

2SK3133(L),2SK3133(S)

Silicon N Channel MOS FET
High Speed Power Switching

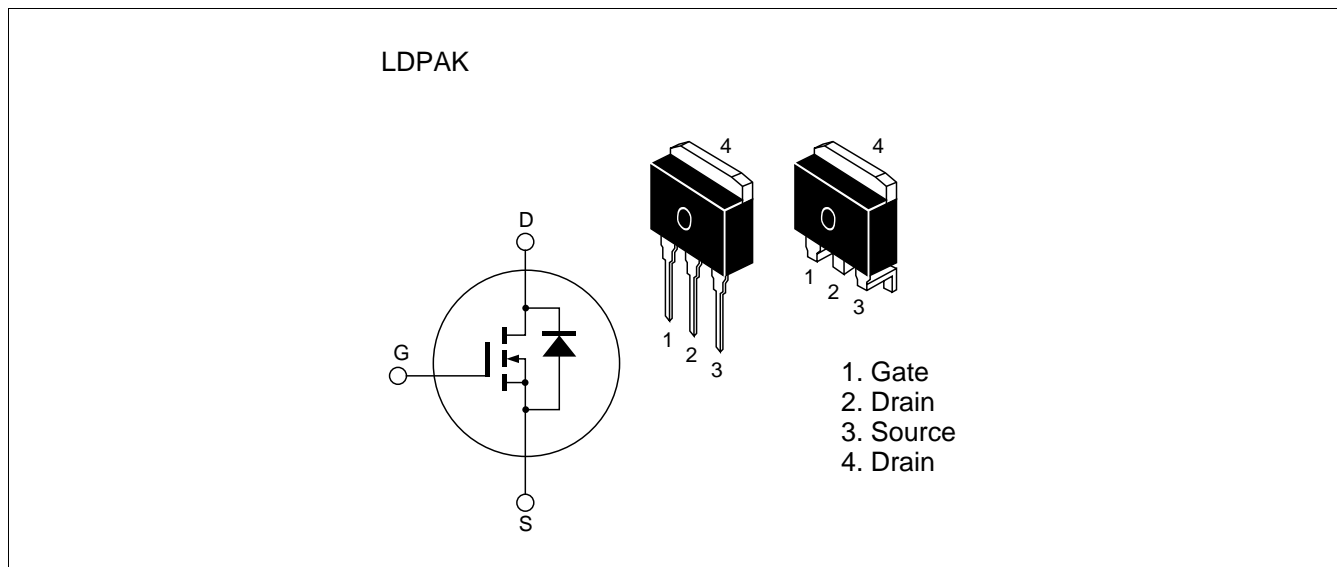
HITACHI

ADE-208-720 (Z)
Target Specification
1st. Edition
February 1999

Features

- Low on-resistance
 $R_{DS(on)} = 7 \text{ m}\Omega$ typ.
- Low drive current
- 4 V gate drive device can be driven from 5 V source

Outline



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	30	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	50	A
Drain peak current	$I_{D(pulse)}$ ^{Note 1}	200	A
Body-drain diode reverse drain current	I_{DR}	50	A
Channel dissipation	Pch ^{Note 2}	50	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

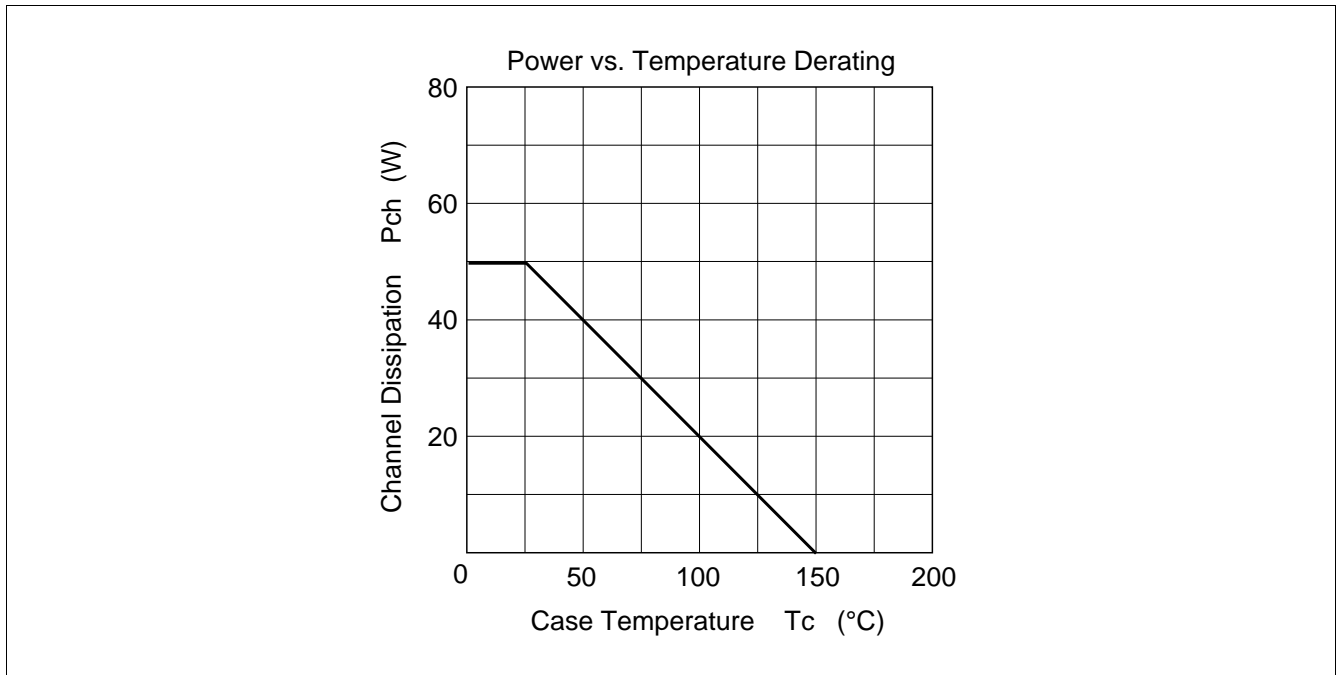
Note: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
 2. Value at $T_c = 25^\circ C$

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	±0.1	μA	$V_{GS} = \pm 20 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	10	μA	$V_{DS} = 30 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.5	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$ ^{Note 1}
Static drain to source on state resistance	$R_{DS(on)}$	—	7	10	mΩ	$I_D = 25 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note 1}
		—	12	18	mΩ	$I_D = 25 \text{ A}$, $V_{GS} = 4 \text{ V}$ ^{Note 1}
Forward transfer admittance	$ y_{fs} $	TBD	TBD	—	S	$I_D = 25 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note 1}
Input capacitance	Ciss	—	TBD	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	Coss	—	TBD	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	—	TBD	—	pF	$f = 1 \text{ MHz}$
Total gate charge	Qg	—	TBD	—	nc	$V_{DD} = 10 \text{ V}$
Gate to source charge	Qgs	—	TBD	—	nc	$V_{GS} = 10 \text{ V}$
Gate to drain charge	Qgd	—	TBD	—	nc	$I_D = 50 \text{ A}$
Turn-on delay time	$t_{d(on)}$	—	TBD	—	ns	$V_{GS} = 10 \text{ V}$, $I_D = 25 \text{ A}$
Rise time	t_r	—	TBD	—	ns	$R_L = 0.4 \Omega$
Turn-off delay time	$t_{d(off)}$	—	TBD	—	ns	
Fall time	t_f	—	TBD	—	ns	
Body-drain diode forward voltage	V_{DF}	—	TBD	—	V	$I_F = 50 \text{ A}$, $V_{GS} = 0$
Body-drain diode reverse recovery time	t_{rr}	—	TBD	—	ns	$I_F = 50 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 50 \text{ A}/\mu s$

Note: 1. Pulse test

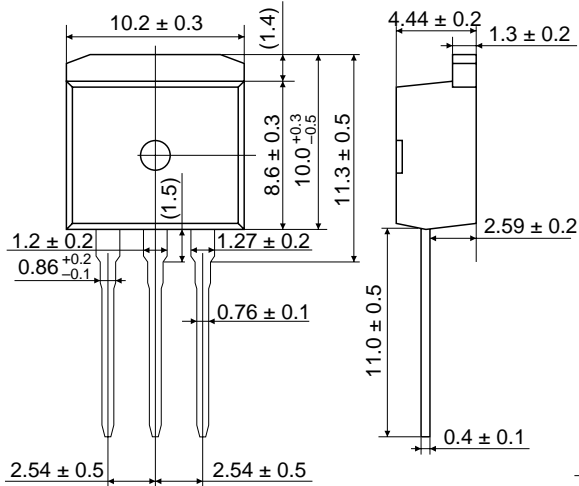
Main Characteristics



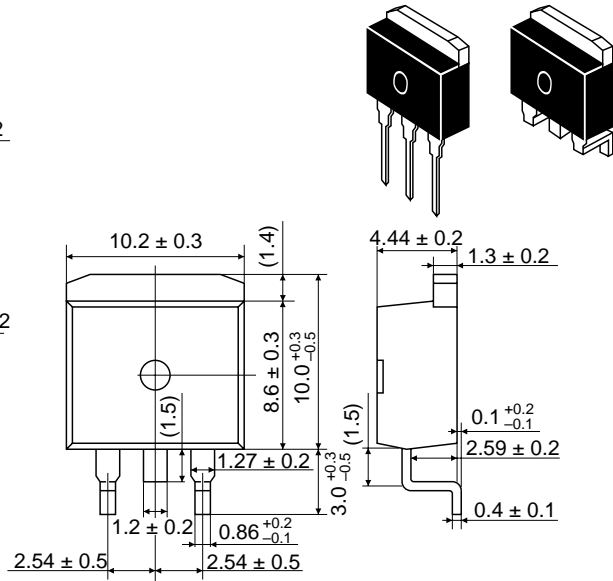
2SK3133(L),2SK3133(S)

Package Dimensions

Unit: mm



Ⓛ type



Ⓢ type

Hitachi Code	LDPAK
EIAJ	—
JEDEC	—

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