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

Silicon N-Channel MOS FET

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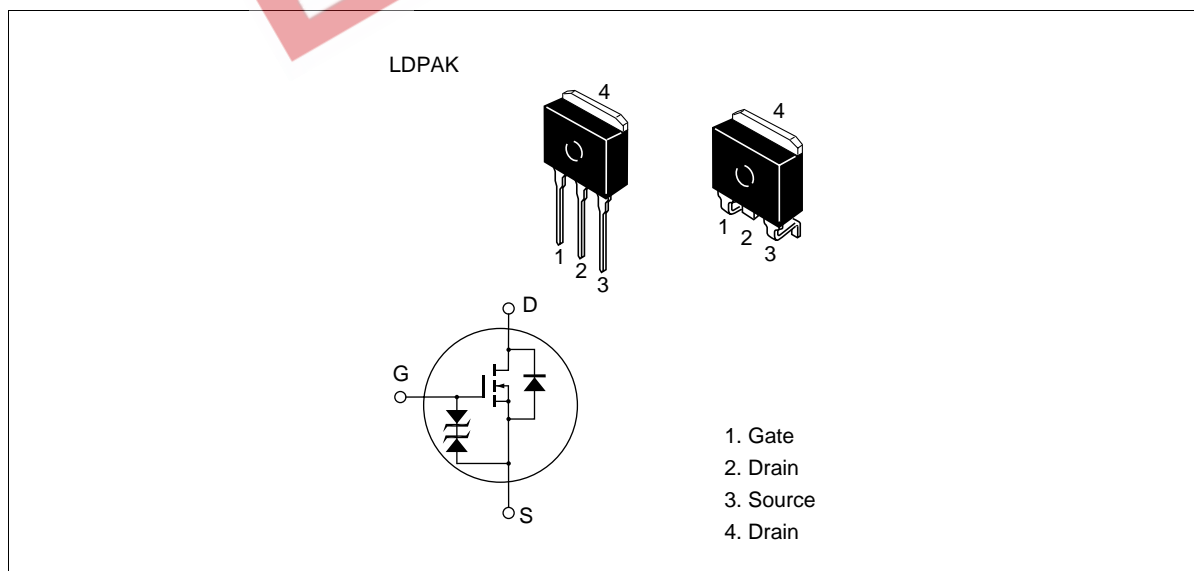
## Application

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



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### 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		$Pch^{*2}$	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  $T_c = 25^\circ C$

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### Electrical Characteristics (T<sub>a</sub> = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1540 V <sub>(BR)DSS</sub> 2SK1541	450	—	—	V	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR)GSS</sub>	±30	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±25 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	2SK1540 I <sub>DSS</sub> 2SK1541	—	—	250	μA	V <sub>DS</sub> = 360 V, V <sub>GS</sub> = 0 V <sub>DS</sub> = 400 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	2.0	—	3.0	V	I <sub>D</sub> = 1 mA, V <sub>DS</sub> = 10 V
Static Drain to source on state resistance	2SK1540 R <sub>DS(on)</sub> 2SK1541	—	0.6	0.8	Ω	I <sub>D</sub> = 4 A, V <sub>GS</sub> = 10 V *1
Forward transfer admittance	y <sub>fs</sub>	4.0	6.5	—	S	I <sub>D</sub> = 4 A, V <sub>DS</sub> = 10 V *1
Input capacitance	C <sub>iss</sub>	—	1050	—	pF	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0,
Output capacitance	C <sub>oss</sub>	—	280	—	pF	f = 1 MHz
Reverse transfer capacitance	C <sub>rss</sub>	—	40	—	pF	
Turn-on delay time	t <sub>d(on)</sub>	—	15	—	ns	I <sub>D</sub> = 4 A, V <sub>GS</sub> = 10 V,
Rise time	t <sub>r</sub>	—	55	—	ns	R <sub>L</sub> = 7.5 Ω
Turn-off delay time	t <sub>d(off)</sub>	—	95	—	ns	
Fall time	t <sub>f</sub>	—	40	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	0.95	—	V	I <sub>F</sub> = 7 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	320	—	ns	I <sub>F</sub> = 7 A, V <sub>GS</sub> = 0, di <sub>F</sub> /dt = 100 A/μs

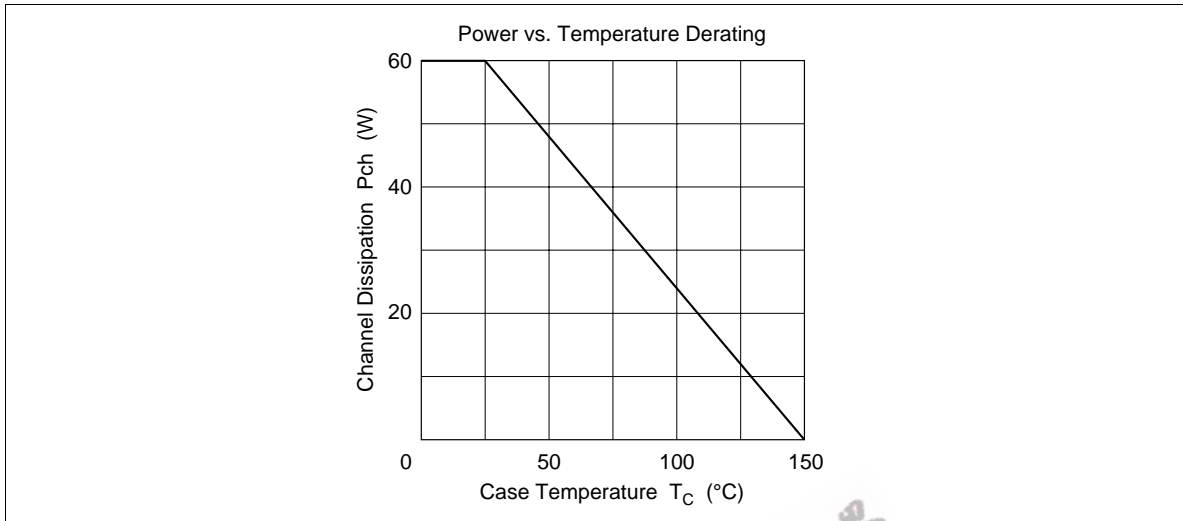
Note 1. Pulse test

See characteristic curves of 2SK1157, 2SK1158.

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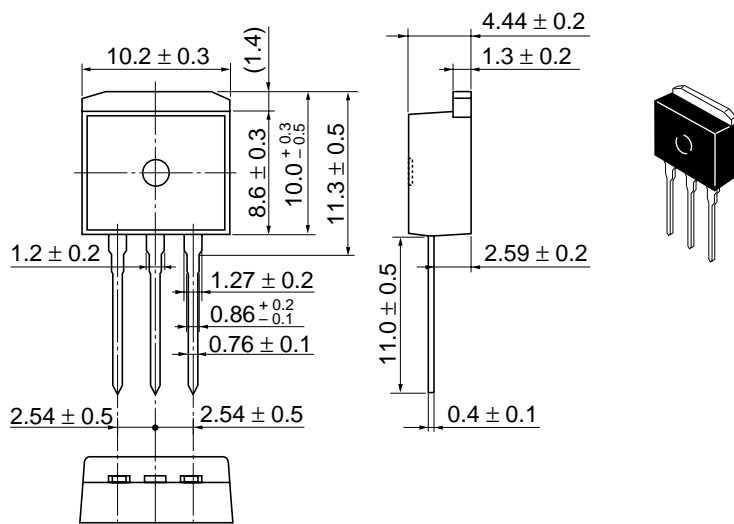


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Unit: mm



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

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