

2SK1540(L)(S), 2SK1541(L)(S)

Silicon N-Channel MOS FET

HITACHI

ADE-208-1292 (Z)
1st. Edition
Mar. 2001

Application

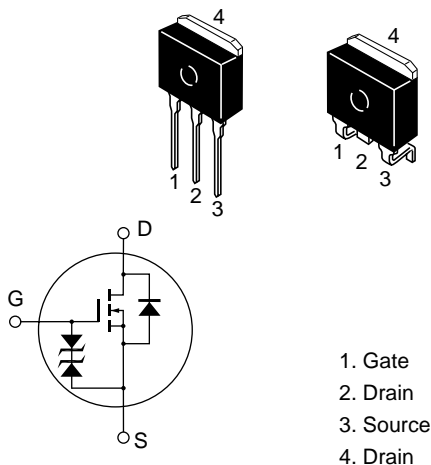
High speed power switching

Features

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

Outline

LDBPAK



2SK1540(L)(S), 2SK1541(L)(S)

Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1540	V_{DSS}	450	V
	2SK1541		500	
Gate to source voltage		V_{GSS}	±30	V
Drain current		I_D	7	A
Drain peak current		$I_{D(pulse)}$ ^{*1}	28	A
Body to drain diode reverse drain current		I_{DR}	7	A
Channel dissipation		P_{ch} ^{*2}	60	W
Channel temperature		T_{ch}	150	°C
Storage temperature		T_{stg}	-55 to +150	°C

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

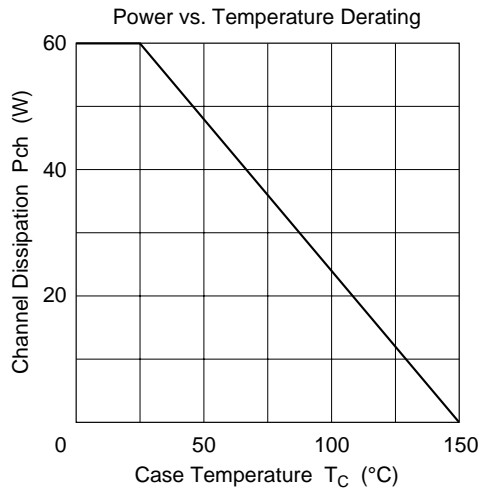
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1540 $V_{(BR)DSS}$	450	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
	2SK1541	500				
Gate to source breakdown voltage	$V_{(BR)GSS}$	±30	—	—	V	$I_G = \pm 100 \text{ } \mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 25 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	2SK1540 I_{DSS}	—	—	250	μA	$V_{DS} = 360 \text{ V}$, $V_{GS} = 0$
	2SK1541					$V_{DS} = 400 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	3.0	V	$I_D = 1 \text{ mA}$, $V_{DS} = 10 \text{ V}$
Static Drain to source on state resistance	2SK1540 $R_{DS(on)}$	—	0.6	0.8		$I_D = 4 \text{ A}$, $V_{GS} = 10 \text{ V}^{*1}$
	2SK1541	—	0.7	0.9		
Forward transfer admittance	yfs	4.0	6.5	—	S	$I_D = 4 \text{ A}$, $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	Ciss	—	1050	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$,
Output capacitance	Coss	—	280	—	pF	f = 1 MHz
Reverse transfer capacitance	Crss	—	40	—	pF	
Turn-on delay time	$t_{d(on)}$	—	15	—	ns	$I_D = 4 \text{ A}$, $V_{GS} = 10 \text{ V}$,
Rise time	t_r	—	55	—	ns	$R_L = 7.5$
Turn-off delay time	$t_{d(off)}$	—	95	—	ns	
Fall time	t_f	—	40	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.95	—	V	$I_F = 7 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	320	—	ns	$I_F = 7 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 100 \text{ A}/\mu\text{s}$

Note 1. Pulse test

See characteristic curves of 2SK1157, 2SK1158.

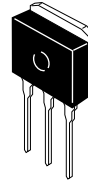
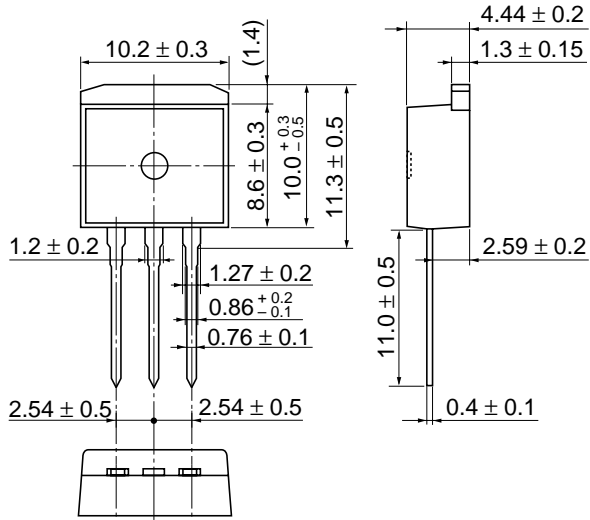
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Package Dimensions

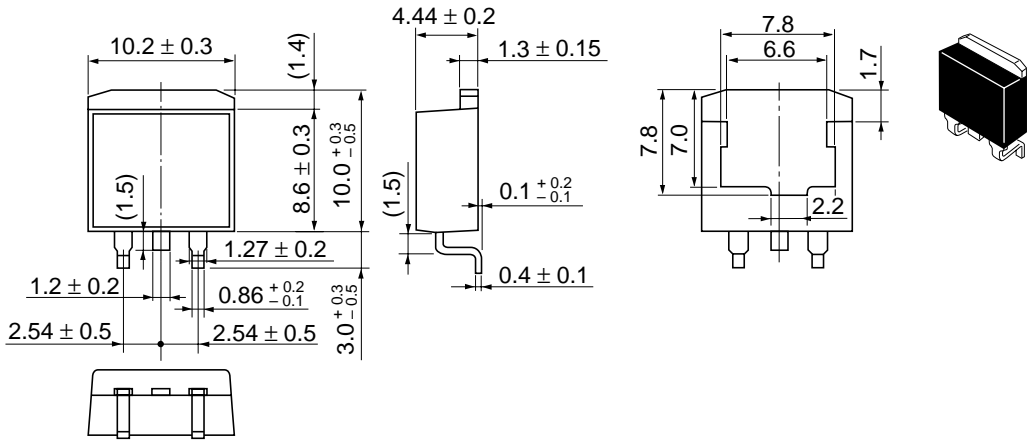
As of January, 2001
Unit: mm



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

2SK1540(L)(S), 2SK1541(L)(S)

As of January, 2001
Unit: mm

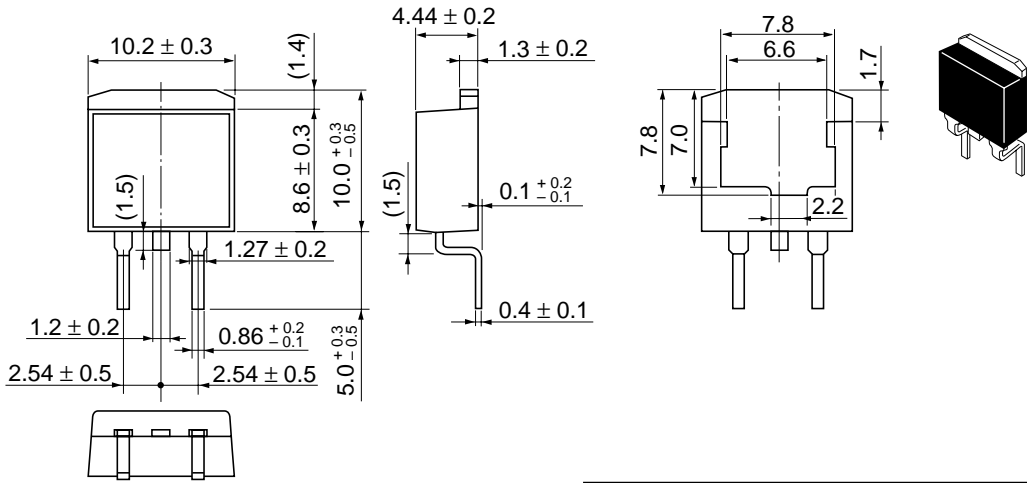


Hitachi Code	LDBAK (S)-(1)
JEDEC	—
EIAJ	—
Mass (reference value)	1.3 g

2SK1540(L)(S), 2SK1541(L)(S)

As of January, 2001

Unit: mm



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

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