HITACHI

2SK1697

Silicon N Channel MOS FET

Application

High speed power switching

Features

- Low on–resistance
- High speed switching
- Low drive current
- 4 V gate drive device - - - can be driven from 5 V source.
- Suitable for DC – DC converter, motor drive, power switch, solenoid drive

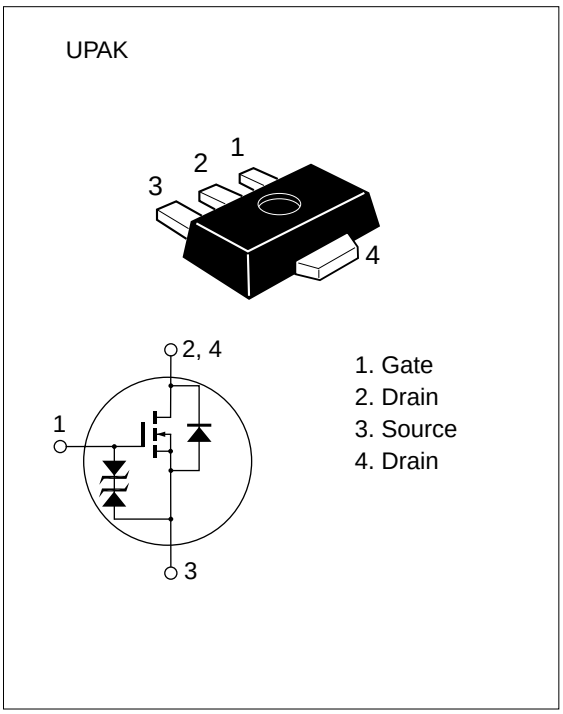


Table 1 Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	60	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	0.5	A
Drain peak current	$I_{D(pulse)}$*	1.5	A
Body–drain diode reverse drain current	I_{DR}	0.5	A
Channel dissipation	Pch**	1	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

* PW ≤ 10 µs, duty cycle ≤ 1 %
** When using the alumina ceramic board (12.5 × 20 × 0.7mm)
*** Marking is "EY".

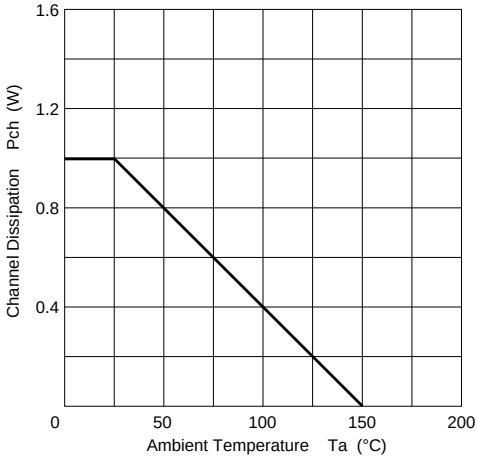
Table 2 Electrical Characteristics (Ta = 25°C)

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 leak current	I_{GSS}	—	—	±10	µA	V_{GS} = ±16 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	50	µA	V_{DS} = 50 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	I_D = 1 mA, V_{DS} = 10 V
Static drain to source on state resistance	$R_{DS(on)}$	—	1.3	1.7	Ω	I_D = 0.3 A V_{GS} = 10 V *
		—	1.8	2.5	Ω	I_D = 0.3 A V_{GS} = 4 V *
Forward transfer admittance	$\|y_{fs}\|$	0.25	0.38	—	S	I_D = 0.3 A V_{DS} = 10 V *
Input capacitance	Ciss	—	30	—	pF	V_{DS} = 10 V
Output capacitance	Coss	—	13	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	4	—	pF	f = 1 MHz
Turn–on delay time	$t_{d(on)}$	—	3	—	ns	I_D = 0.3 A
Rise time	t_r	—	8	—	ns	V_{GS} = 10 V
Turn–off delay time	$t_{d(off)}$	—	18	—	ns	R_L = 100 Ω
Fall time	t_f	—	14	—	ns	
Body–drain diode forward voltage	V_{DF}	—	1	—	V	I_F = 0.5 A, V_{GS} = 0
Body–drain diode reverse recovery time	t_{rr}	—	45	—	ns	I_F =0.5 A, V_{GS} = 0, di_F/dt = 50 A/µs

* Pulse Test

See characteristic curves of 2SK1336.

Power vs. Temperature Derating



Maximum Safe Operation Area