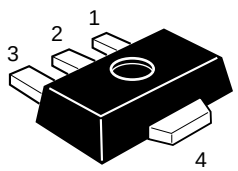
1st. Edition

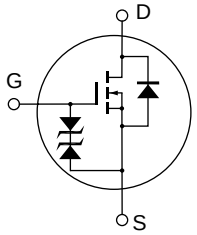
Features

- High power output, High gain, High efficiency
  PG = 12.2dB, Pout = 30.2dBm, ηD = 45 %min. (f = 836.5MHz)
- Compact package capable of surface mounting

Outline

UPAK





1. Gate
2. Source
3. Drain
4. Source

This Device is sensitive to Elector Static Discharge.
An Adequate handling procedure is requested.

Hitachi semiconductor

Absolute Maximum Ratings (Ta = 25°C)

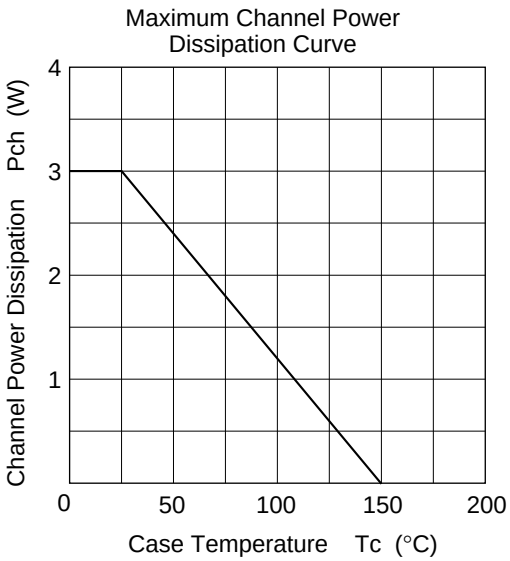
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	17	V
Gate to source voltage	V_{GSS}	±10	V
Drain current	I_D	0.4	A
Drain peak current	$I_{D(pulse)}$*[1]	1	A
Channel dissipation	Pch*[2]	3	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–45 to +150	°C

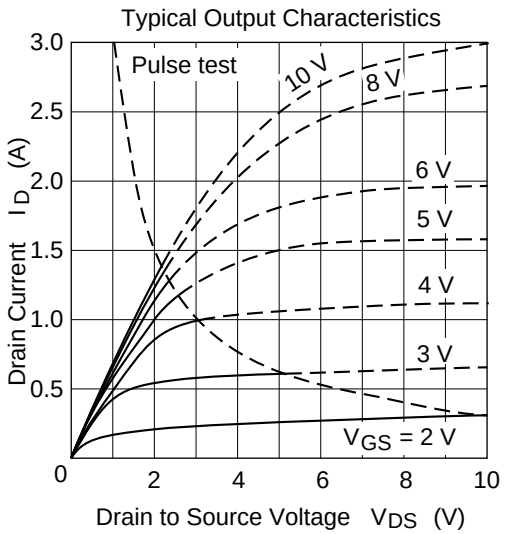
Notes: 1. PW ≤ 10µs, duty cycle ≤ 1 %
2. Value at Tc = 25°C

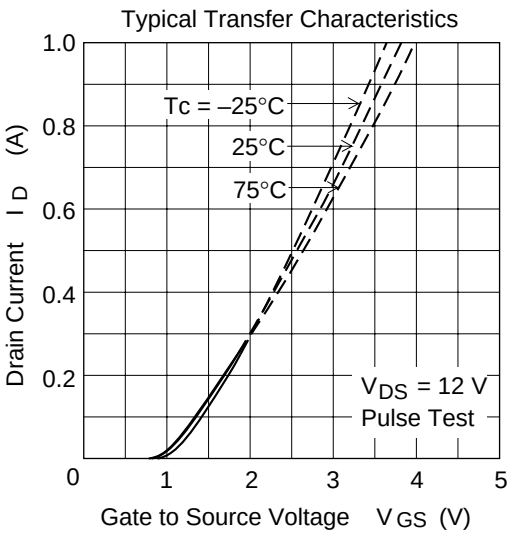
Electrical Characteristics (Ta = 25°C)

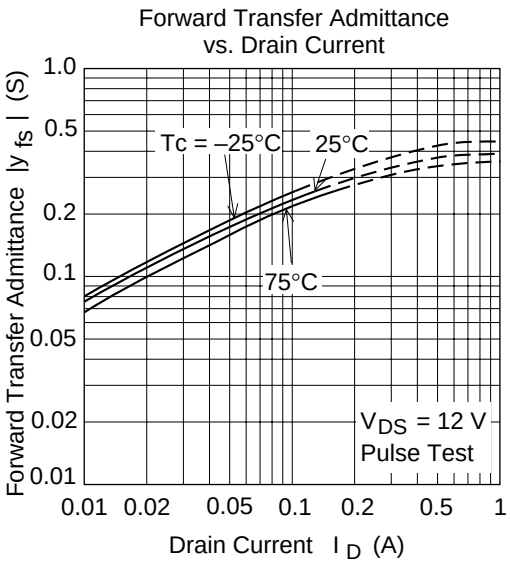
Item	Symbol	Min.	Typ	Max.	Unit	Test Conditions
Zero gate voltage drain current	I_{DSS}	—	—	10	µA	V_{DS} = 12 V, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±5.0	µA	V_{GS} = ±10V, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	0.4	—	1.1	V	I_D = 2mA, V_{DS} = 12V
Input capacitance	Ciss	—	22	—	pF	V_{GS} = 5V, V_{DS} = 0 f = 1MHz
Output capacitance	Coss	—	10.5	—	pF	V_{DS} = 12V, V_{GS} = 0 f = 1MHz
Output Power	Pout	30.2	31.46	—	dBm	V_{DS} = 12V f = 836.5MHz Pin = 18dBm
Drain Rational	ηD	45	55	—	%	V_{DS} = 12V Pout = 30.2dBm f = 836.5MHz Pin = 18dBm

Main Characteristics

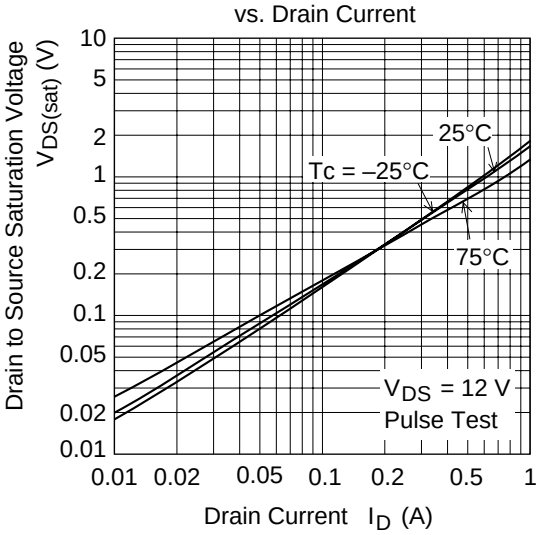




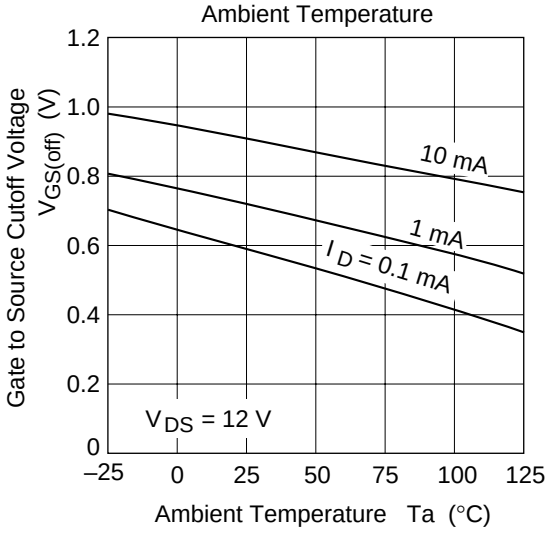




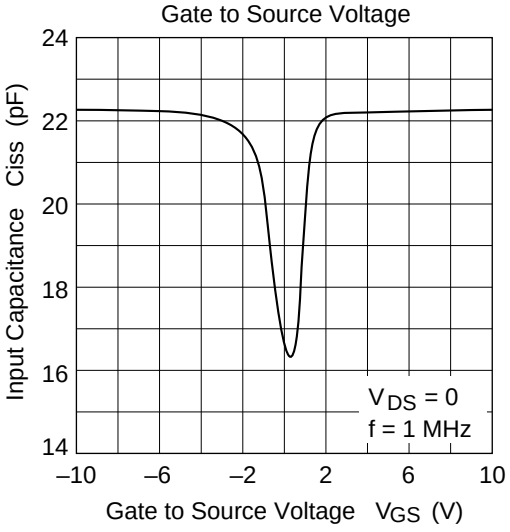
Drain to Source Saturation Voltage vs. Drain Current



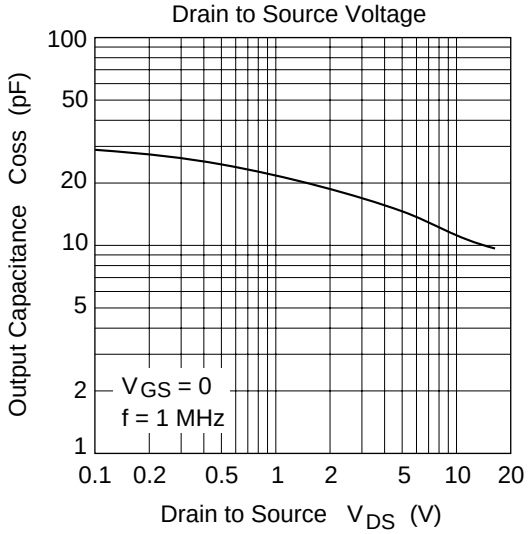
Gate to Source Cutoff Voltage vs. Ambient Temperature

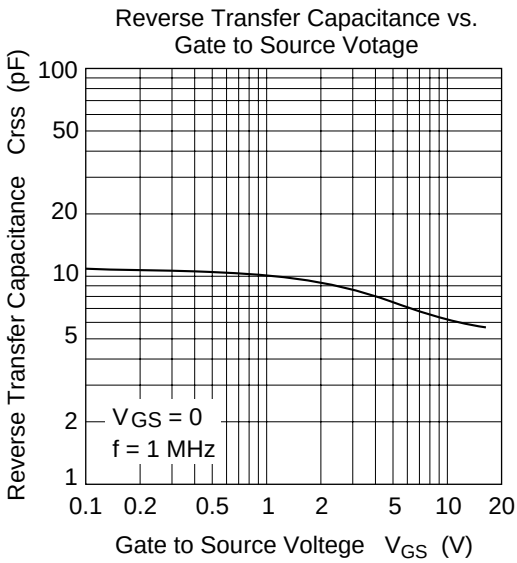


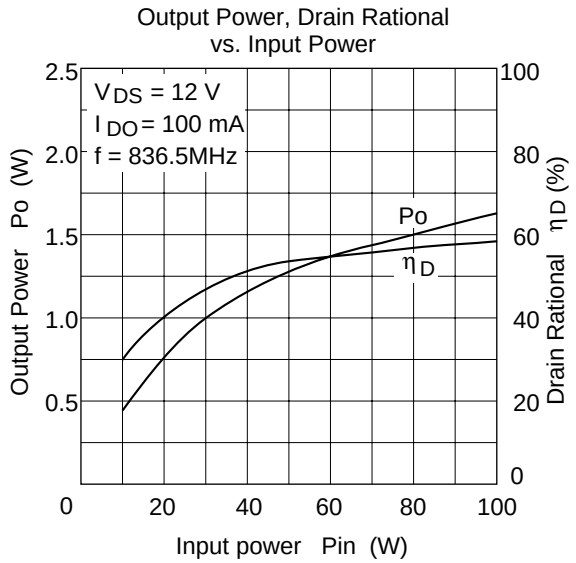
Input Capacitance vs. Gate to Source Voltage



Output Capacitance vs. Drain to Source Voltage

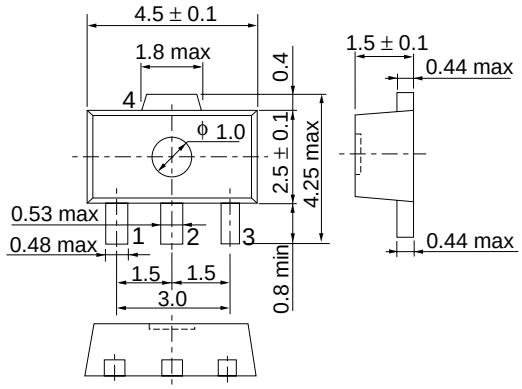


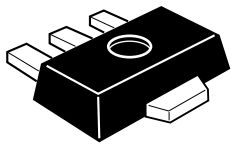

Reverse Transfer Capacitance vs.
Gate to Source Votage
Reverse Transfer Capacitance Crss (pF)
100
50
20
10
5
2
1
VGS = 0
f = 1 MHz
0.1
0.2
0.5
1
2
5
10
20
Gate to Source Voltege VGS (V)


Output Power, Drain Rational
vs. Input Power
VDS = 12 V
IDO = 100 mA
f = 836.5MHz
Po
ηD
Output Power Po (W)
2.5
2.0
1.5
1.0
0.5
0
Drain Rational ηD (%)
100
80
60
40
20
0
0
20
40
60
80
100
Input power Pin (W)

Package Dimensions

Unit: mm





Hitachi Code	UPAK
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