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

Silicon N-Channel MOS FET

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Application

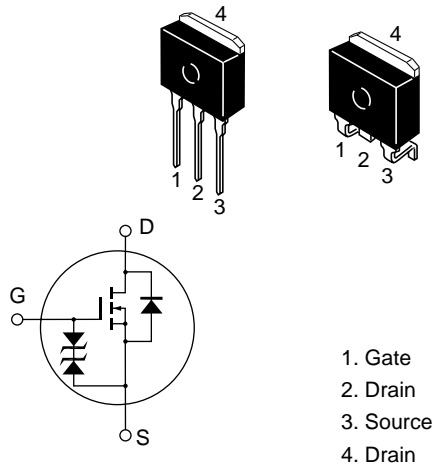
High speed power switching

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 $T_c = 25^\circ C$

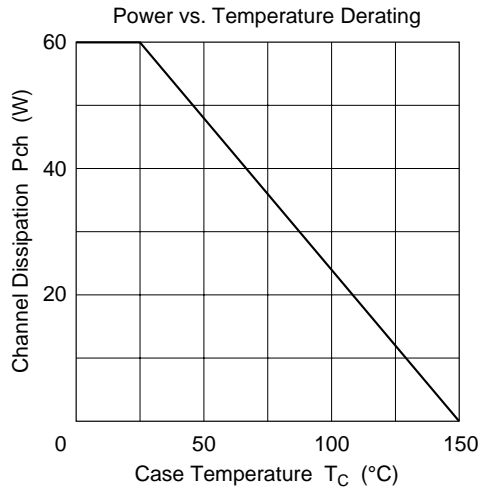
Electrical Characteristics (Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|----------------------------------|------------|------------|------------|---------------|--|
| Drain to source breakdown voltage | 2SK1540 $V_{(BR)DSS}$ 2SK1541 | 450 500 | — | — | V | $I_D = 10 \text{ mA}, V_{GS} = 0$ |
| 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} 2SK1541 | — | — | 250 | μA | $V_{DS} = 360 \text{ V}, V_{GS} = 0$ $V_{DS} = 400 \text{ V}, V_{GS} = 0$ |
| 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 $R_{DS(on)}$ 2SK1541 | — — | 0.6 0.7 | 0.8 0.9 | Ω | $I_D = 4 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$ |
| Forward transfer admittance | $ y_{fs} $ | 4.0 | 6.5 | — | S | $I_D = 4 \text{ A}, V_{DS} = 10 \text{ V}^{*1}$ |
| Input capacitance | C_{iss} | — | 1050 | — | pF | $V_{DS} = 10 \text{ V}, V_{GS} = 0,$ |
| Output capacitance | C_{oss} | — | 280 | — | pF | $f = 1 \text{ MHz}$ |
| Reverse transfer capacitance | C_{rss} | — | 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 | $I_F = 7 \text{ A}, V_{GS} = 0,$ $di_p/dt = 100 \text{ A}/\mu\text{s}$ |

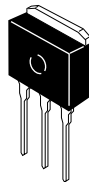
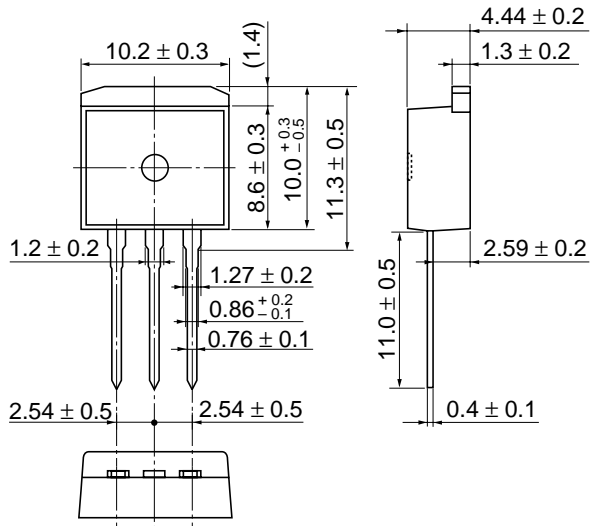
Note 1. Pulse test

See characteristic curves of 2SK1157, 2SK1158.

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

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