Silicon P-Channel MOS FET

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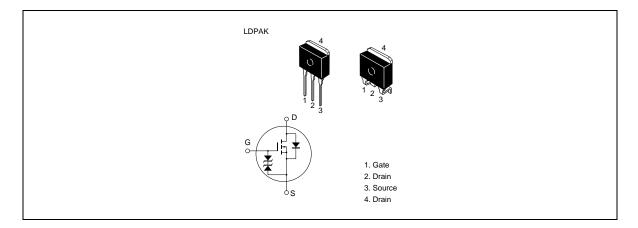
Application

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 switching regulator, DC-DC converter
- Avalanche ratings

Outline



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	-20	А	
Drain peak current	+1 D(pulse)	-80	А	
Body to drain diode reverse drain current	I _{DR}	-20	А	
Avalanche current	I_A₽ ^{★3}	-20	А	
Avalanche energy	E _{AR} * ³	34	mJ	
Channel dissipation	Pch* ²	60	W	
Channel temperature	Tch	150	°C	
Storage temperature	Tstg	-55 to +150	°C	

Notes 1. $PW \le 10 \ \mu s$, duty cycle $\le 1\%$

2. Value at $T_c = 25^{\circ}C$

3. Value at Tch = 25°C, Rg \ge 50 Ω

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Тур	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{\scriptscriptstyle (BR)DSS}$	-60			V	$I_{_{D}} = -10 \text{ mA}, V_{_{GS}} = 0$
Gate to source breakdown voltage	$V_{\scriptscriptstyle (BR)GSS}$	±20		_	V	$I_{_{\rm G}} = \pm 100 \ \mu A, \ V_{_{\rm DS}} = 0$
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}		_	-250	μA	$V_{_{\rm DS}} = -50$ V, $V_{_{\rm GS}} = 0$
Gate to source cutoff voltage	$V_{\text{GS(off)}}$	-1.0		-2.25	V	$I_{D} = -1 \text{ mA}, V_{DS} = -10 \text{ V}$
Static drain to source on state	$R_{\scriptscriptstyle DS(on)}$		0.05	0.065	Ω	$I_{_{\rm D}} = -10$ A, $V_{_{\rm GS}} = -10$ V* ¹
resistance			0.07	0.095	Ω	$I_{D} = -10 \text{ A}, \text{ V}_{GS} = -4 \text{ V}^{*1}$
Forward transfer admittance	y _{fs}	10	16	_	S	$I_{\rm D} = -10$ A, $V_{\rm DS} = -10$ V ^{*1}
Input capacitance	Ciss		2200	_	pF	$V_{_{DS}} = -10 V, V_{_{GS}} = 0,$
Output capacitance	Coss		1000	_	pF	f = 1 MHz
Reverse transfer capacitance	Crss		300	_	pF	_
Turn-on delay time	t _{d(on)}		25	_	ns	$I_{_{D}} = -10 \text{ A}, \text{ V}_{_{GS}} = -10 \text{ V},$
Rise time	t,		130	_	ns	$R_{L} = 3 \Omega$
Turn-off delay time	$\mathbf{t}_{d(off)}$		320	_	ns	
Fall time	t _f		210	_	ns	
Body to drain diode forward voltage	V_{DF}	_	-1.1	_	V	$I_{_{\rm F}} = -20$ A, $V_{_{\rm GS}} = 0$
Body to drain diode reverse recovery time	t _{rr}	—	160	—	ns	$I_{F} = -20 \text{ A}, V_{GS} = 0,$ $di_{F}/dt = 50 \text{ A}/\mu \text{s}$
Note 1 Pulse test						

Note 1. Pulse test

See characteristic curves of 2SJ291

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