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## Silicon N-Channel MOS FET



ADE-208-1266 (Z) 1st. Edition Mar. 2001

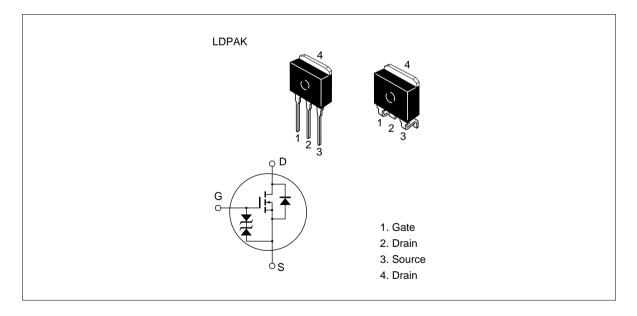
#### Application

High speed power switching

#### Features

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

#### Outline



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

Item		Symbol	Ratings	Unit	
Drain to source voltage	ain to source voltage 2SK1313		450	V	
	2SK1314		500		
Gate to source voltage		V <sub>GSS</sub>	±30	V	
Drain current		I <sub>D</sub>	5	А	
Drain peak current		I*1 D(pulse)	20	A	
Body to drain diode reverse	e drain current	I <sub>DR</sub>	5	А	
Channel dissipation		Pch* <sup>2</sup>	50	W	
Channel temperature		Tch	150	°C	
Storage temperature		Tstg	-55 to +150	°C	

Notes: 1.  $PW \le 10 \ \mu s$ , duty cycle  $\le 1\%$ 

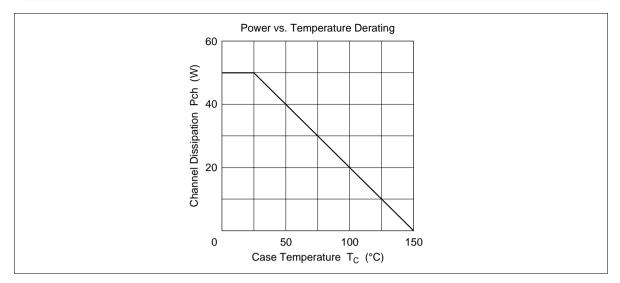
2. Value at  $T_c = 25^{\circ}C$ 

ltem		Symbol	Min	Тур	Max	Unit	Test conditions
Drain to source	2SK1313	$V_{(BR)DSS}$	450	_	_	V	$I_{\rm D} = 10 \text{ mA}, V_{\rm GS} = 0$
breakdown voltage	2SK1314		500				
Gate to source breakd voltage	lown	$V_{(BR)GSS}$	±30	—	_	V	$I_{g} = \pm 100 \ \mu A, \ V_{DS} = 0$
Gate to source leak cu	urrent	I <sub>GSS</sub>	_	_	±10	μΑ	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage	2SK1313	I <sub>DSS</sub>	_	_	250	μΑ	$V_{\rm DS} = 360$ V, $V_{\rm GS} = 0$
drain current	2SK1314						$V_{\rm DS} = 400 \text{ V}, \text{ V}_{\rm GS} = 0$
Gate to source cutoff	voltage	$V_{\text{GS(off)}}$	2.0	—	3.0	V	$I_{\rm D} = 1 \text{ mA}, V_{\rm DS} = 10 \text{ V}$
Static Drain to source	2SK1313		_	1.0	1.4	Ω	$I_{\rm D}$ = 2.5 A, $V_{\rm GS}$ = 10 V * <sup>1</sup>
on state resistance	2SK1314		_	1.2	1.5		
Forward transfer admi	ttance	yfs	2.5	4.0	_	S	$I_{\rm D}$ = 2.5 A, $V_{\rm DS}$ = 10 V * <sup>1</sup>
Input capacitance		Ciss	—	640	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$
Output capacitance		Coss	_	160	_	pF	f = 1 MHz
Reverse transfer capa	citance	Crss	—	20	—	pF	_
Turn-on delay time		t <sub>d(on)</sub>	_	10	_	ns	$I_{\rm D}$ = 2.5 A, $V_{\rm GS}$ = 10 V,
Rise time		t,	_	25	_	ns	$R_{L} = 12 \Omega$
Turn-off delay time		t <sub>d(off)</sub>	—	50	—	ns	
Fall time		t <sub>f</sub>	_	30	_	ns	
Body to drain diode fo voltage	rward	$V_{DF}$	—	0.95	_	V	$I_{F} = 5 \text{ A}, V_{GS} = 0$
Body to drain diode re recovery time	verse	t <sub>rr</sub>	_	300	_	ns	$I_{F} = 5 \text{ A}, V_{GS} = 0,$ $di_{F}/dt = 100 \text{ A}/\mu\text{s}$

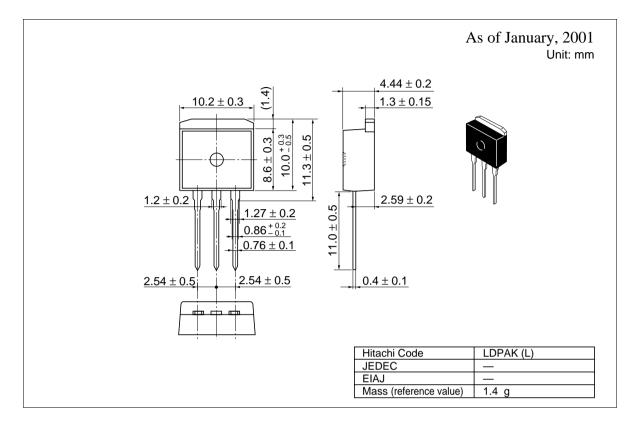
#### **Electrical Characteristics** (Ta = 25°C)

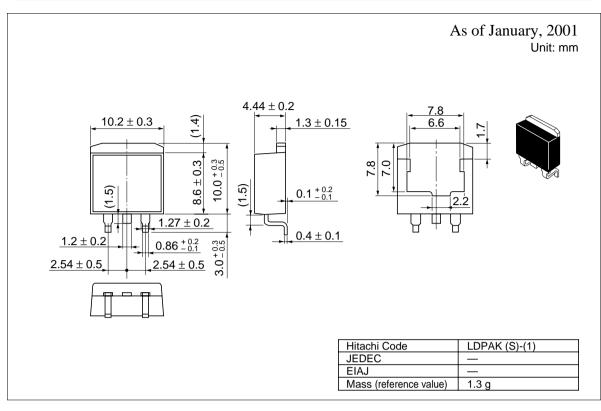
Note: 1. Pulse test

See characteristic curves of 2SK1155, 2SK1156.

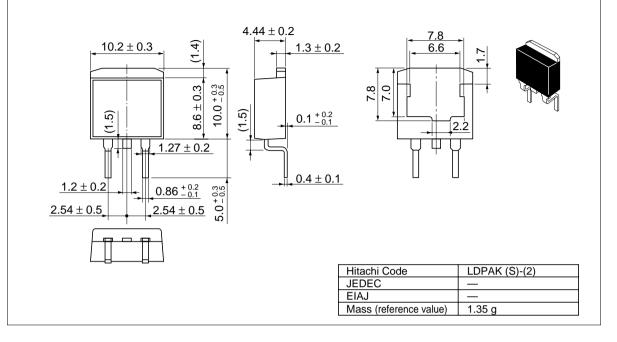


#### **Package Dimensions**





As of January, 2001 Unit: mm



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#### Hitachi, Ltd.

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

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#### For further information write to:

Hitachi Semiconductor (America) Inc. 179 East Tasman Drive, San Jose, CA 95134 Tel: <1> (408) 433-1990 Fax: <1>(408) 433-0223	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 Asia Ltd. Hitachi Tower 16 Collyer Quay #20-00, Singapore 049318 Tel: <65>-538-6533/538-8577 Fax: <65>-538-6933/538-3877 URL: http://www.hitachi.com.sg	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
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