

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

Silicon N-Channel MOS FET

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## Application

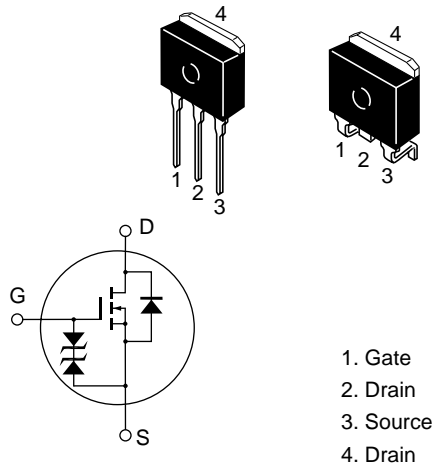
High speed power switching

## Features

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

## Outline

LDDPAK



## 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		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

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

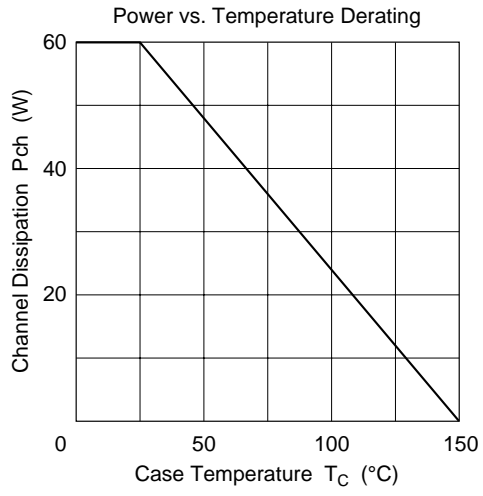
## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	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	Ω	$I_D = 4 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$
	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	$f = 1 \text{ MHz}$
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	$R_L = 7.5 \text{ } \Omega$
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	$I_F = 7 \text{ A}, V_{GS} = 0,$ $di_p/dt = 100 \text{ A}/\mu\text{s}$

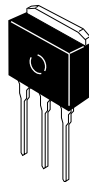
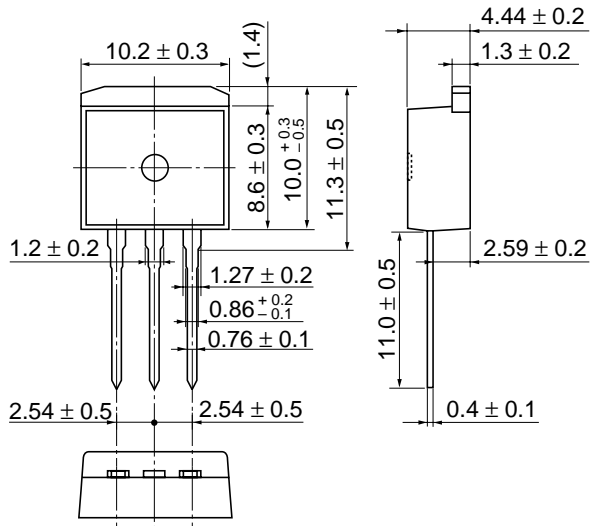
Note 1. Pulse test

See characteristic curves of 2SK1157, 2SK1158.

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

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