

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 switching regulator, DC-DC converter

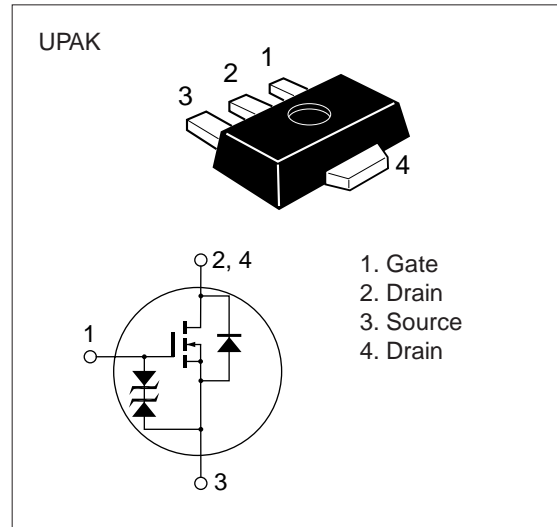


Table 1 Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

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	$I_{D(\text{pulse})}^*$	± 4	A
Channel power dissipation	P_{ch}^{**}	1	W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

* $PW \leq 100 \mu\text{s}$, duty cycle $\leq 10\%$

** Value on the alumina ceramic board (12.5 x 20 x 0.7 mm)

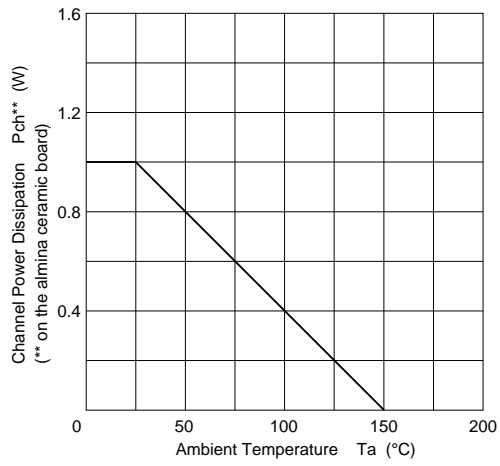
*** Marking is "KY".

Table 2 Electrical Characteristics ($T_a = 25^\circ\text{C}$)

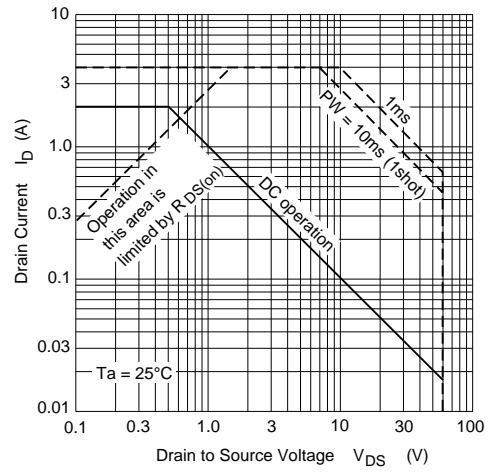
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1	—	2	V	$V_{DS}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

* Pulse Test

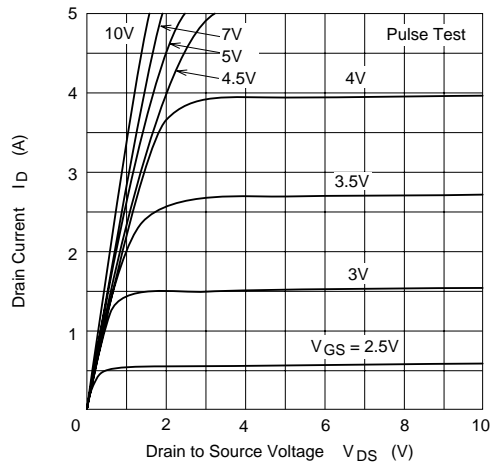
Maximum Channel Power Dissipation Curve



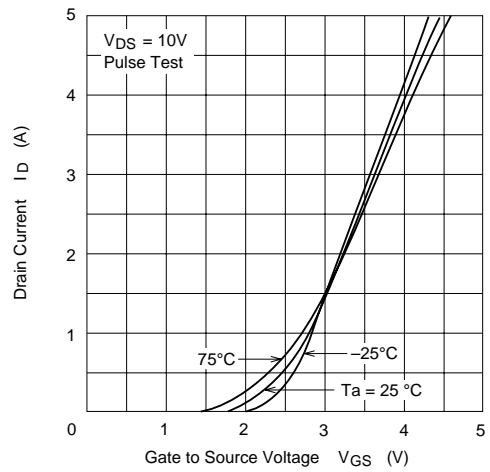
Safe Operation Area



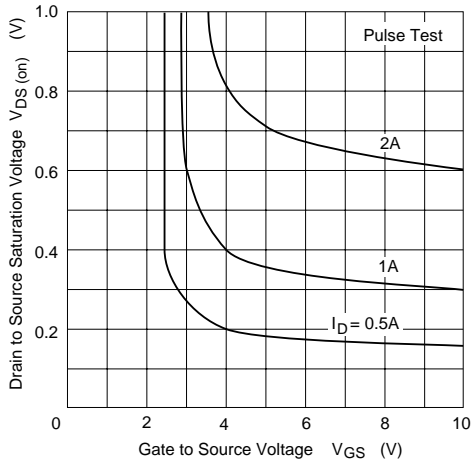
Typical Output Characteristics



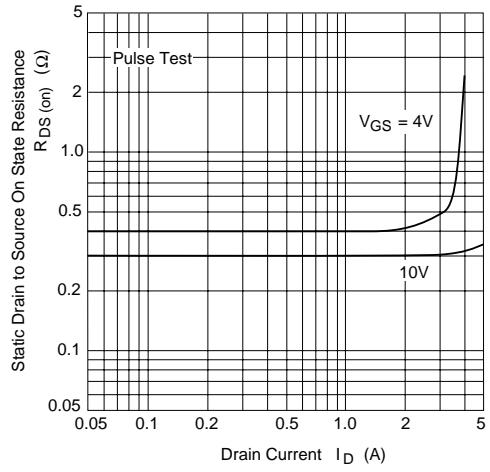
Typical Transfer Characteristics



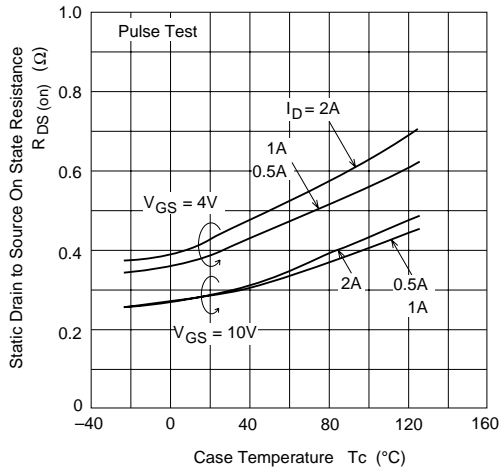
Drain to Source Saturation Voltage vs. Gate to Source Voltage



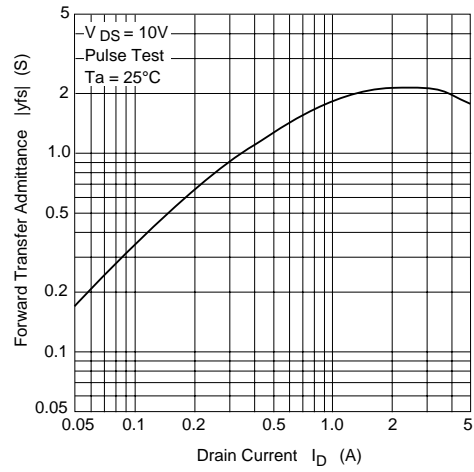
Static Drain to Source On State Resistance vs. Drain Current



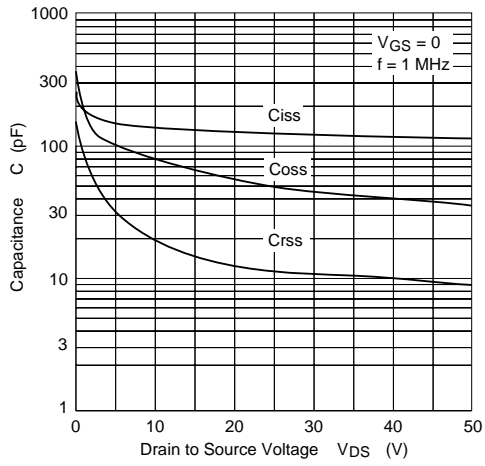
Static Drain to Source On State Resistance vs. Case Temperature



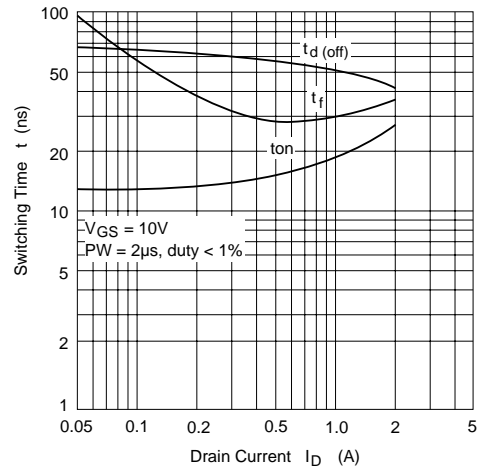
Forward Transfer Admittance vs. Drain Current



Typical Capacitance vs. Drain to Source Voltage



Switching Time vs. Drain Current



Reverse Drain Current vs. Source to Drain Voltage

