HITACHI

2SK1764

Silicon N Channel MOS FET

Application

Low frequency amplifier
High speed switching

Features

- Low on–resistance
- High speed switching
- 4 V Gate drive device can be driven from 5 V source
- Suitable for switchingregulator, DC–DC converter

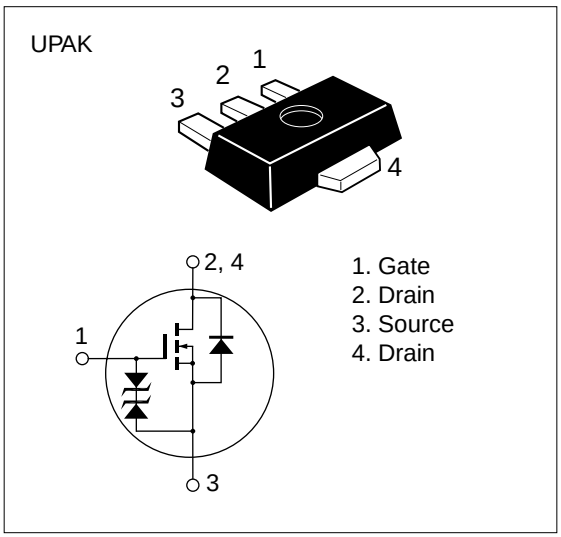


Table 1 Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	60	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	±2	A
Drain peak current	$I_{D(pulse)}$*	±4	A
Channel power dissipation	Pch**	1	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

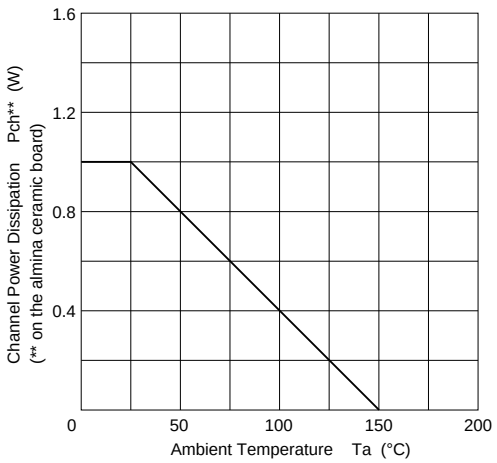
* PW ≤ 100 µs, duty cycle ≤ 10 %
** Value on the alumina ceramic board (12.5 x 20 x 0.7 mm)
*** Marking is "KY".

Table 2 Electrical Characteristics (Ta = 25°C)

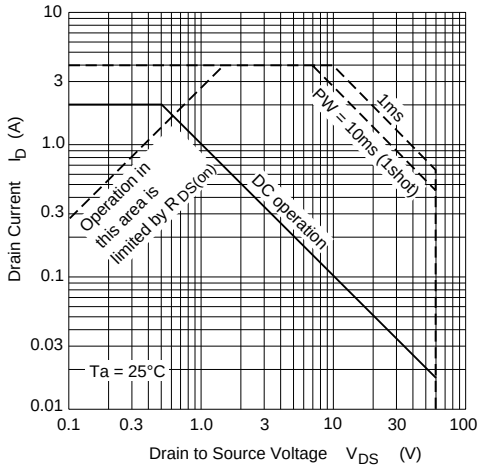
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	I_G = ±100 µA, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	1	—	2	V	V_{DS} = 10 V, I_D = 1 mA
Drain to source cutoff current	I_{DSS}	—	—	10	µA	V_{DS} = 50 V, V_{GS} = 0
Gate to source cutoff current	I_{GSS}	—	—	±5	µA	V_{GS} = ±15 V, V_{DS} = 0
Static drain to source on state resistance	$R_{DS(on)1}$	—	0.3	0.45	Ω	V_{GS} = 10 V I_D = 1 A*
Static drain to source on state resistance	$R_{DS(on)2}$	—	0.4	0.60	Ω	V_{GS} = 4 V I_D = 1 A*
Forward transfer admittance	$\|y_{fs}\|$	0.9	1.7	—	S	V_{DS} = 10 V I_D = 1 A*
Input capacitance	Ciss	—	140	—	pF	V_{DS} = 10 V
Output capacitance	Coss	—	75	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	20	—	pF	f = 1 MHz
Turn on time	ton	—	18	—	ns	V_{DS} = 10 V, I_D = 1 A*
Turn off time	toff	—	80	—	ns	R_L = 30 Ω

* Pulse Test

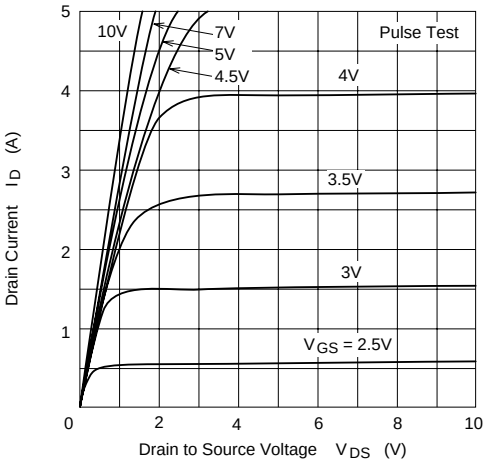
Maximum Channel Power Dissipation Curve



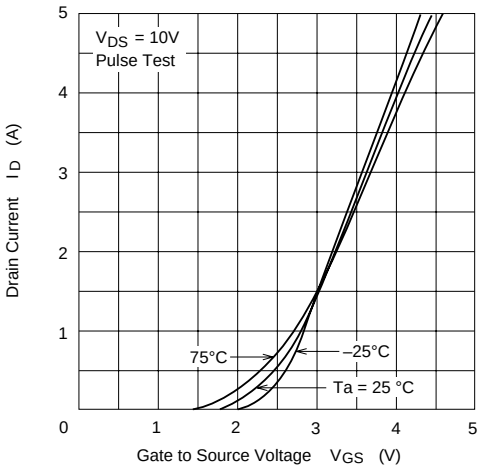
Safe Operation Area



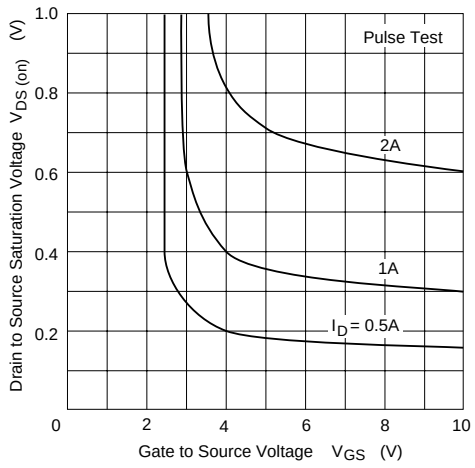
Typical Output Characteristics



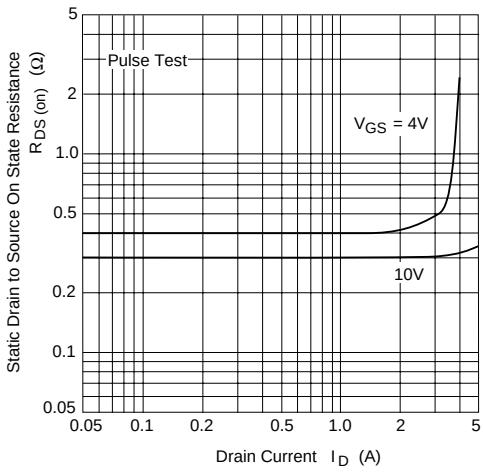
Typical Transfer Characteristics



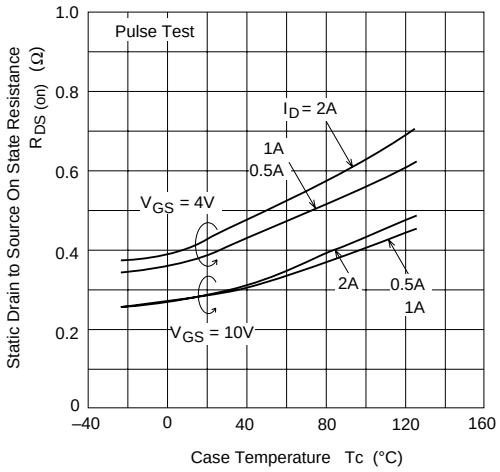
Drain to Source Saturation Voltage vs. Gate to Source Voltage



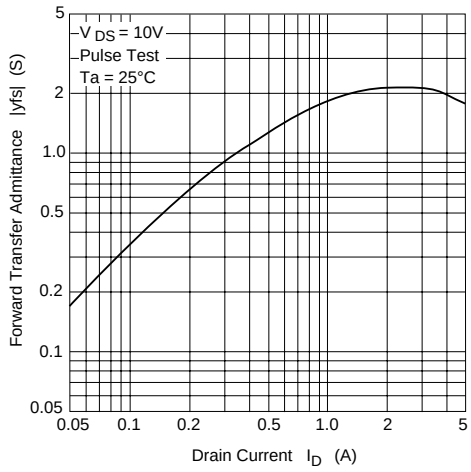
Static Drain to Source On State Resistance vs. Drain Current



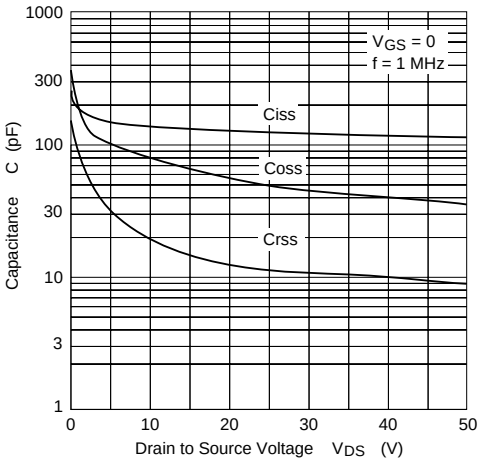
Static Drain to Source On State Resistance vs. Case Temperature



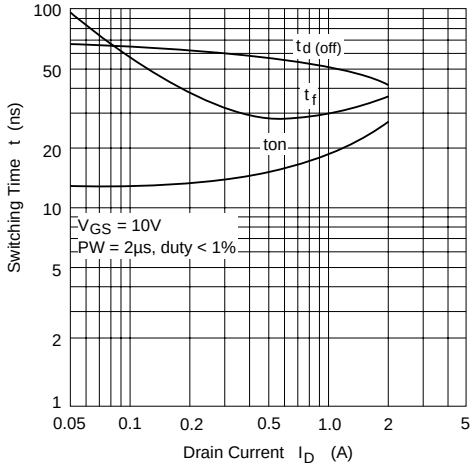
Forward Transfer Admittance vs. Drain Current



Typical Capacitance vs. Drain to Source Voltage



Switching Time vs. Drain Current



Reverse Drain Current vs. Source to Drain Voltage