

2SK3210(L), 2SK3210(S)

Silicon N Channel MOS FET
High Speed Power Switching

HITACHI

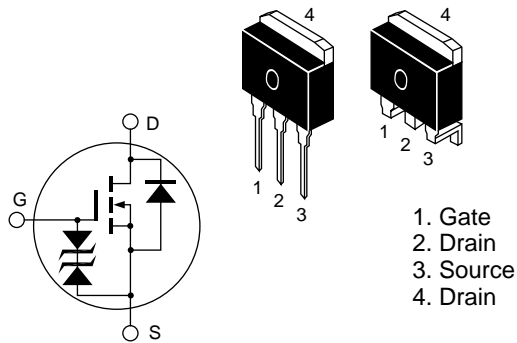
ADE-208-760A (Z)
Target Specification 2nd. Edition
Mar. 2001

Features

- Low on-resistance
 $R_{DS} = 40m\Omega$ typ.
- High speed switching
- 4V gate drive device can be driven from 5V source

Outline

LDDPAK



2SK3210(L),2SK3210(S)

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	$I_{D(pulse)}^{*1}$	120	A
Body-drain diode reverse drain current	I_{DR}	30	A
Avalanche current	I_{AP}^{*3}	30	A
Avalanche energy	E_{AR}^{*3}	67	mJ
Channel dissipation	Pch^{*2}	100	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

- Note: 1. $PW \leq 10\mu s$, duty cycle $\leq 1\%$
2. Value at $T_c = 25^\circ C$
3. Value at $Tch = 25^\circ C$, $R_g \geq 50\Omega$

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	$R_{DS(on)}$	—	40	45	$\text{m}\Omega$	$I_D = 15\text{A}, V_{GS} = 10\text{V}^{*4}$
	$R_{DS(on)}$	—	45	63	$\text{m}\Omega$	$I_D = 15\text{A}, V_{GS} = 4\text{V}^{*4}$
Forward transfer admittance	$ y_{fs} $	18	30	—	S	$I_D = 15\text{A}, V_{DS} = 10\text{V}^{*4}$
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}	—	0.91	—	V	$I_F = 30\text{A}, V_{GS} = 0$
Body-drain diode reverse recovery time	t_{rr}	—	110	—	ns	$I_F = 30\text{A}, V_{GS} = 0$ $diF/dt = 50\text{A}/\mu\text{s}$

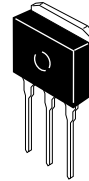
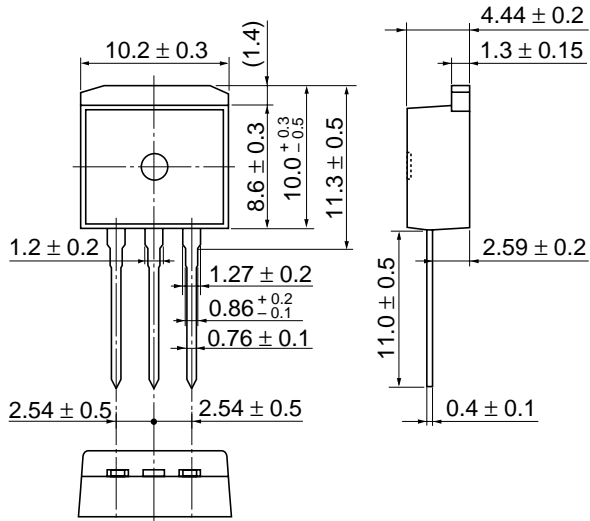
Note: 4. Pulse test

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Package Dimensions

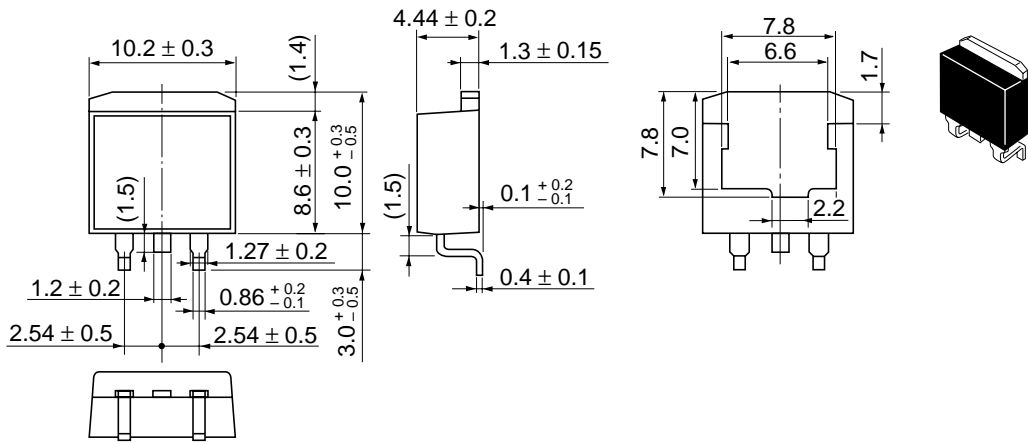
As of January, 2001

Unit: mm



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

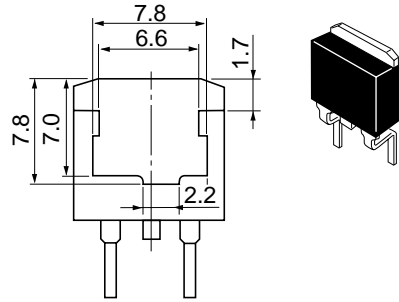
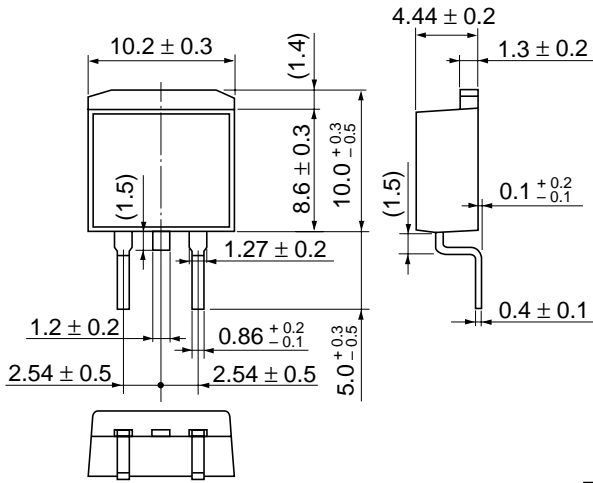
As of January, 2001
Unit: mm



Hitachi Code	LDBAK (S)-(1)
JEDEC	—
EIAJ	—
Mass (reference value)	1.3 g

2SK3210(L),2SK3210(S)

As of January, 2001
Unit: mm



Hitachi Code	LDBAK (S)-(2)
JEDEC	—
EIAJ	—
Mass (reference value)	1.35 g

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