
2SK1697

Silicon N-Channel MOS FET

HITACHI

Application

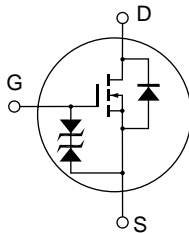
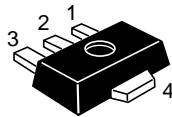
High speed power switching

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

Outline

UPAK



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

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}	0.5	A
Drain peak current	$I_{\text{D(pulse)}}^{*1}$	1.5	A
Body to drain diode reverse drain current	I_{DR}	0.5	A
Channel dissipation	P_{ch}^{*2}	1	W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

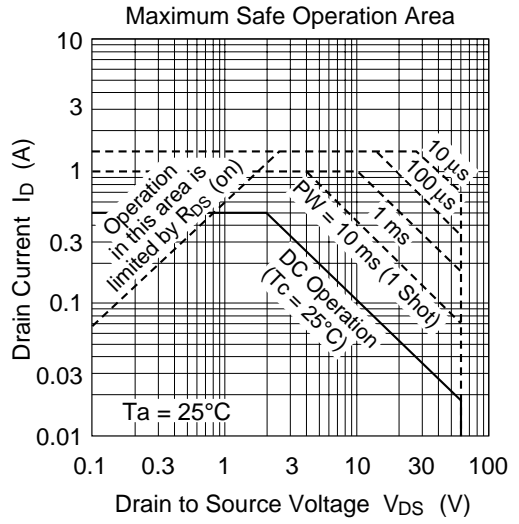
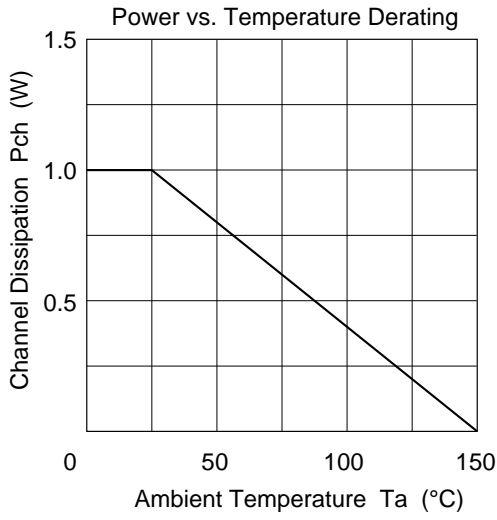
- Notes
1. $PW = 10 \mu\text{s}$, duty cycle = 1%
 2. When using the alumina ceramic board ($12.5 \times 20 \times 0.7 \text{ mm}$)
 3. Marking is "EY".

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	50	μA	$V_{DS} = 50 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.3	1.7		$I_D = 0.3 \text{ A}$, $V_{GS} = 10 \text{ V}^{*1}$
		—	1.8	2.5		$I_D = 0.3 \text{ A}$, $V_{GS} = 4 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	0.25	0.38	—	S	$I_D = 0.3 \text{ A}$, $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	C_{iss}	—	30	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$,
Output capacitance	C_{oss}	—	13	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	C_{rss}	—	4	—	pF	
Turn-on delay time	$t_{d(on)}$	—	3	—	ns	$I_D = 0.3 \text{ A}$, $V_{GS} = 10 \text{ V}$,
Rise time	t_r	—	8	—	ns	$R_L = 100$
Turn-off delay time	$t_{d(off)}$	—	18	—	ns	
Fall time	t_f	—	14	—	ns	
Body to drain diode forward voltage	V_{DF}	—	1	—	V	$I_F = 0.5 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	45	—	ns	$I_F = 0.5 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 50 \text{ A}/\mu\text{s}$

Note 1. Pulse test

See characteristic curve of 2SK1336.



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