2SK3133(L), 2SK3133(S)

Silicon N Channel MOS FET
High Speed Power Switching

HITACHI

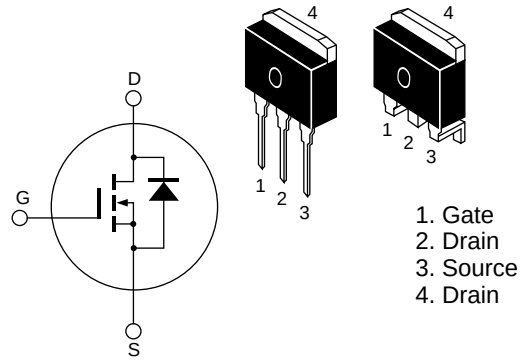
Target Specification
ADE-208-720A (Z)
2nd. Edition
Mar. 2001

Features

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

Outline

LDPAK



1. Gate
2. Drain
3. Source
4. Drain

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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

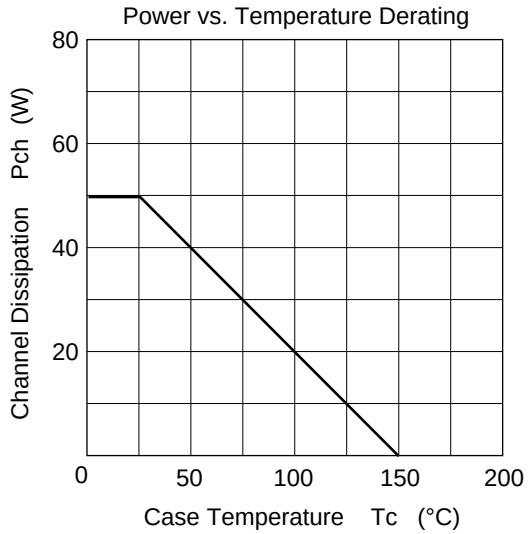
Note: 1. PW ≤ 10µs, duty cycle ≤ 1 %
2. Value at Tc = 25°C

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	I_D = 10mA, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±0.1	µA	V_{GS} = ±20V, V_{DS} = 0
Zero gate voltege drain current	I_{DSS}	—	—	10	µA	V_{DS} = 30 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	1.5	—	3.0	V	I_D = 1mA, V_{DS} = 10V Note 1
Static drain to source on state resistance	$R_{DS(on)}$	—	7	10	mΩ	I_D = 25A, V_{GS} = 10V Note 1
		—	12	18	mΩ	I_D = 25A, V_{GS} = 4.5V Note 1
Forward transfer admittance	$\|y_{fs}\|$	TBD	TBD	—	S	I_D = 25A, V_{DS} = 10V Note 1
Input capacitance	Ciss	—	TBD	—	pF	V_{DS} = 10V
Output capacitance	Coss	—	TBD	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	TBD	—	pF	f = 1MHz
Total gate charge	Qg	—	TBD	—	nc	V_{DD} = 10V
Gate to source charge	Qgs	—	TBD	—	nc	V_{GS} = 10V
Gate to drain charge	Qgd	—	TBD	—	nc	I_D = 50A
Turn-on delay time	$t_{d(on)}$	—	TBD	—	ns	V_{GS} = 10V, I_D = 25A
Rise time	t_r	—	TBD	—	ns	R_L = 0.4Ω
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 = 50A, V_{GS} = 0
Body–drain diode reverse recovery time	t_{rr}	—	TBD	—	ns	I_F = 50A, V_{GS} = 0 diF/ dt =50A/µs

Note: 1. Pulse test

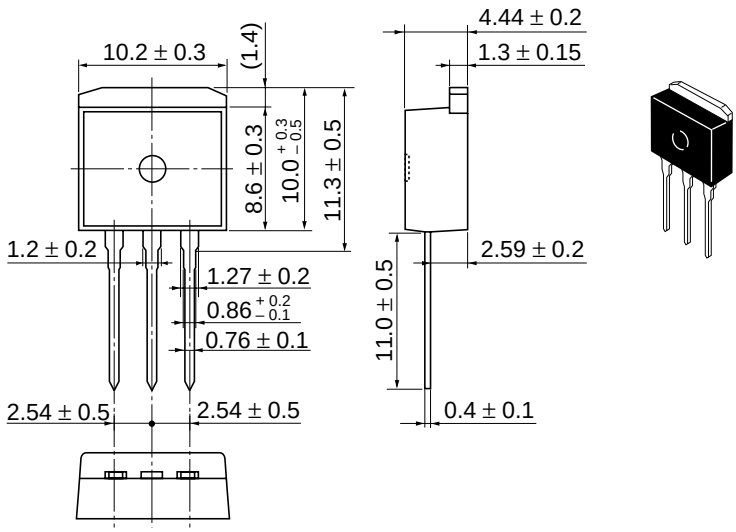
Main Characteristics



Package Dimensions

As of January, 2001

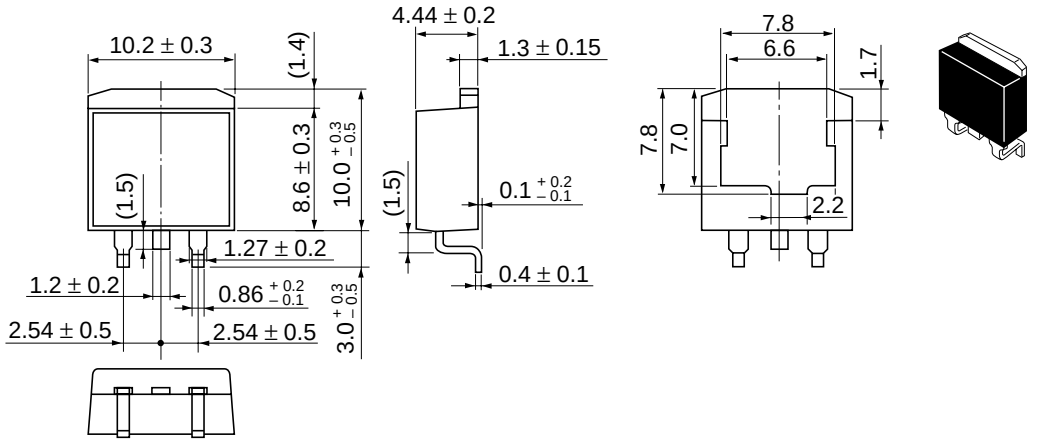
Unit: mm



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

As of January, 2001

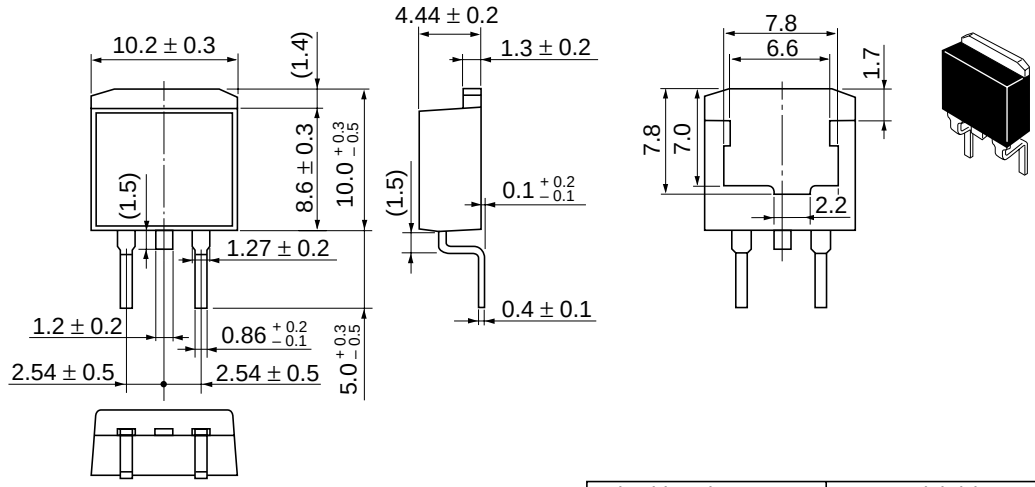
Unit: mm



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

As of January, 2001

Unit: mm



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

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