Ordering number: EN 3444

SANYO

No.3444

# 2SK1441

N-Channel MOS Silicon FET

## Very High-Speed Switching Applications

**Features**

- Low ON-state resistance.
- Very high-speed switching.

**Absolute Maximum Ratings** at Ta = 25°C

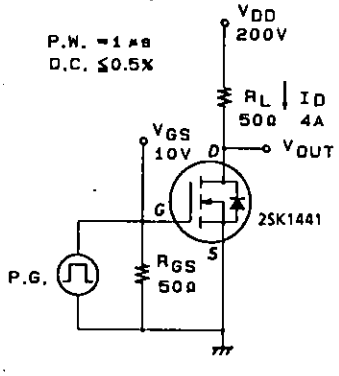
| | | | | unit |
|---|---|---|---|---|
| Drain to Source Voltage | $V_{DSS}$ | | 450 | V |
| Gate to Source Voltage | $V_{GSS}$ | | ±30 | V |
| Drain Current(DC) | $I_D$ | | 8 | A |
| Drain Current(Pulse) | $I_{DP}$ | PW≦10μs, duty cycle≦1% | 32 | A |
| Allowable Power Dissipation | $P_D$ | Tc=25°C | 70 | W |
| | | | 1.75 | W |
| Channel Temperature | Tch | | 150 | °C |
| Storage Temperature | Tstg | | −55 to +150 | °C |

**Electrical Characteristics** at Ta = 25°C

| | | | min | typ | max | unit |
|---|---|---|---|---|---|---|
| D-S Breakdown Voltage | $V_{(BR)DSS}$ | $I_D$=1mA, $V_{GS}$=0 | 450 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=450V, $V_{GS}$=0 | | | 1.0 | mA |
| Gate to Source Leakage Current | $I_{GSS}$ | $V_{GS}$=±30V, $V_{DS}$=0 | | | ±100 | nA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}$=10V, $I_D$=1mA | 2.0 | | 3.0 | V |
| Forward Transfer Admittance | $\|Y_{fs}\|$ | $V_{DS}$=10V, $I_D$=4A | 3.0 | 6.0 | | S |
| Static Drain to Source on State Resistance | $R_{DS(on)}$ | $I_D$=4A, $V_{GS}$=10V | | 0.6 | 0.8 | Ω |
| Input Capacitance | Ciss | $V_{DS}$=20V, f=1MHz | | 1200 | | pF |
| Output Capacitance | Coss | $V_{DS}$=20V, f=1MHz | | 180 | | pF |
| Reverse Transfer Capacitance | Crss | $V_{DS}$=20V, f=1MHz | | 70 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | $I_D$=4A, $V_{GS}$=10V, $V_{DD}$=200V, $R_{GS}$=50Ω | | 20 | | ns |
| Rise Time | $t_r$ | | | 40 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | | | 160 | | ns |
| Fall Time | $t_f$ | | | 60 | | ns |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=8A, $V_{GS}$=0 | | | 1.8 | V |

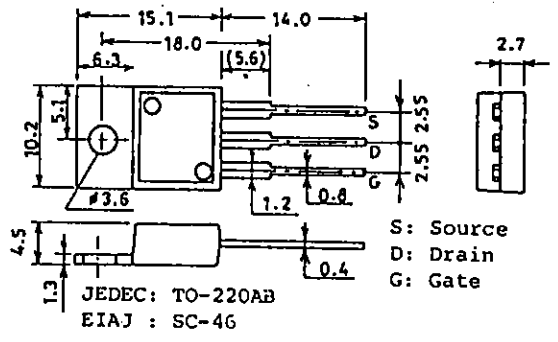
(Note) Be careful in handling the 2SK1441 because it has no protection diode between gate and source.

**Switching Time Test Circuit**




**Package Dimensions** 2052B

(unit : mm)





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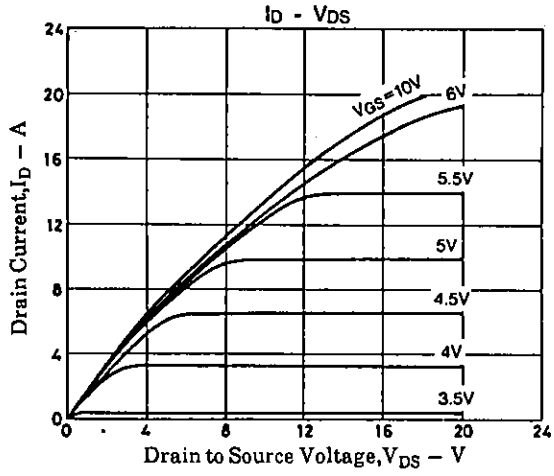
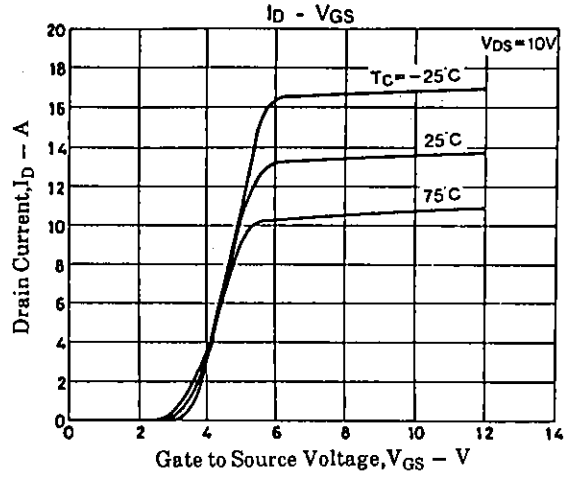
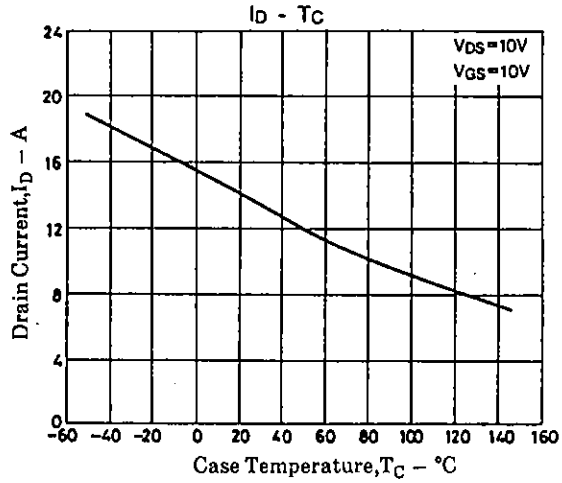
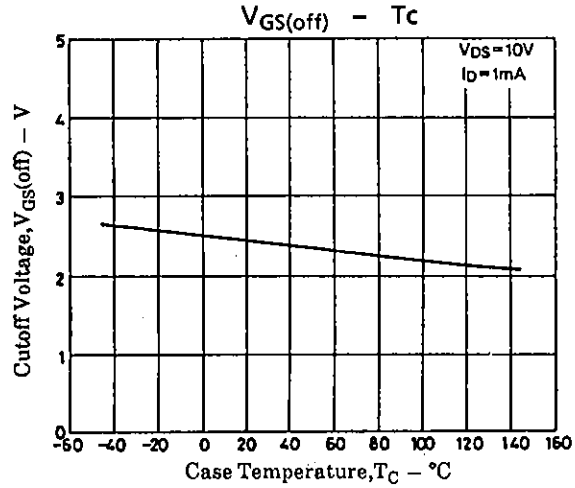
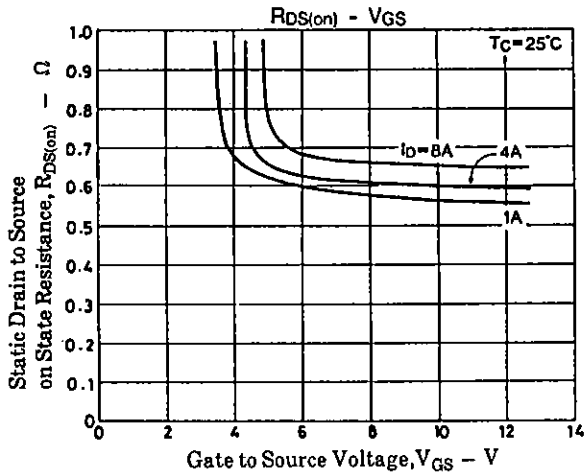
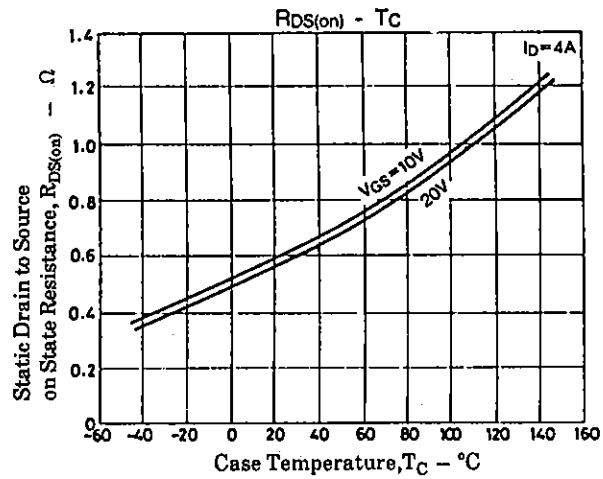

ID - VDS
Drain Current,ID – A
Drain to Source Voltage,VDS – V
VGS=10V
6V
5.5V
5V
4.5V
4V
3.5V

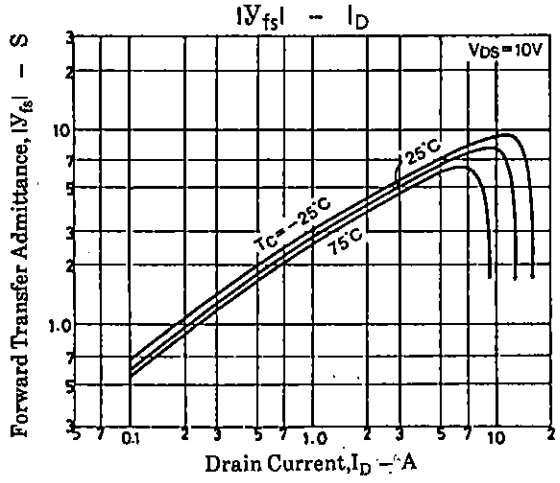

ID - VGS
Drain Current,ID – A
Gate to Source Voltage,VGS – V
VDS=10V
Tc=–25°C
25°C
75°C

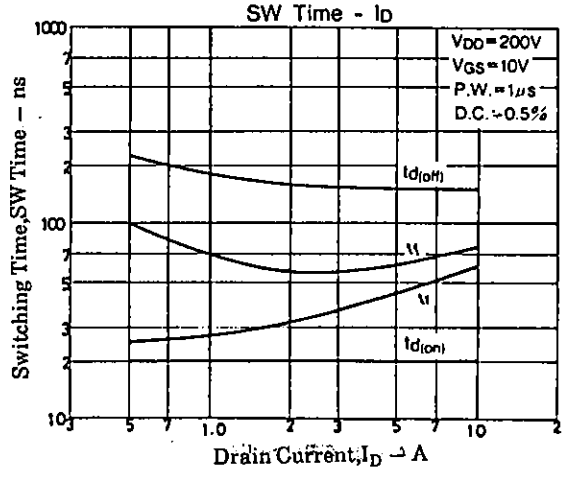

ID - Tc
Drain Current,ID – A
Case Temperature,Tc – °C
VDS=10V
VGS=10V


VGS(off) – Tc
Cutoff Voltage,VGS(off) – V
Case Temperature,Tc – °C
VDS=10V
ID=1mA


RDS(on) - VGS
Static Drain to Source on State Resistance, RDS(on) – Ω
Gate to Source Voltage,VGS – V
Tc=25°C
ID=8A
4A
1A


RDS(on) - Tc
Static Drain to Source on State Resistance, RDS(on) – Ω
Case Temperature,Tc – °C
ID=4A
VGS=10V
20V


|Yfs| – ID
Forward Transfer Admittance, |Yfs| – S
Drain Current,ID – A
VDS=10V
25°C
Tc=–25°C
75°C


SW Time - ID
Switching Time,SW Time – ns
Drain Current,ID – A
VDD=200V
VGS=10V
P.W.=1μs
D.C.=0.5%
td(off)
tf
tr
td(on)