

2SJ319(L), 2SJ319(S)

Silicon P-Channel MOS FET

HITACHI

Application

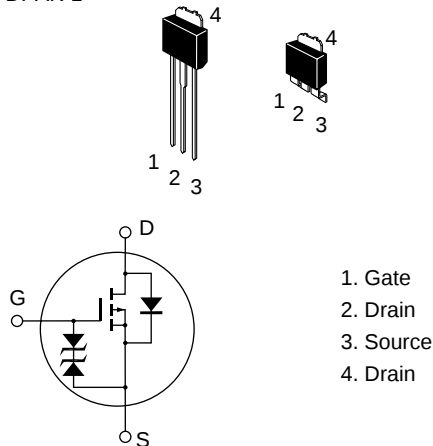
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter

Outline

DPAK-1



2SJ319(L), 2SJ319(S)

Absolute Maximum Ratings (Ta = 25°C)

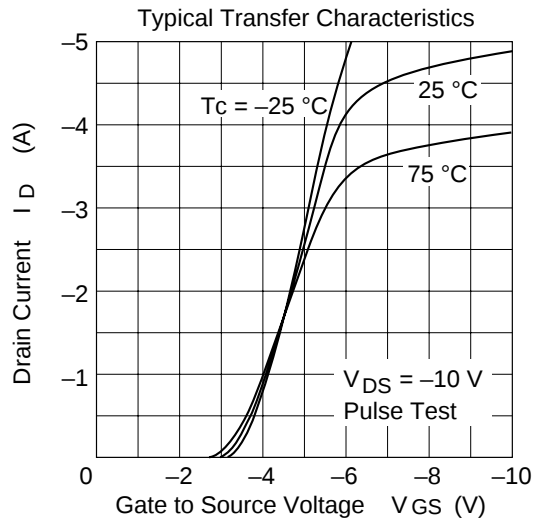
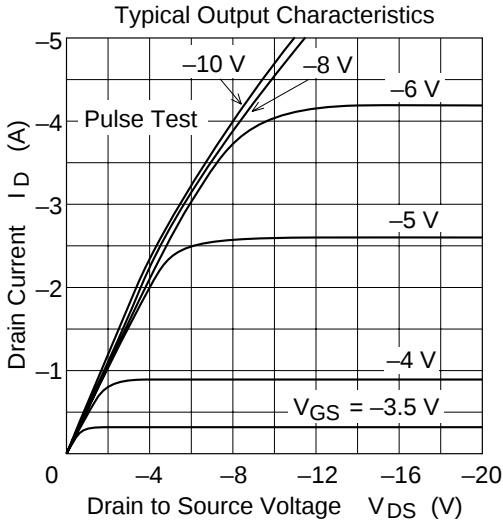
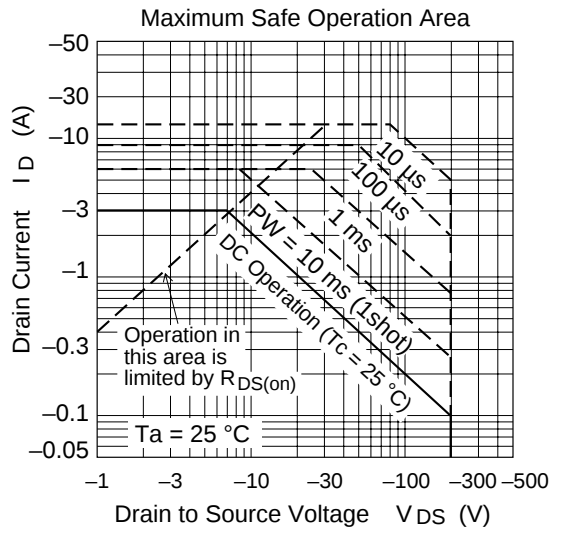
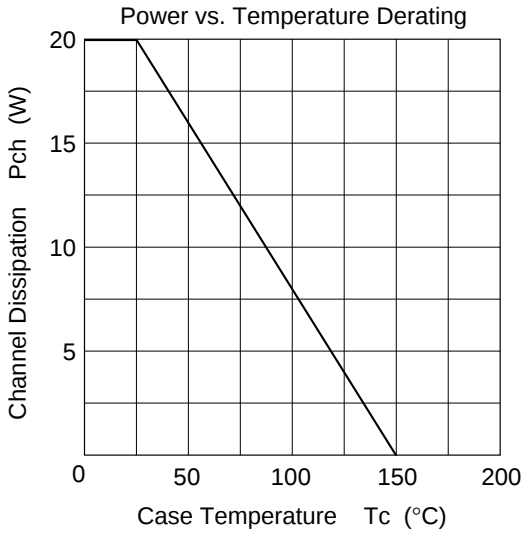
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	−200	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	−3	A
Drain peak current	$I_{D(pulse)}^{*1}$	−12	A
Body to drain diode reverse drain current	I_{DR}	−3	A
Channel dissipation	Pch^{*2}	20	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

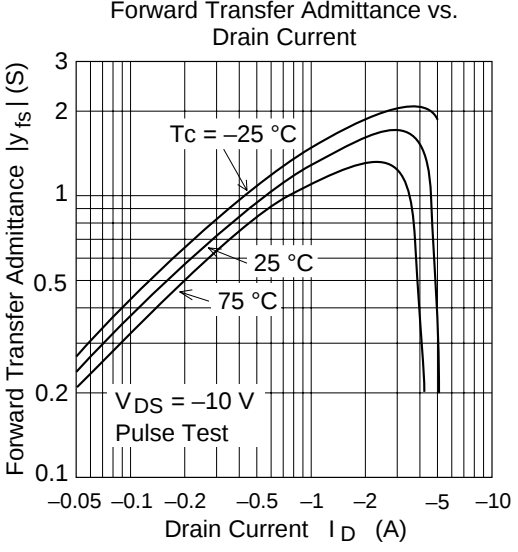
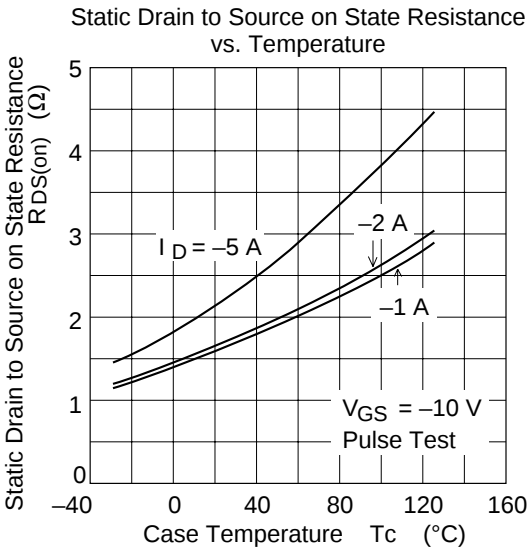
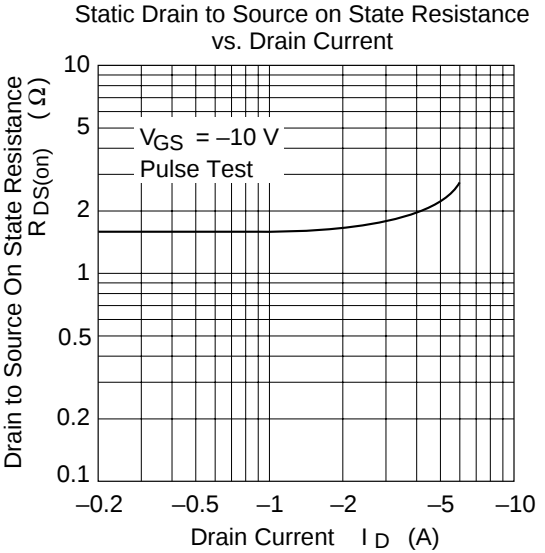
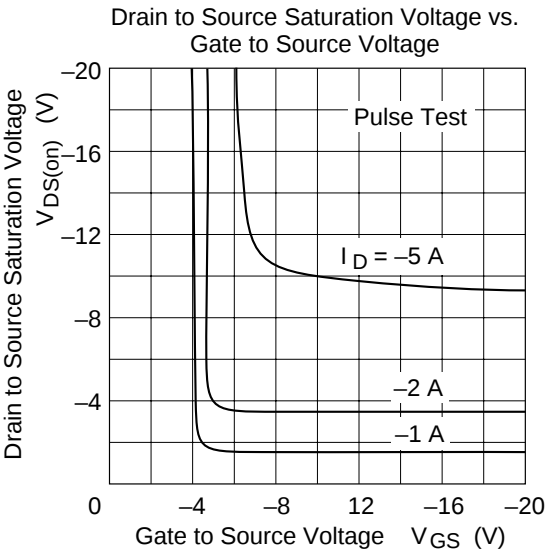
Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
2. Value at $T_C = 25^\circ C$

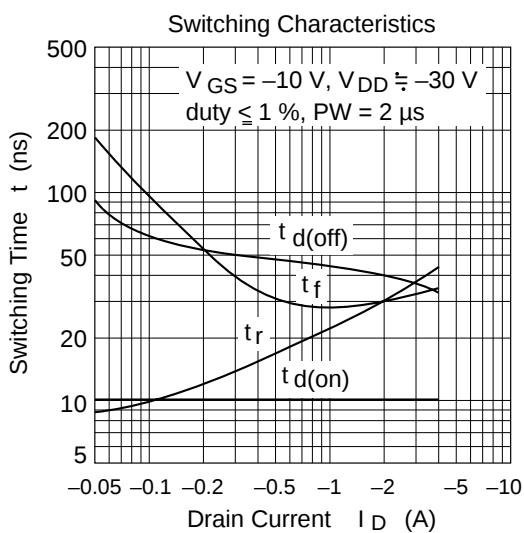
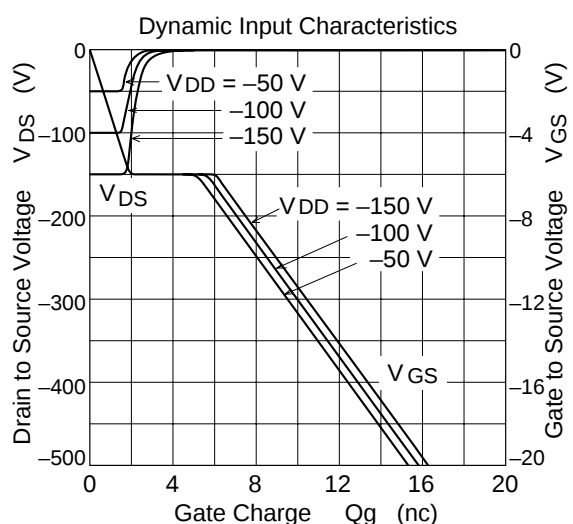
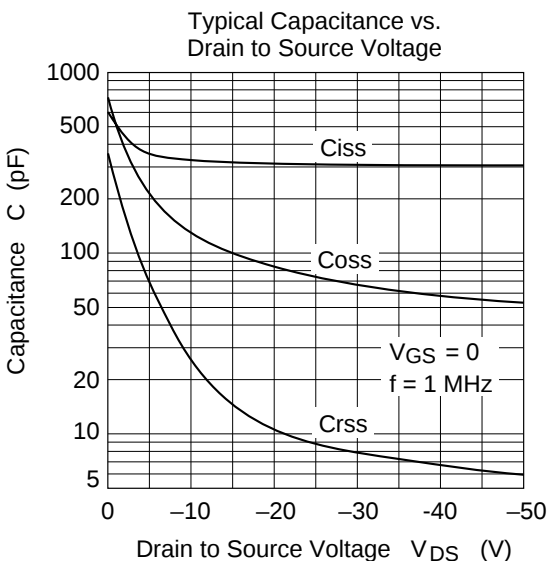
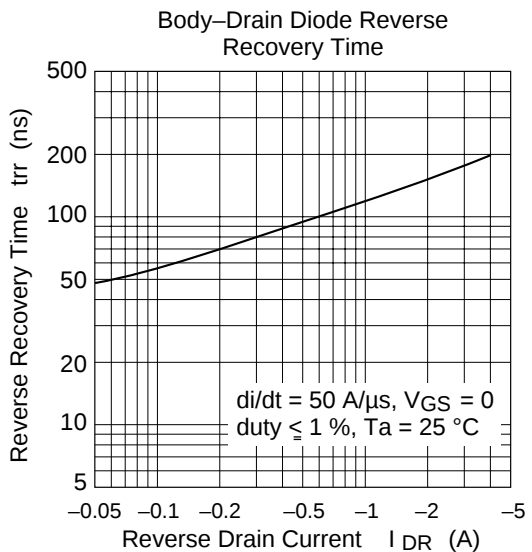
Electrical Characteristics (Ta = 25°C)

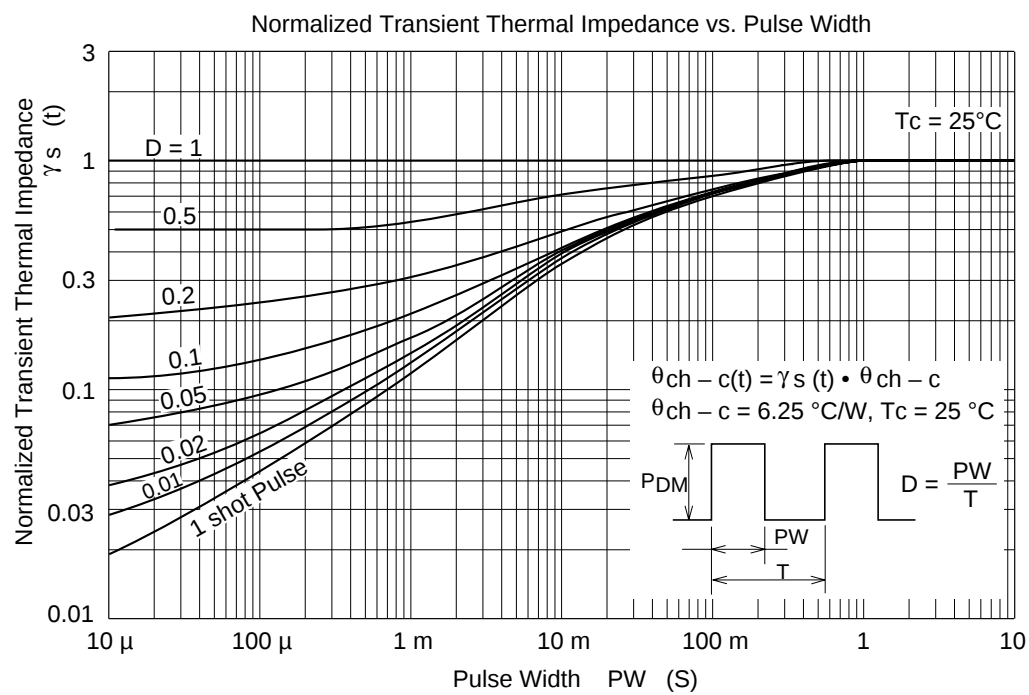
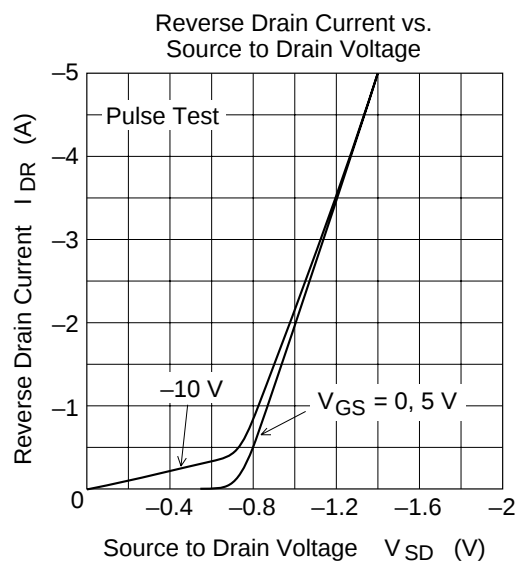
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	−200	—	—	V	$I_D = -10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100 \mu A$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	−100	μA	$V_{DS} = -160 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	−2.0	—	−4.0	V	$I_D = -1 \text{ mA}$, $V_{DS} = -10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.7	2.3	Ω	$I_D = -2 \text{ A}$, $V_{GS} = -10 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	1.0	1.7	—	S	$I_D = -2 \text{ A}$, $V_{DS} = -10 \text{ V}^{*1}$
Input capacitance	Ciss	—	330	—	pF	$V_{DS} = -10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$
Output capacitance	Coss	—	130	—	pF	
Reverse transfer capacitance	Crss	—	25	—	pF	
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$I_D = -2 \text{ A}$, $V_{GS} = -10 \text{ V}$, $R_L = 15 \Omega$
Rise time	t_r	—	30	—	ns	
Turn-off delay time	$t_{d(off)}$	—	40	—	ns	
Fall time	t_f	—	30	—	ns	
Body to drain diode forward voltage	V_{DF}	—	−1.15	—	V	$I_F = -3 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	180	—	ns	$I_F = -3 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 50 \text{ A}/\mu s$

Note: 1. Pulse test

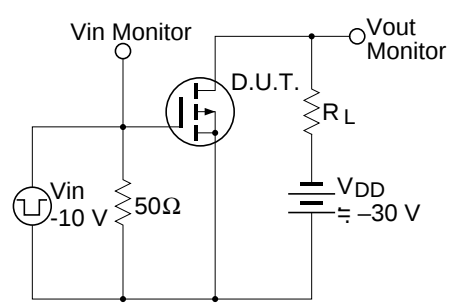




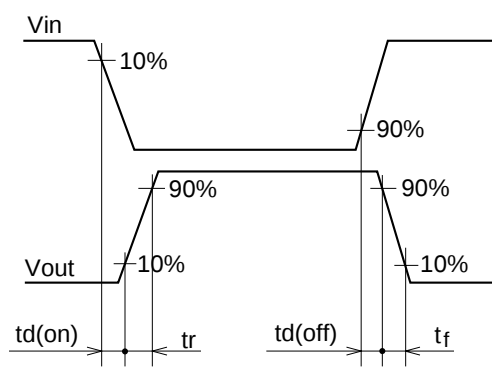


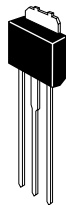
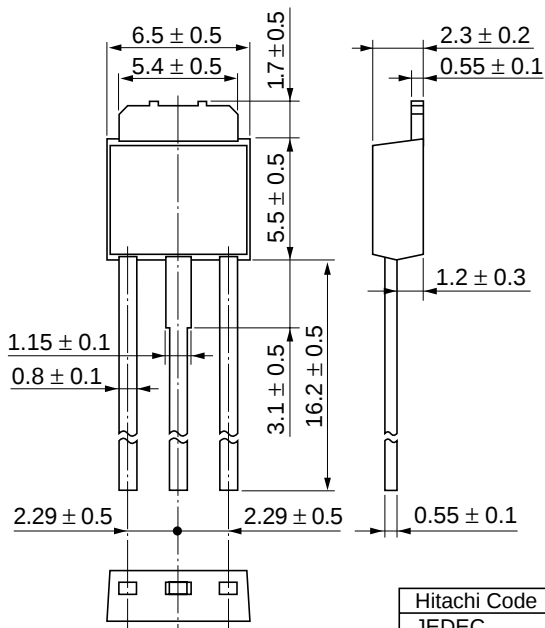


Switching Time Test Circuit



Waveforms





Hitachi Code	DPAK (L)-(1)
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.42 g

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Hitachi, Ltd.

Semiconductor & Integrated Circuits.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

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For further information write to:

Hitachi Semiconductor (America) Inc. 179 East Tasman Drive, San Jose, CA 95134 Tel: <1> (408) 433-1990 Fax: <1> (408) 433-0223	Hitachi Europe GmbH Electronic components Group Dornacher Straße 3 D-85622 Feldkirchen, Munich Germany Tel: <49> (89) 9 9180-0 Fax: <49> (89) 9 29 30 00 Hitachi Europe Ltd. Electronic Components Group. Whitebrook Park Lower Cookham Road Maidenhead Berkshire SL6 8YA, United Kingdom Tel: <44> (1628) 585000 Fax: <44> (1628) 778322
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Hitachi Asia Pte. Ltd. 16 Collyer Quay #20-00 Hitachi Tower Singapore 049318 Tel: 535-2100 Fax: 535-1533 Hitachi Asia Ltd. Taipei Branch Office 3F, Hung Kuo Building, No.167, Tun-Hwa North Road, Taipei (105) Tel: <886> (2) 2718-3666 Fax: <886> (2) 2718-8180
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Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower, World Finance Centre,
Harbour City, Canton Road, Tsim Sha Tsui,
Kowloon, Hong Kong
Tel: <852> (2) 735 9218
Fax: <852> (2) 730 0281
Telex: 40815 HITEC HX

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