
2SK1526, 2SK1527

Silicon N-Channel MOS FET

HITACHI

Application

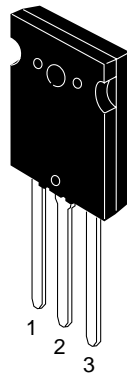
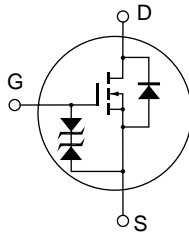
High speed power switching

Features

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

Outline

TO-3PL



1. Gate
2. Drain
3. Source

2SK1526, 2SK1527

Absolute Maximum Ratings (Ta = 25°C)

| Item | | Symbol | Ratings | Unit |
|---|---------|---------------------|-------------|------|
| Drain to source voltage | 2SK1526 | V_{DSS} | 450 | V |
| | 2SK1527 | | 500 | |
| Gate to source voltage | | V_{GSS} | ±30 | V |
| Drain current | | I_D | 40 | A |
| Drain peak current | | $I_{D(pulse)}^{*1}$ | 160 | A |
| Body to drain diode reverse drain current | | I_{DR} | 40 | A |
| Channel dissipation | | P_{ch}^{*2} | 250 | W |
| Channel temperature | | Tch | 150 | °C |
| Storage temperature | | Tstg | -55 to +150 | °C |

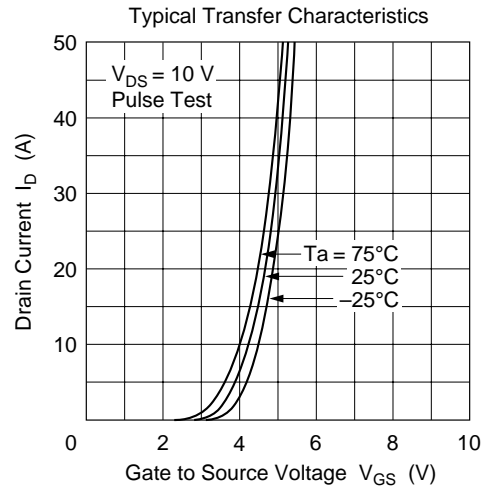
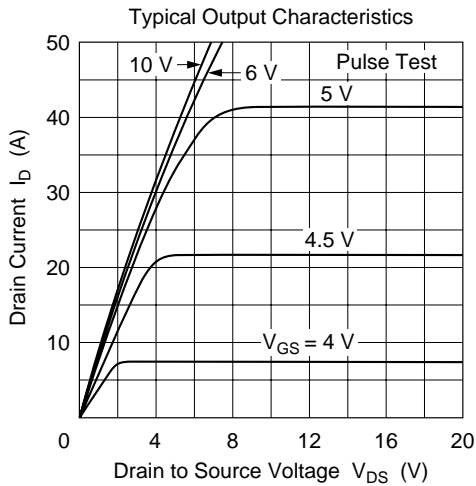
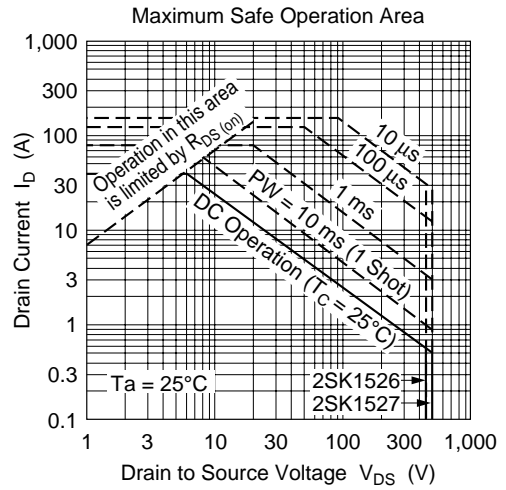
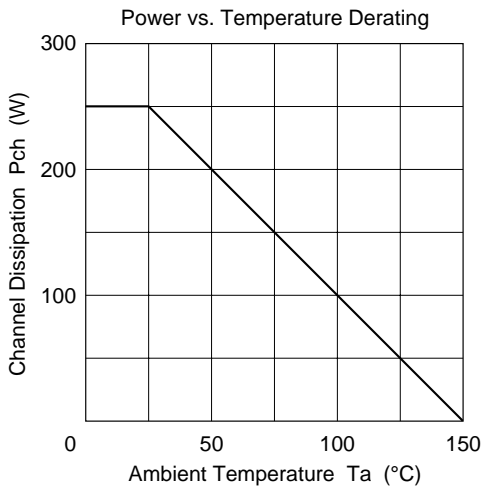
Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$

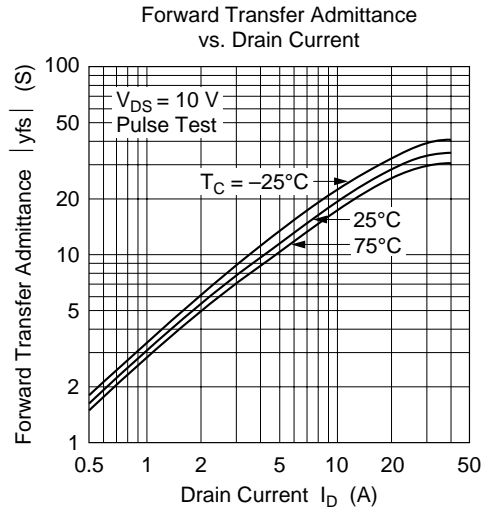
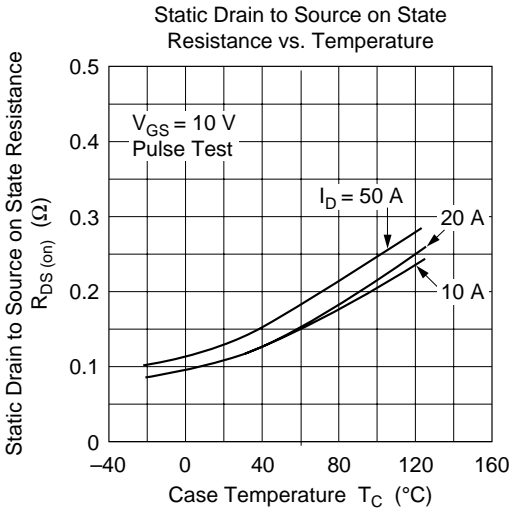
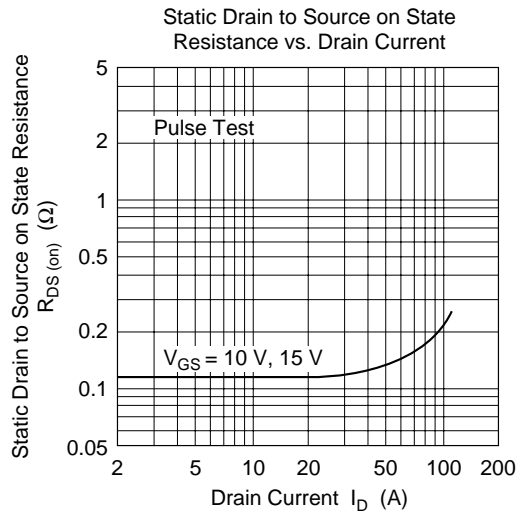
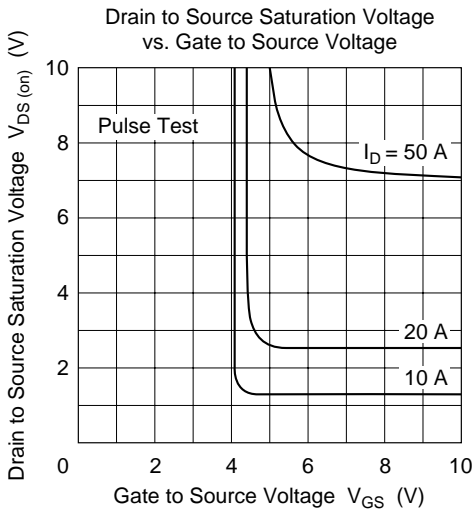
2. Value at $T_c = 25^\circ C$

Electrical Characteristics (Ta = 25°C)

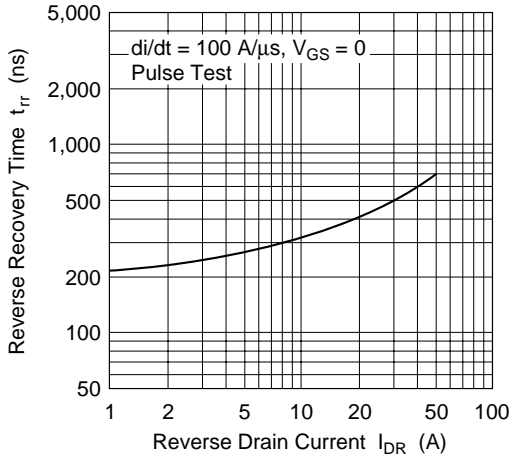
| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|----------------------------------|------------|--------------|--------------|------|--|
| Drain to source breakdown voltage | 2SK1526 $V_{(BR)DSS}$ 2SK1527 | 450 500 | — | — | V | $I_D = 10 \text{ mA}$, $V_{GS} = 0$ |
| Gate to source 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 | 2SK1526 I_{DSS} 2SK1527 | — | — | 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 | 2SK1526 $R_{DS(on)}$ 2SK1527 | — | 0.11 0.12 | 0.15 0.16 | Ω | $I_D = 20 \text{ A}$, $V_{GS} = 10 \text{ V}^{*1}$ |
| Forward transfer admittance | $ y_{fs} $ | 20 | 30 | — | S | $I_D = 20 \text{ A}$, $V_{DS} = 10 \text{ V}^{*1}$ |
| Input capacitance | C_{iss} | — | 5800 | — | pF | $V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, |
| Output capacitance | C_{oss} | — | 1430 | — | pF | $f = 1 \text{ MHz}$ |
| Reverse transfer capacitance | C_{rss} | — | 150 | — | pF | |
| Turn-on delay time | $t_{d(on)}$ | — | 60 | — | ns | $I_D = 20 \text{ A}$, $V_{GS} = 10 \text{ V}$, |
| Rise time | t_r | — | 175 | — | ns | $R_L = 1.5 \text{ } \Omega$ |
| Turn-off delay time | $t_{d(off)}$ | — | 420 | — | ns | |
| Fall time | t_f | — | 160 | — | ns | |
| Body to drain diode forward voltage | V_{DF} | — | 1.2 | — | V | $I_F = 40 \text{ A}$, $V_{GS} = 0$ |
| Body to drain diode reverse recovery time | t_{rr} | — | 600 | — | ns | $I_F = 40 \text{ A}$, $V_{GS} = 0$, $di_p/dt = 100 \text{ A}/\mu\text{s}$ |

Note: 1. Pulse test

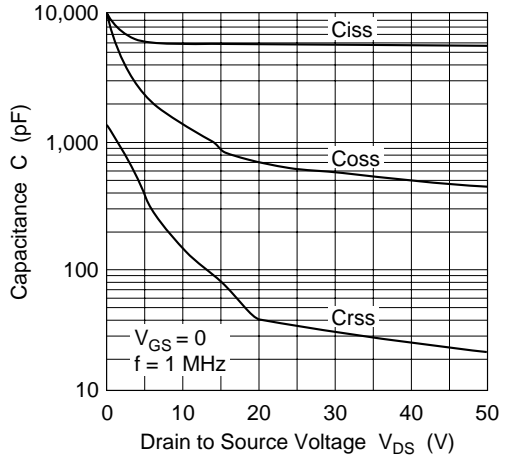




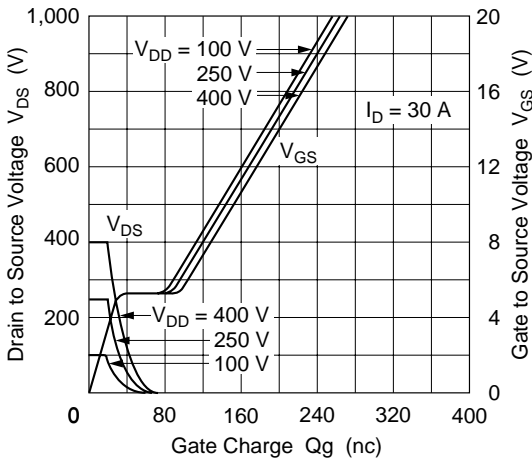
Body to Drain Diode Reverse Recovery Time



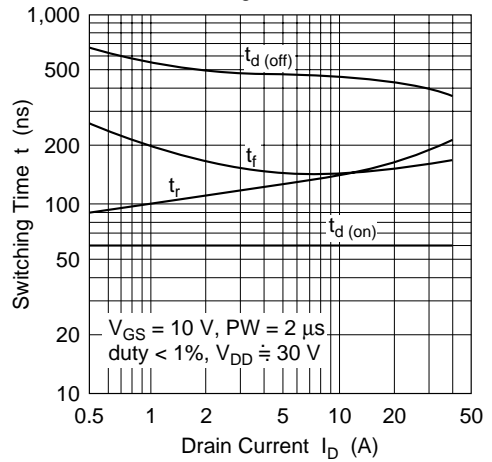
Typical Capacitance vs. Drain to Source Voltage

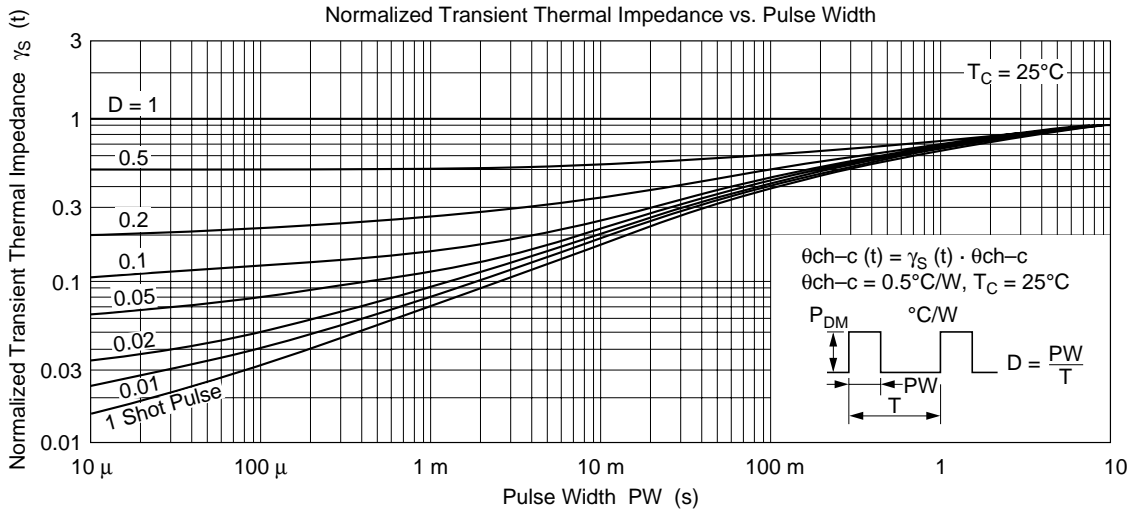
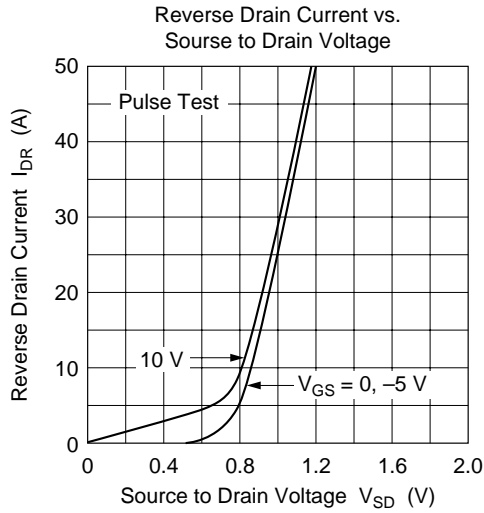


Dynamic Input Characteristics

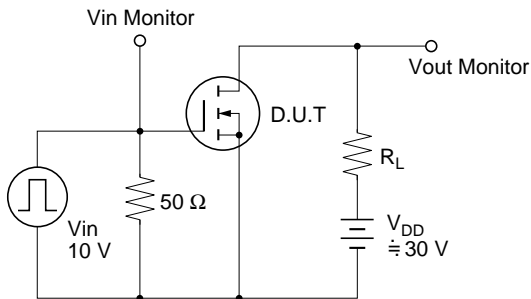


Switching Characteristics

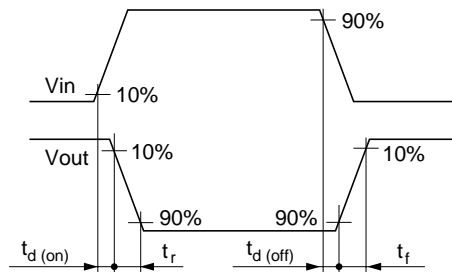


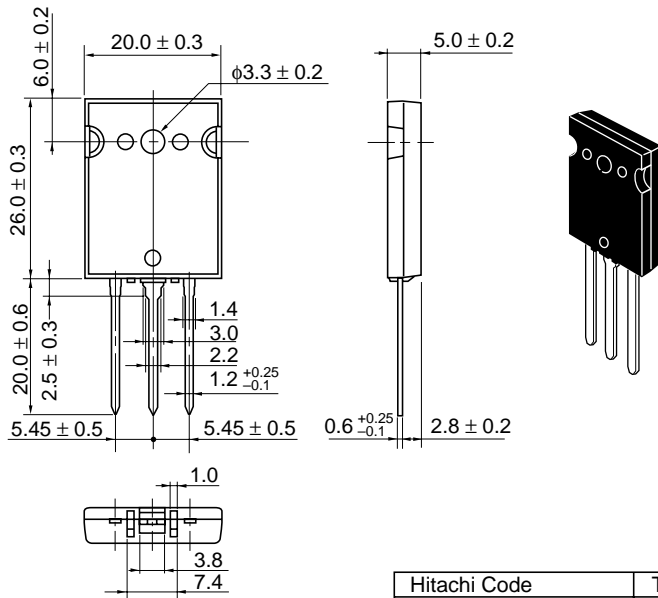


Switching Time Test Circuit



Waveforms





| | |
|--------------------------|--------|
| Hitachi Code | TO-3PL |
| JEDEC | — |
| EIAJ | — |
| Weight (reference value) | 9.9 g |

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