

2SJ409(L), 2SJ409(S)

Silicon P-Channel MOS FET

HITACHI

Application

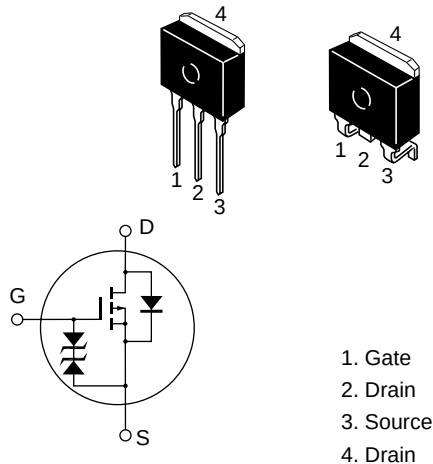
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V Gate drive device can be driven from 5 V source
- Suitable for Switching regulator, DC - DC converter

Outline

LDPAK



2SJ409(L), 2SJ409(S)

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	−100	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	−20	A
Drain peak current	I _{D(pulse)} ^{*1}	−80	A
Body to drain diode reverse drain current	I _{DR}	−20	A
Channel dissipation	Pch ^{*2}	75	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

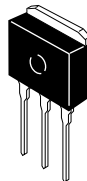
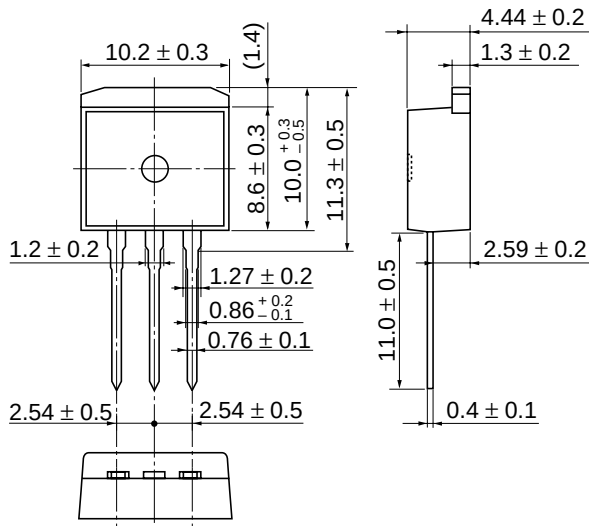
Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%
2. Value at Tc = 25°C

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-100	—	—	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}	—	—	-250	μA	$V_{DS} = -80 \text{ V}$, $V_{GS} = 0$
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	$R_{DS(on)}$	—	0.12	0.16	Ω	$I_D = -10 \text{ A}$ $V_{GS} = -10 \text{ V}^{*1}$
		—	0.16	0.22	Ω	$I_D = -10 \text{ A}$ $V_{GS} = -4 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	7.5	12	—	S	$I_D = -10 \text{ A}$ $V_{DS} = -10 \text{ V}^{*1}$
Input capacitance	C_{iss}	—	1860	—	pF	$V_{DS} = -10 \text{ V}$
Output capacitance	C_{oss}	—	680	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	145	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	15	—	ns	$I_D = -10 \text{ A}$
Rise time	t_r	—	115	—	ns	$V_{GS} = -10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	320	—	ns	$R_L = 3 \text{ } \Omega$
Fall time	t_f	—	170	—	ns	
Body to drain diode forward voltage	V_{DF}	—	-1.05	—	V	$I_F = -20 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	280	—	ns	$I_F = -20 \text{ A}$, $V_{GS} = 0$, $diF/dt = 50 \text{ A}/\mu\text{s}$

See characteristics curves of 2SJ221

Unit: mm



Hitachi Code	LDPAK (L)
JEDEC	—
EIAJ	—
Weight (reference value)	1.4 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

URL	NorthAmerica	:	http://semiconductor.hitachi.com/
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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

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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