



SANYO Semiconductors

DATA SHEET

2SK4227JS — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Motor drive.
- Avalanche resistance guarantee.
- 10V drive.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------------|-----------|---|-------------|------------------|
| Drain-to-Source Voltage | V_{DSS} | | 75 | V |
| Gate-to-Source Voltage | V_{GSS} | | ± 20 | V |
| Drain Current (DC) | I_D | | 48 | A |
| Drain Current (Pulse) | I_{DP} | $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$ | 192 | A |
| Allowable Power Dissipation | P_D | | 2.0 | W |
| | | $T_c=25^\circ\text{C}$ | 35 | W |
| Channel Temperature | T_{ch} | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ\text{C}$ |
| Avalanche Energy (Single Pulse) *1 | E_{AS} | | 100 | mJ |
| Avalanche Current *2 | I_{AV} | | 48 | A |

Note : *1 $V_{DD}=30\text{V}$, $L=50\mu\text{H}$, $I_{AV}=48\text{A}$

*2 $L \leq 50\mu\text{H}$, Single pulse

Electrical Characteristics at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-----------------------------------|---------------|--|---------|-----|----------|---------------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D=1\text{mA}$, $V_{GS}=0\text{V}$ | 75 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS}=75\text{V}$, $V_{GS}=0\text{V}$ | | | 1 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$ | | | ± 10 | μA |

Marking : K4227

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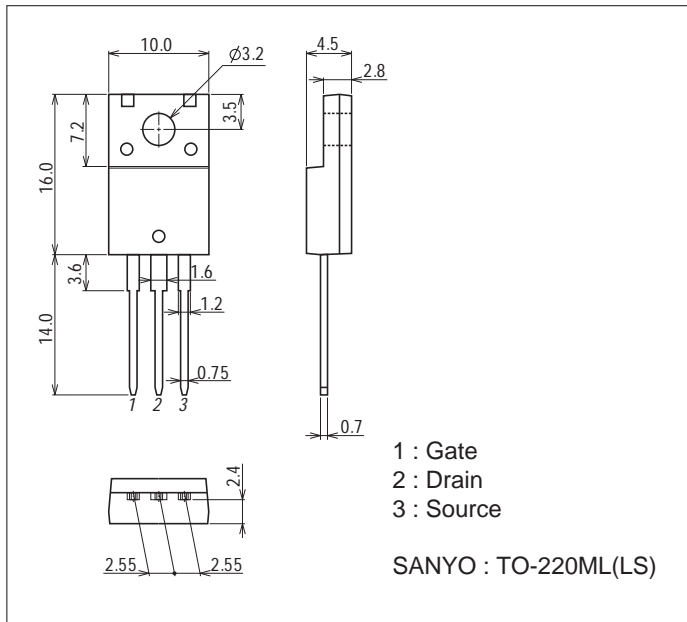
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|-----------------------------------|---------|------|------|------------|
| | | | min | typ | max | |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}=10V, I_D=1mA$ | 2 | | 4 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS}=10V, I_D=24A$ | 21 | 35 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)}$ | $I_D=24A, V_{GS}=10V$ | | 10.5 | 13.7 | m Ω |
| Input Capacitance | C_{iss} | $V_{DS}=20V, f=1MHz$ | | 5400 | | pF |
| Output Capacitance | C_{oss} | $V_{DS}=20V, f=1MHz$ | | 480 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS}=20V, f=1MHz$ | | 350 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit. | | 61 | | ns |
| Rise Time | t_r | See specified Test Circuit. | | 220 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit. | | 240 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | 150 | | ns |
| Total Gate Charge | Q_g | $V_{DS}=30V, V_{GS}=10V, I_D=48A$ | | 100 | | nC |
| Gate-to-Source Charge | Q_{gs} | $V_{DS}=30V, V_{GS}=10V, I_D=48A$ | | 30 | | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | $V_{DS}=30V, V_{GS}=10V, I_D=48A$ | | 28 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S=48A, V_{GS}=0V$ | | 0.9 | 1.2 | V |

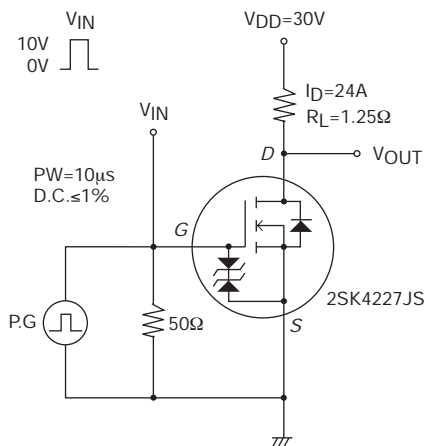
Package Dimensions

unit : mm (typ)

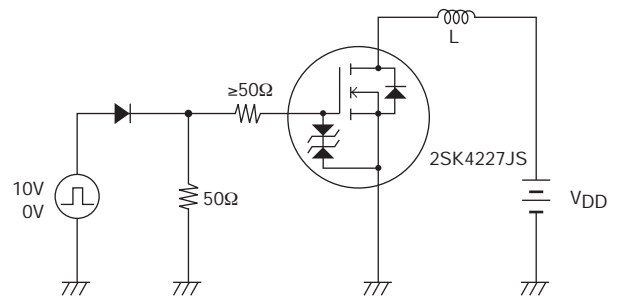
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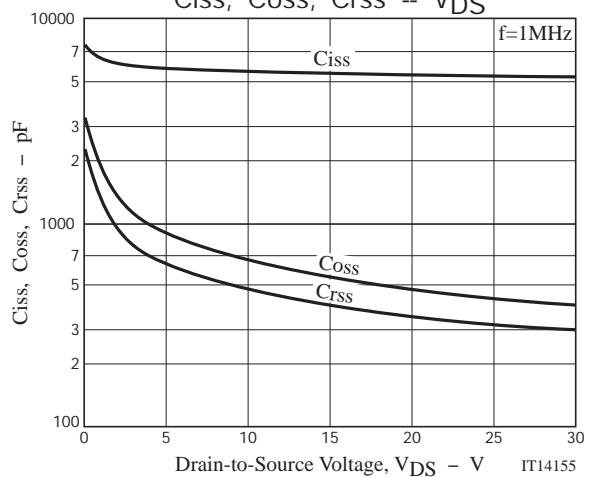
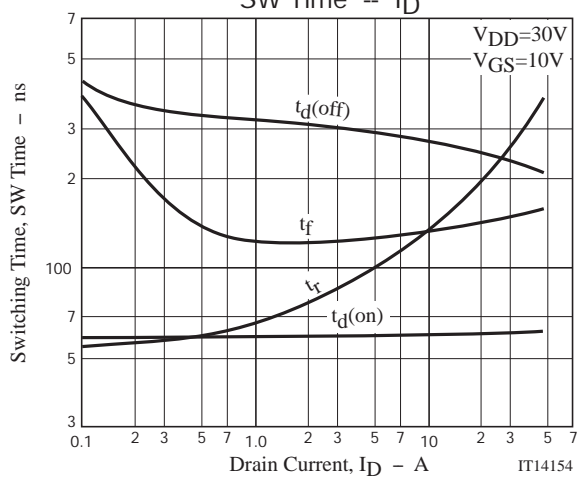
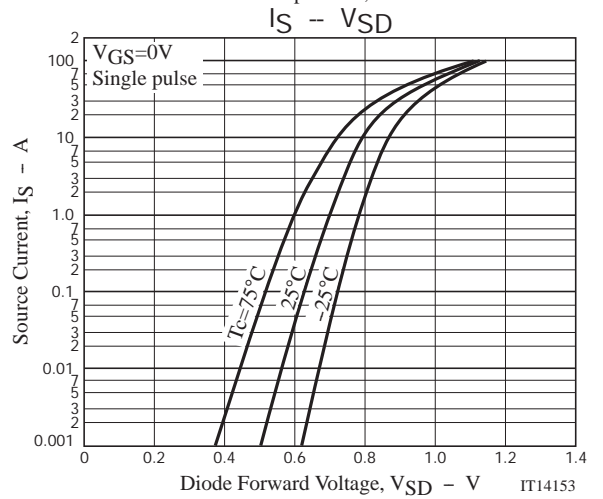
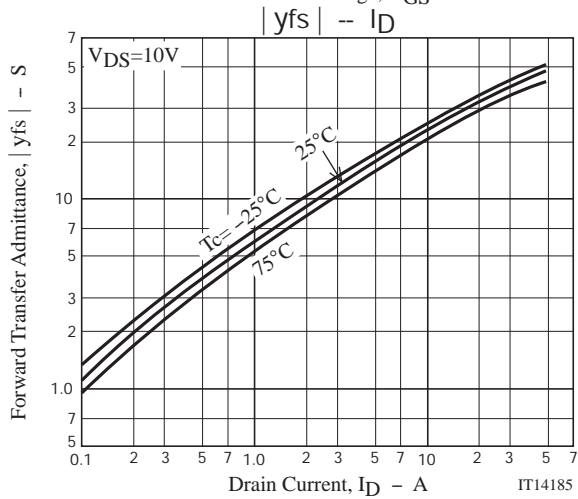
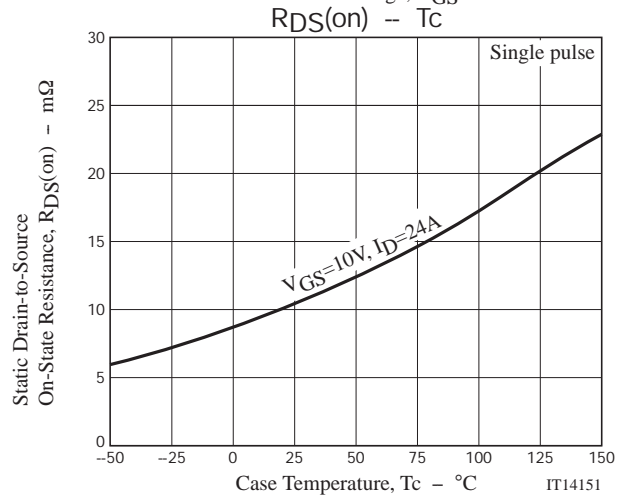
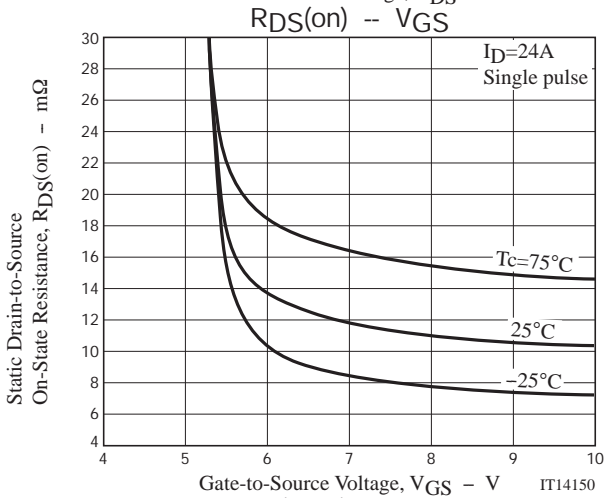
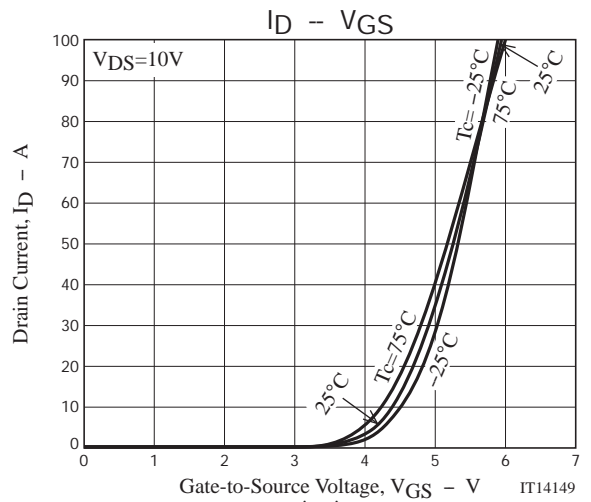
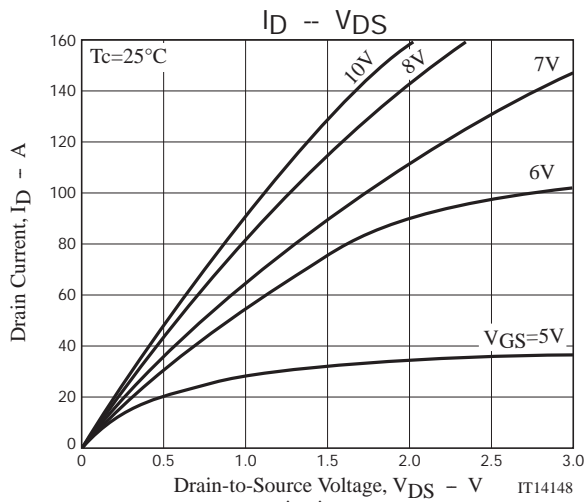


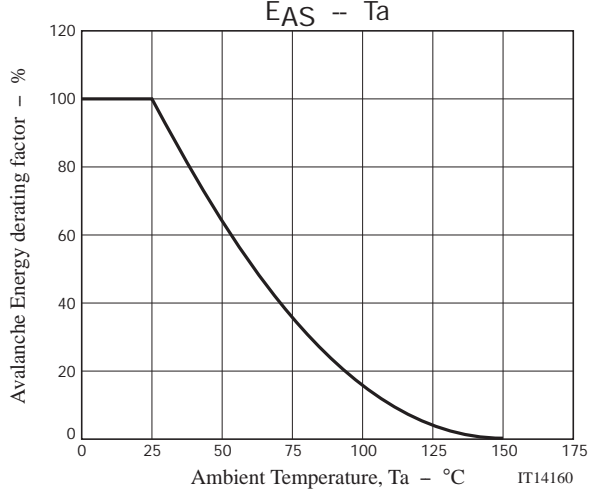
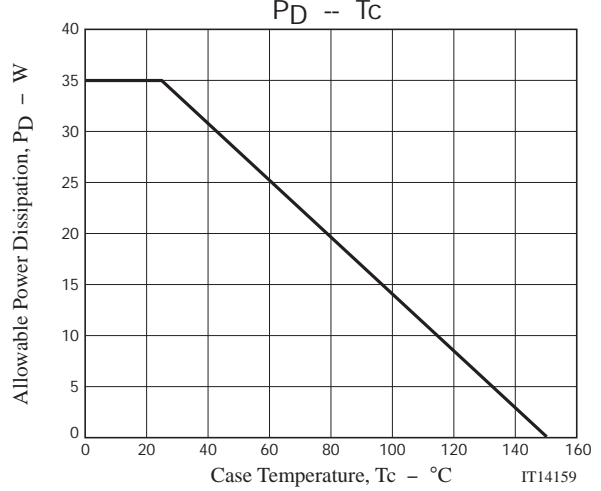
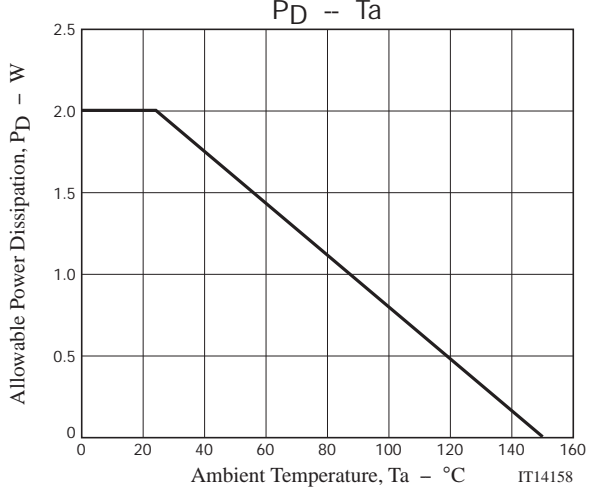
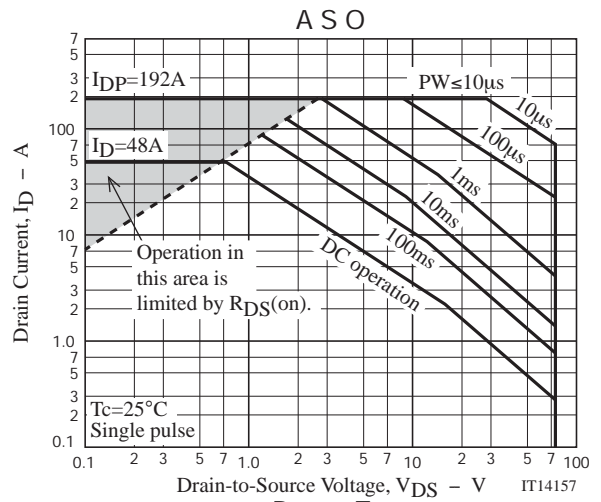
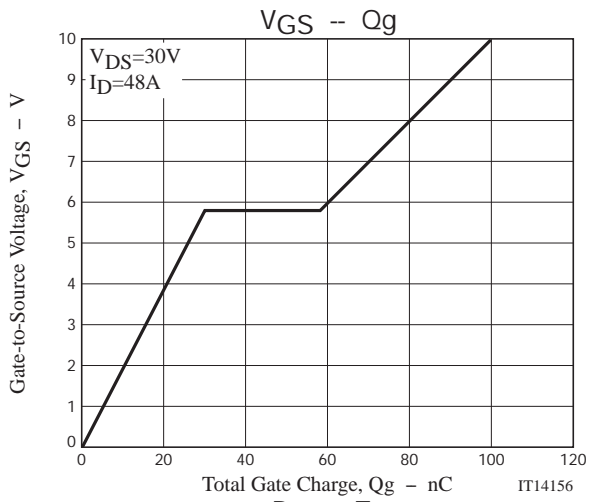
Switching Time Test Circuit



Avalanche Resistance Test Circuit







Note on usage : Since the 2SK4227JS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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