

To all our customers

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Renesas Technology Corp.  
Customer Support Dept.  
April 1, 2003

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Keep safety first in your circuit designs!

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# 2SK1620(L), 2SK1620(S)

Silicon N-Channel MOS FET

**RENESAS**

ADE-208-1298 (Z)  
1st. Edition  
Mar. 2001

## Application

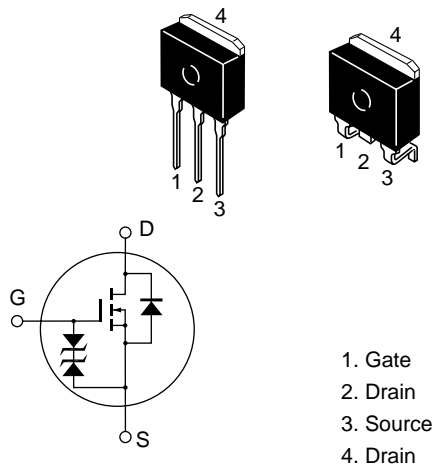
High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, DC-DC converter and motor driver

## Outline

LDBPAK



## 2SK1620(L), 2SK1620(S)

### Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	150	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	10	A
Drain peak current	I <sub>D(pulse)</sub> <sup>*1</sup>	40	A
Body to drain diode reverse drain current	I <sub>DR</sub>	10	A
Channel dissipation	Pch <sup>*2</sup>	50	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Notes 1. PW 10 μs, duty cycle 1%

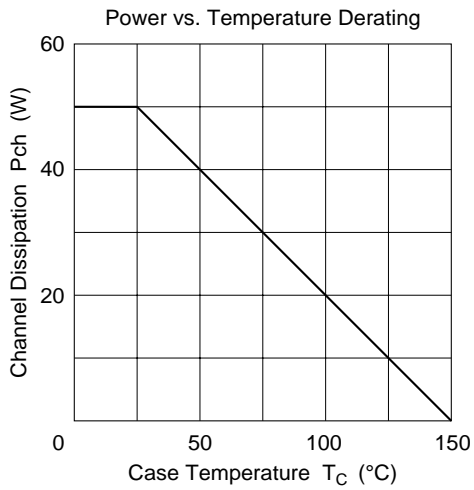
2. Value at T<sub>c</sub> = 25°C

## 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	$V_{(BR)GSS}$	$\pm 20$	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}, V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	250	$\mu\text{A}$	$V_{DS} = 120 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	4.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static Drain to source on state resistance	$R_{DS(on)}$	—	0.12	0.15		$I_D = 5 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	4.0	7.0	—	S	$I_D = 5 \text{ A}, V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	$C_{iss}$	—	1200	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$
Output capacitance	$C_{oss}$	—	550	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	$C_{rss}$	—	85	—	pF	
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	$I_D = 5 \text{ A}, V_{GS} = 10 \text{ V},$
Rise time	$t_r$	—	50	—	ns	$R_L = 6$
Turn-off delay time	$t_{d(off)}$	—	70	—	ns	
Fall time	$t_f$	—	40	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	1.2	—	V	$I_F = 10 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	220	—	ns	$I_F = 10 \text{ A}, V_{GS} = 0,$ $di_F/dt = 50 \text{ A}/\mu\text{s}$

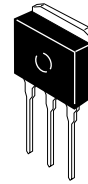
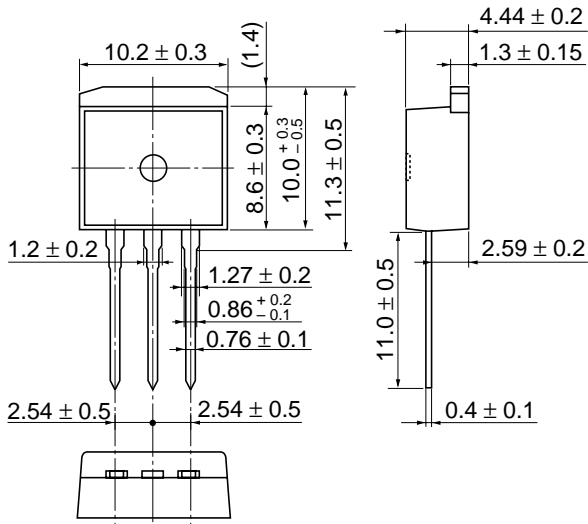
Note 1. Pulse test

See characteristic curves of 2SK740.



Package Dimensions

As of January, 2001  
Unit: mm

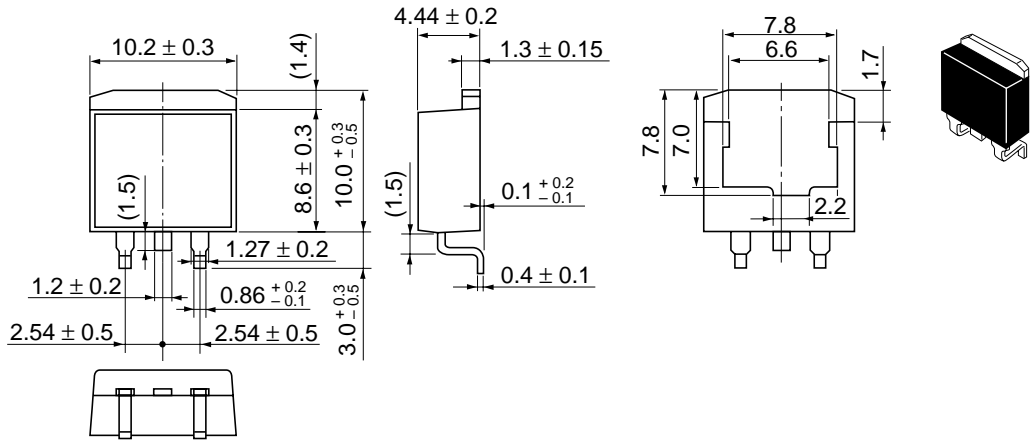


Hitachi Code	LDBAK (L)
JEDEC	—
EIAJ	—
Mass (reference value)	1.4 g

# 2SK1620(L), 2SK1620(S)

As of January, 2001

Unit: mm

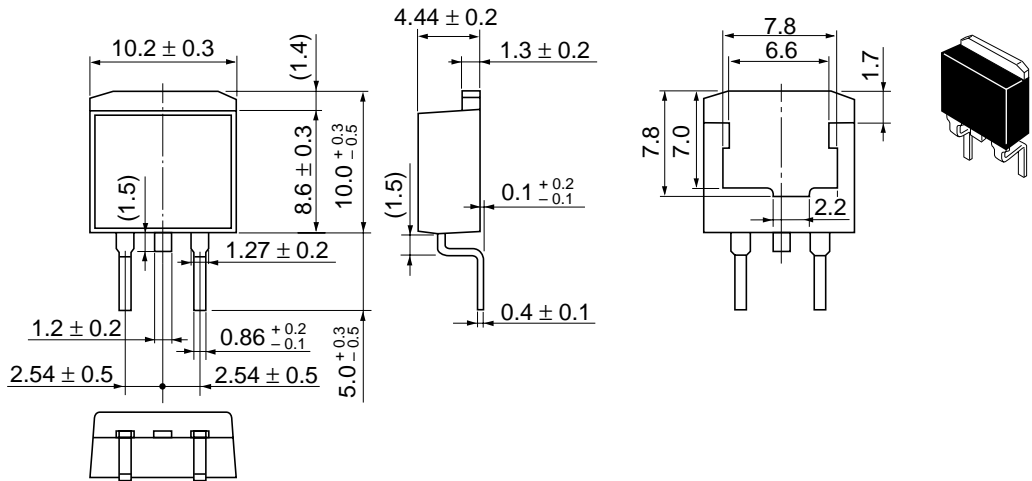


Hitachi Code	LDPAK (S)-(1)
JEDEC	—
EIAJ	—
Mass (reference value)	1.3 g



As of January, 2001

Unit: mm



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

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