
2SK3210(L), 2SK3210(S)

Silicon N Channel MOS FET
High Speed Power Switching

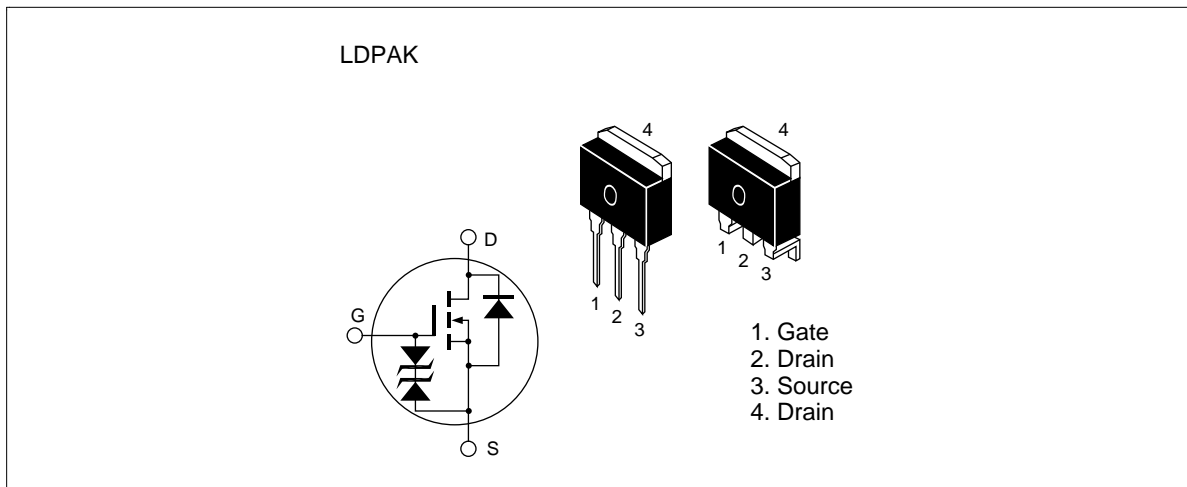
HITACHI

ADE-208-760(Z)
Target Specification, 1st. Edition
Dec. 1, 1998

Features

- Low on-resistance
 $R_{DS} = 35m\Omega$ typ.
- High speed switching
- 4V gate drive device can be driven from 5V source

Outline



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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	150	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I _D	30	A
Drain peak current	I _{D(pulse)} ^{Note1}	120	A
Body-drain diode reverse drain current	I _{DR}	30	A
Avalanche current	I _{AP} ^{Note3}	30	A
Avalanche energy	E _{AR} ^{Note3}	67	mJ
Channel dissipation	P _{ch} ^{Note2}	100	W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Note: 1. PW ≤ 10μs, duty cycle ≤ 1 %
2. Value at Tc = 25°C
3. Value at Tch = 25°C, Rg ≥ 50Ω

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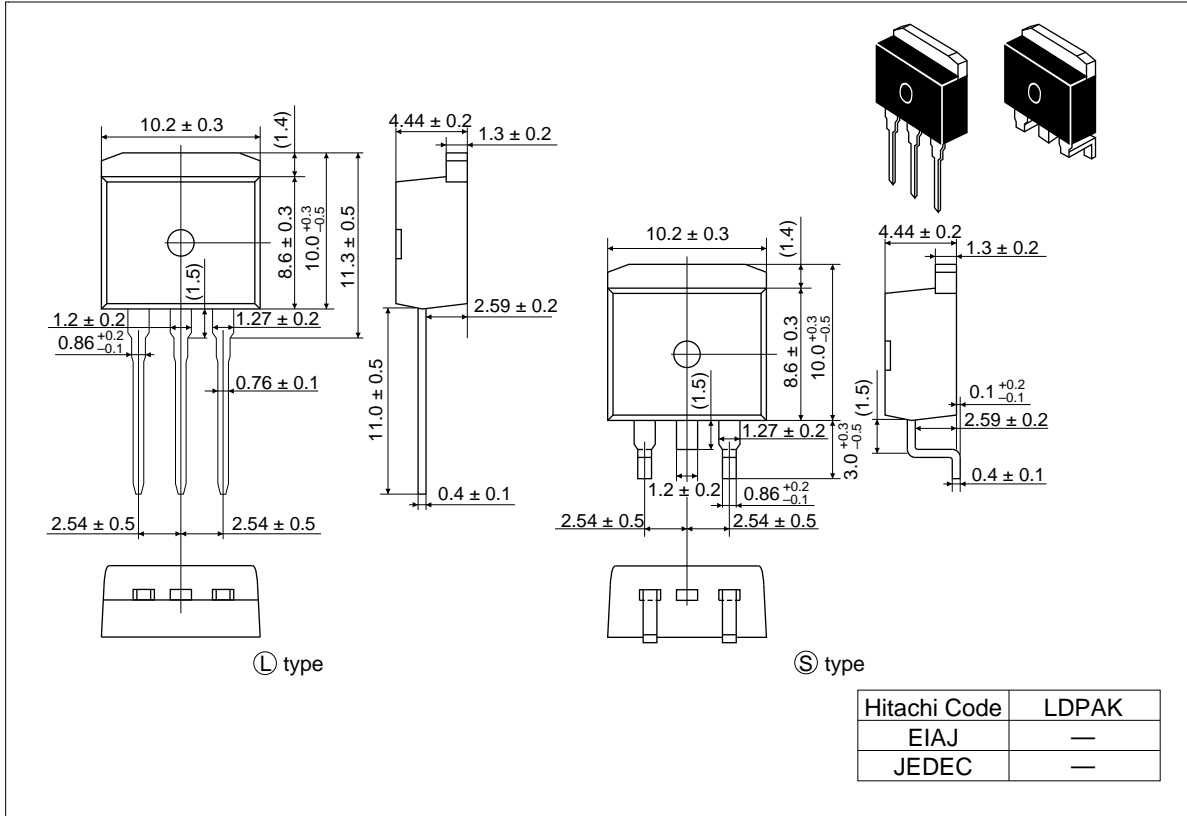
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	150	—	—	V	$I_D = 10\text{mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	—	—	V	$I_G = \pm 100\mu\text{A}, V_{DS} = 0$
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}	—	—	10	μA	$V_{DS} = 150\text{V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.5	V	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	35	45	$\text{m}\Omega$	$I_D = 15\text{A}, V_{GS} = 10\text{V}^{\text{Note4}}$
	$R_{DS(on)}$	—	42	75	$\text{m}\Omega$	$I_D = 15\text{A}, V_{GS} = 4\text{V}^{\text{Note4}}$
Forward transfer admittance	$ y_{fs} $	18	30	—	S	$I_D = 15\text{A}, V_{DS} = 10\text{V}^{\text{Note4}}$
Input capacitance	C_{iss}	—	2600	—	pF	$V_{DS} = 10\text{V}$
Output capacitance	C_{oss}	—	820	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	350	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	25	—	ns	$I_D = 15\text{A}, V_{GS} = 10\text{V}$
Rise time	t_r	—	180	—	ns	$R_L = 2\Omega$
Turn-off delay time	$t_{d(off)}$	—	600	—	ns	
Fall time	t_f	—	280	—	ns	
Body-drain diode forward voltage	V_{DF}	—	0.95	—	V	$I_F = 30\text{A}, V_{GS} = 0$
Body-drain diode reverse recovery time	t_{rr}	—	110	—	ns	$I_F = 30\text{A}, V_{GS} = 0$ $diF/dt = 50\text{A}/\mu\text{s}$

Note: 4. Pulse test

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Package Dimensions (Unit: mm)



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HITACHI**Hitachi, Ltd.**

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

URL North America : <http://semiconductor.hitachi.com/>
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For further information write to:

Hitachi Semiconductor
(America) Inc.
2000 Sierra Point Parkway
Brisbane, CA 94005-1897
Tel: <1> (800) 285-1601
Fax: <1> (303) 297-0447

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

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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