

2SK1869 (L), 2SK1869 (S)

Silicon N Channel MOS FET

Application

High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- No Secondary Breakdown
- Suitable for Switching regulator, DC – DC converter

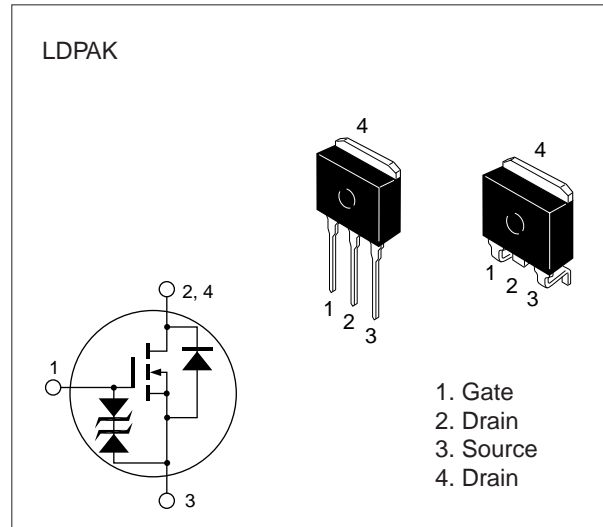


Table 1 Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	350	V
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	7	A
Drain peak current	I _{D(pulse)} *	28	A
Body-drain diode reverse drain current	I _{DR}	7	A
Channel dissipation	P _{ch} **	50	W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

* PW ≤ 10 μs, duty cycle ≤ 1 %

** Value at T_c = 25 °C

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

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	350	—	—	V	$I_D = 10\text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 30	—	—	V	$I_G = \pm 100\ \mu\text{A}, V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 25\text{ V}, V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	250	μA	$V_{DS} = 280\text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	3.0	V	$I_D = 1\text{ mA}, V_{DS} = 10\text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.6	0.8	Ω	$I_D = 4\text{ A}$ $V_{GS} = 10\text{ V}^*$
Forward transfer admittance	$ y_{fs} $	3.0	5.0	—	S	$I_D = 4\text{ A}$ $V_{DS} = 10\text{ V}^*$
Input capacitance	C_{iss}	—	635	—	pF	$V_{DS} = 10\text{ V}$
Output capacitance	C_{oss}	—	230	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	40	—	pF	$f = 1\text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$I_D = 4\text{ A}$
Rise time	t_r	—	50	—	ns	$V_{GS} = 10\text{ V}$
Turn-off delay time	$t_{d(off)}$	—	60	—	ns	$R_L = 7.5\ \Omega$
Fall time	t_f	—	40	—	ns	
Body-drain diode forward voltage	V_{DF}	—	0.95	—	V	$I_F = 7\text{ A}, V_{GS} = 0$
Body-drain diode reverse recovery time	t_{rr}	—	240	—	ns	$I_F = 7\text{ A}, V_{GS} = 0,$ $di_F / dt = 100\text{ A} / \mu\text{s}$

* Pulse Test

See characteristic curves of 2SK1400A