



2SK4094 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Load switching applications.
- Avalanche resistance guarantee.

Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------------|------------------|------------------------|-------------|------|
| Drain-to-Source Voltage | V _{DSS} | | 60 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±20 | V |
| Drain Current (DC) | I _D | | 100 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10μs, duty cycle≤1% | 400 | A |
| Allowable Power Dissipation | P _D | | 1.75 | W |
| | | T _c =25°C | 90 | W |
| Channel Temperature | T _{ch} | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |
| Avalanche Energy (Single Pulse) *1 | E _{AS} | | 850 | mJ |
| Avalanche Current *2 | I _{AV} | | 70 | A |

Note : *1 V_{DD}=30V, L=200μH, I_{AV}=70A

*2 L≤200μH, Single pulse

Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|----------------------|--|---------|-----|-----|------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | V(BR)DSS | I _D =1mA, V _{GS} =0V | 60 | | | V |
| Zero-Gate Voltage Drain Current | I _{DSS} | V _{DS} =60V, V _{GS} =0V | | | 1 | μA |
| Gate-to-Source Leakage Current | I _{GSS} | V _{GS} =±16V, V _{DS} =0V | | | ±10 | μA |
| Cutoff Voltage | V _{GS(off)} | V _{DS} =10V, I _D =1mA | 1.2 | | 2.6 | V |
| Forward Transfer Admittance | y _{fs} | V _{DS} =10V, I _D =50A | 45 | 75 | | S |
| Static Drain-to-Source On-State Resistance | R _{DS(on)1} | I _D =50A, V _{GS} =10V | | 3.8 | 5.0 | mΩ |
| | R _{DS(on)2} | I _D =50A, V _{GS} =4V | | 4.9 | 7.0 | mΩ |

Marking : K4094

Continued on next page.

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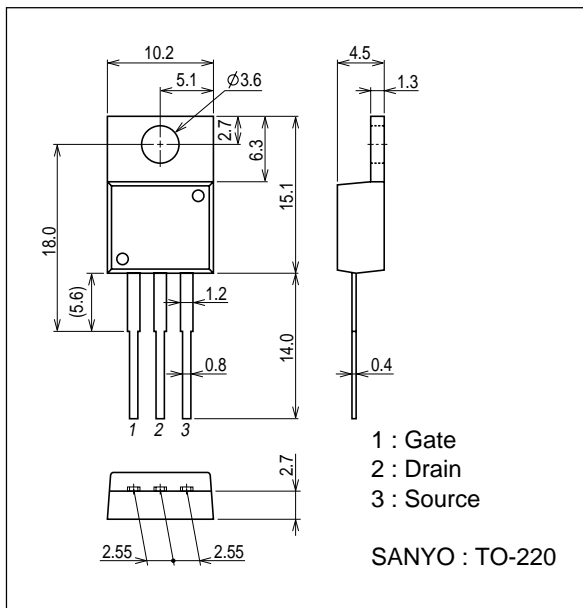
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-------------------------------|---------------------|--|---------|-------|-----|------|
| | | | min | typ | max | |
| Input Capacitance | Ciss | V _{DS} =20V, f=1MHz | | 12500 | | pF |
| Output Capacitance | Coss | V _{DS} =20V, f=1MHz | | 1200 | | pF |
| Reverse Transfer Capacitance | Crss | V _{DS} =20V, f=1MHz | | 950 | | pF |
| Turn-ON Delay Time | t _{d(on)} | See specified Test Circuit. | | 80 | | ns |
| Rise Time | t _r | See specified Test Circuit. | | 630 | | ns |
| Turn-OFF Delay Time | t _{d(off)} | See specified Test Circuit. | | 860 | | ns |
| Fall Time | t _f | See specified Test Circuit. | | 750 | | ns |
| Total Gate Charge | Q _g | V _{DS} =30V, V _{GS} =10V, I _D =100A | | 220 | | nC |
| Gate-to-Source Charge | Q _{gs} | V _{DS} =30V, V _{GS} =10V, I _D =100A | | 30 | | nC |
| Gate-to-Drain "Miller" Charge | Q _{gd} | V _{DS} =30V, V _{GS} =10V, I _D =100A | | 55 | | nC |
| Diode Forward Voltage | V _{SD} | I _S =100A, V _{GS} =0V | | 1.0 | 1.2 | V |

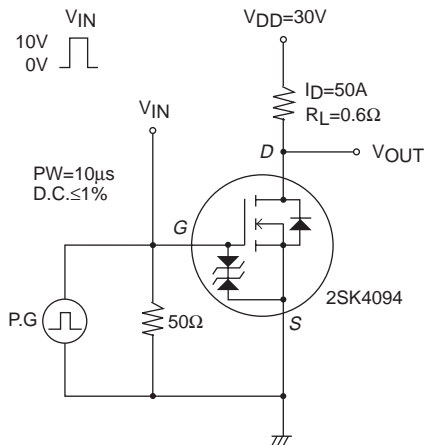
Package Dimensions

unit : mm (typ)

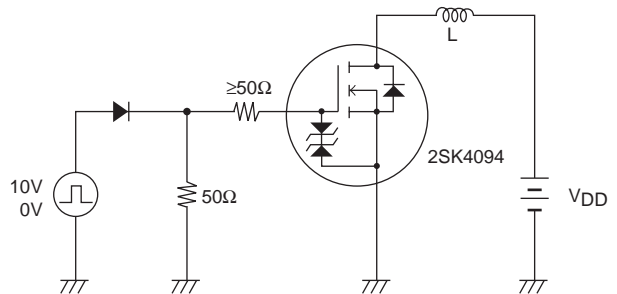
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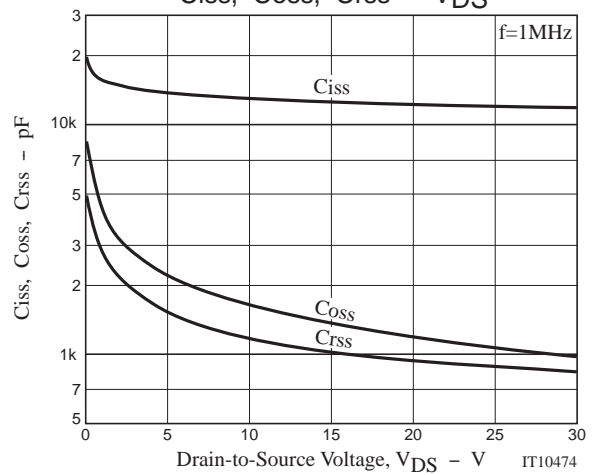
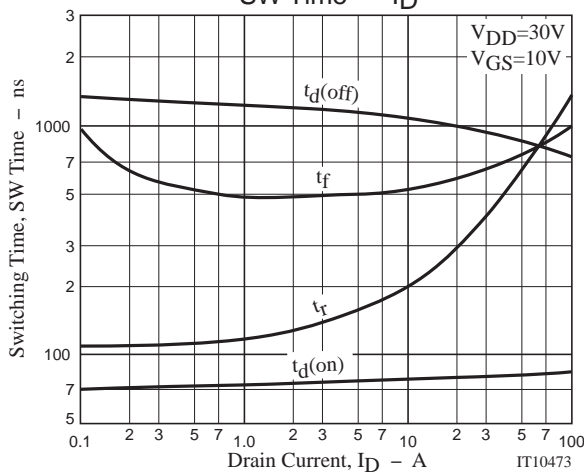
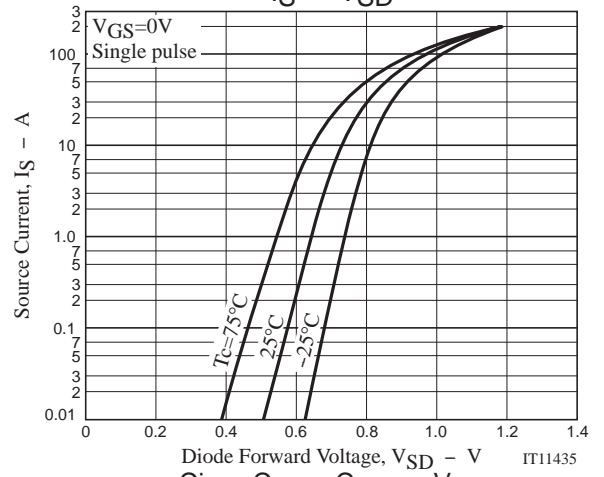
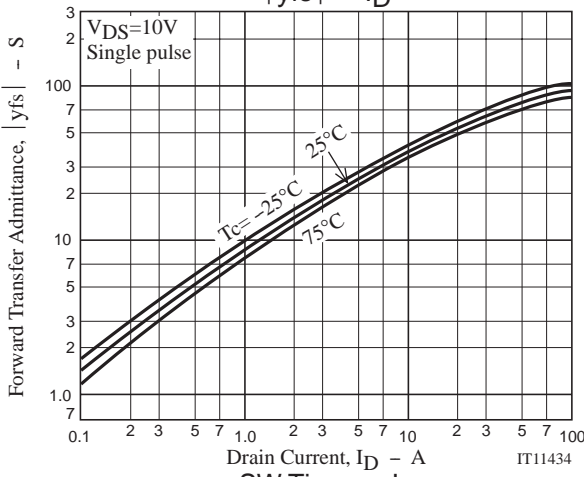
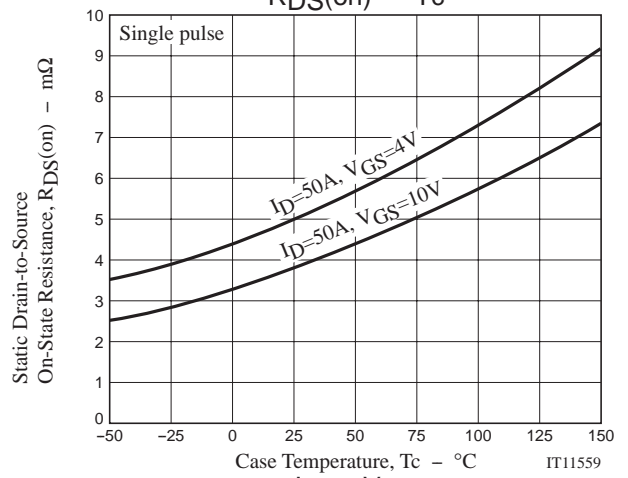
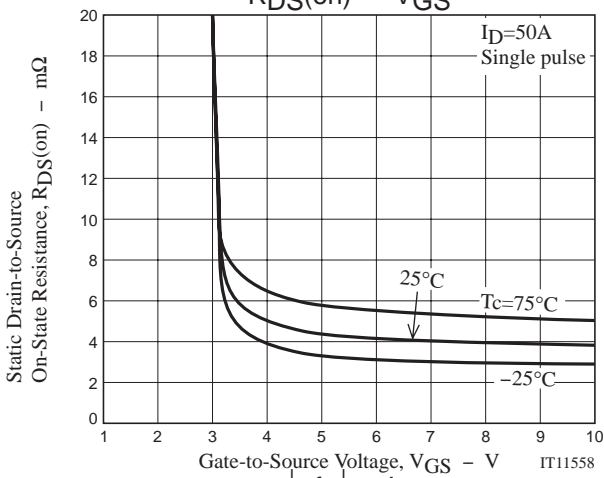
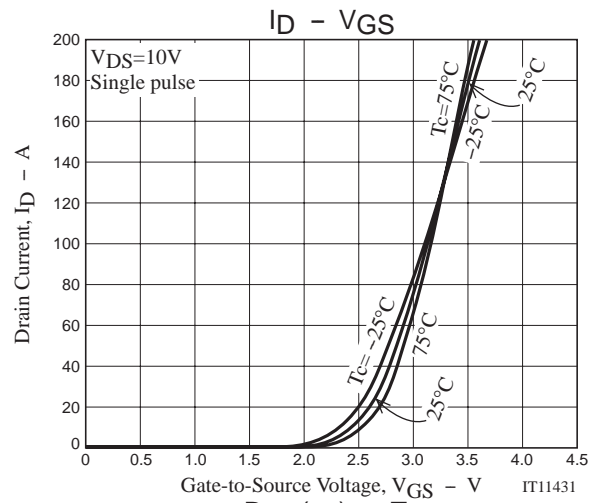
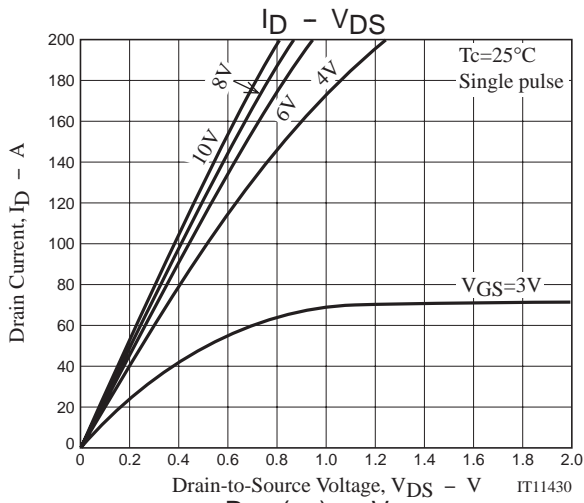
Switching Time Test Circuit



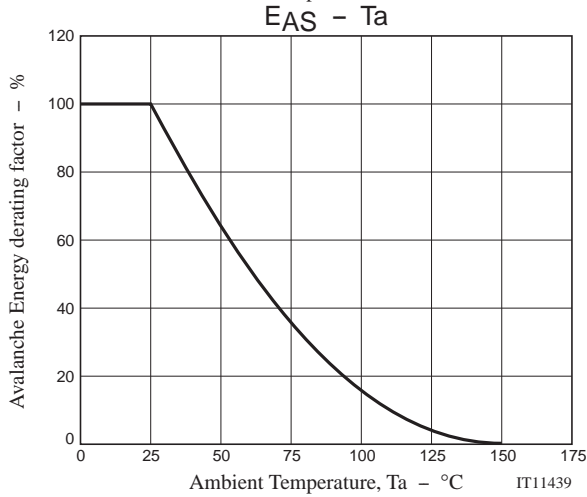
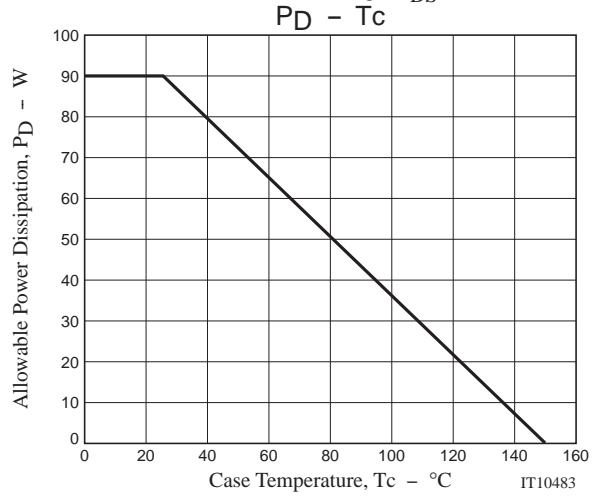
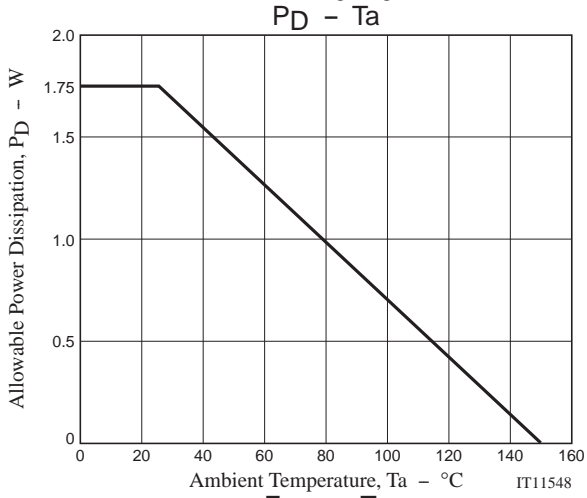
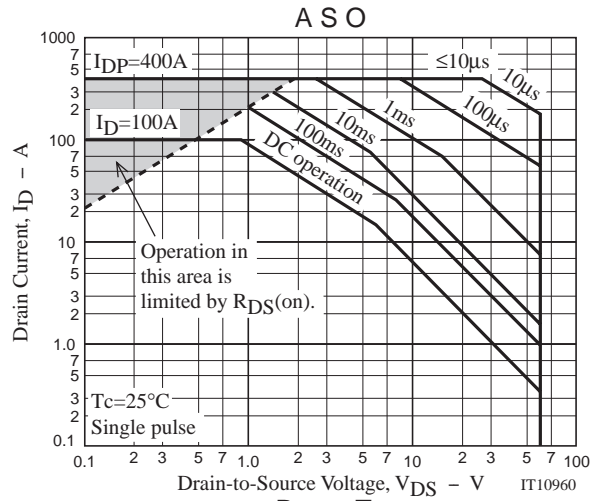
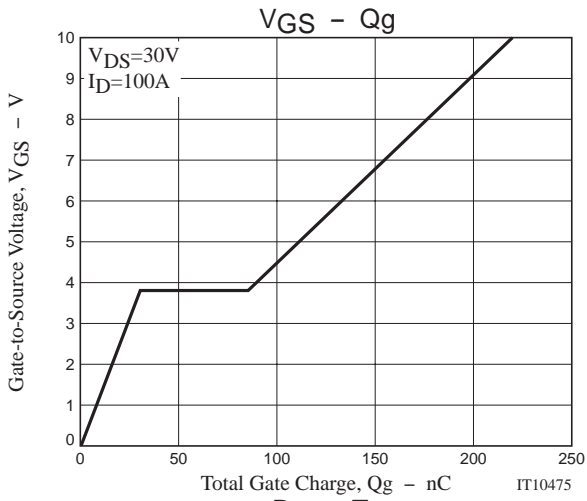
Avalanche Resistance Test Circuit



2SK4094



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Note on usage : Since the 2SK4094 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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