Ordering number: EN 4309

SANYO

No.4309

# 2SJ316

P-Channel MOS Silicon FET

## Very High-Speed Switching Applications

### Features

- Low ON resistance.
- Very high-speed switching.
- Low-voltage drive.

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

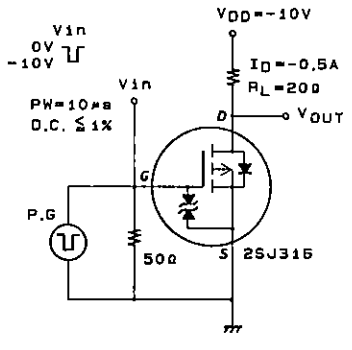
| | | | | unit |
|---|---|---|---|---|
| Drain to Source Voltage | $V_{DSS}$ | | −12 | V |
| Gate to Source Voltage | $V_{GSS}$ | | ±15 | V |
| Drain Current(DC) | $I_D$ | | −1 | A |
| Drain Current(Pulse) | $I_{DP}$ | PW≦10μs, duty cycle≦1% | −4 | A |
| Allowable Power Dissipation | $P_D$ | $T_c$ = 25°C | 3.5 | W |
| | | Mounted on ceramic board (250mm²×0.8mm) | 1.5 | 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 | −12 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$ = −12V, $V_{GS}$ = 0 | | | −100 | μA |
| Gate to Source Leakage Current | $I_{GSS}$ | $V_{GS}$ = ±12V, $V_{DS}$ = 0 | | | ±10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}$ = −10V, $I_D$ = −1mA | −1.0 | | −2.0 | V |
| Forward Transfer Admittance | $\|y_{fs}\|$ | $V_{DS}$ = −10V, $I_D$ = −500mA | 0.7 | 1.2 | | S |
| Static Drain to Source on State Resistance | $R_{DS(on)}$ | $I_D$ = −500mA, $V_{GS}$ = −10V | | 0.3 | 0.42 | Ω |
| | $R_{DS(on)}$ | $I_D$ = −500mA, $V_{GS}$ = −4V | | 0.45 | 0.63 | Ω |
| Input Capacitance | $C_{iss}$ | $V_{DS}$ = −10V, f = 1MHz | | 170 | | pF |
| Output Capacitance | $C_{oss}$ | $V_{DS}$ = −10V, f = 1MHz | | 170 | | pF |
| Reverse Transfer Capacitance | $C_{rss}$ | $V_{DS}$ = −10V, f = 1MHz | | 40 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit. | | 10 | | ns |
| Rise Time | $t_r$ | 〃 | | 14 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | 〃 | | 70 | | ns |
| Fall Time | $t_f$ | 〃 | | 40 | | ns |
| Diode Forward Voltage | $V_{SD}$ | $I_S$ = −1A, $V_{GS}$ = 0 | | −0.9 | | V |

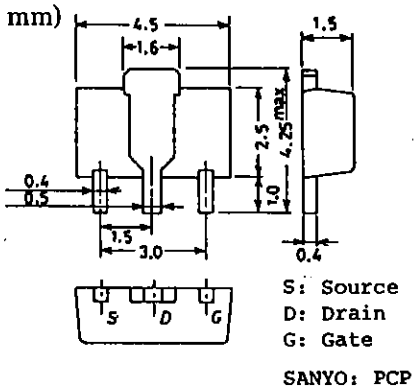
Marking : JG

### Switching Time Test Circuit




### Package Dimensions 2062

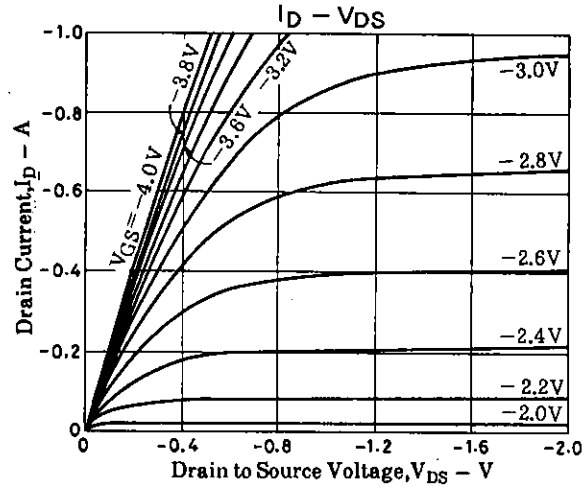
(unit : mm)

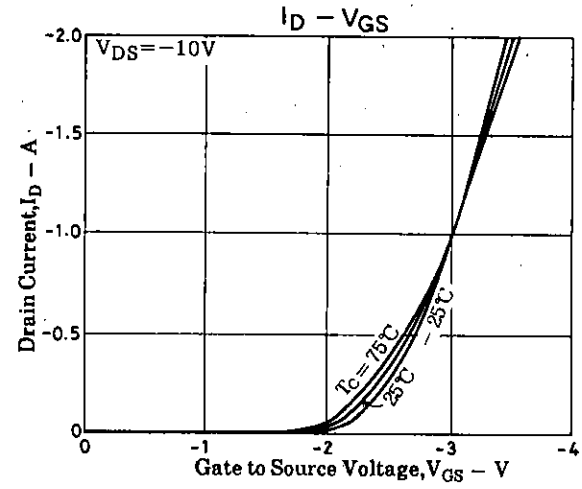


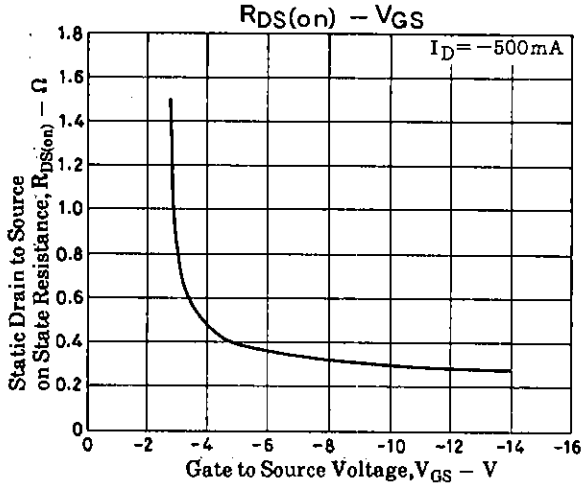

S: Source
D: Drain
G: Gate

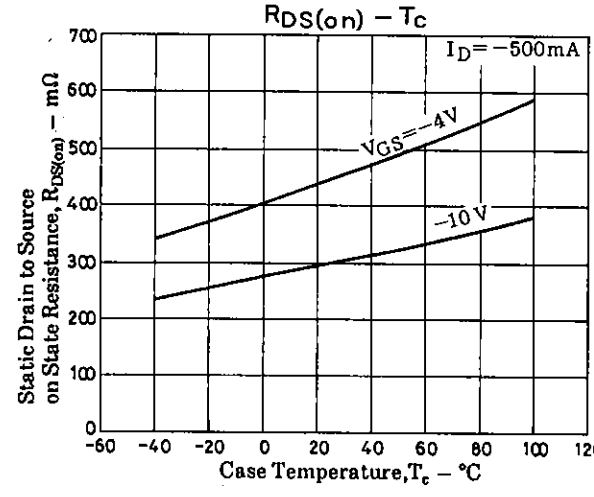
SANYO: PCP

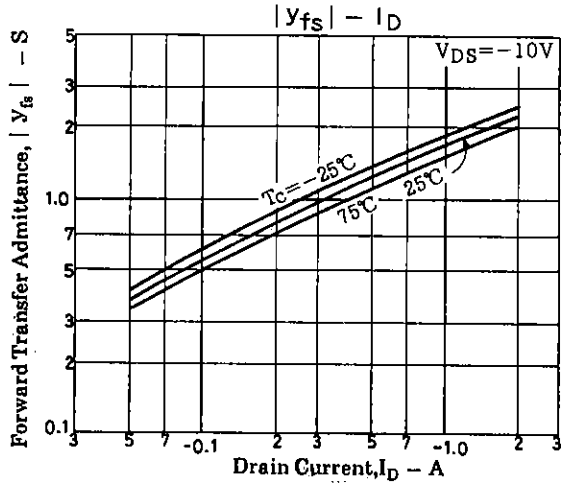

SANYO Electric Co.,Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

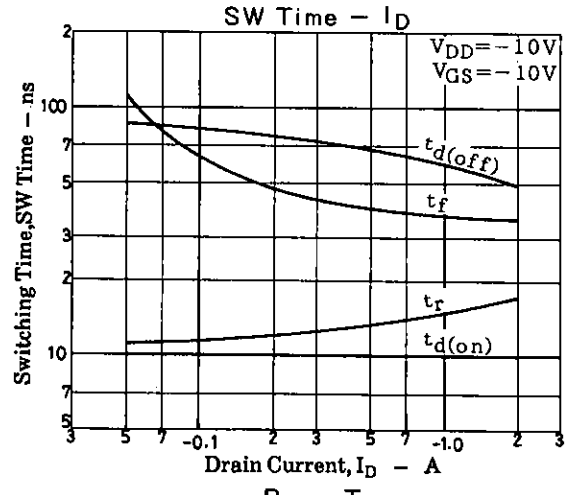

$I_D - V_{DS}$
Drain Current, $I_D$ – A
Drain to Source Voltage, $V_{DS}$ – V
$V_{GS}$ = −4.0 V
−3.8 V
−3.6 V
−3.2 V
−3.0 V
−2.8 V
−2.6 V
−2.4 V
−2.2 V
−2.0 V

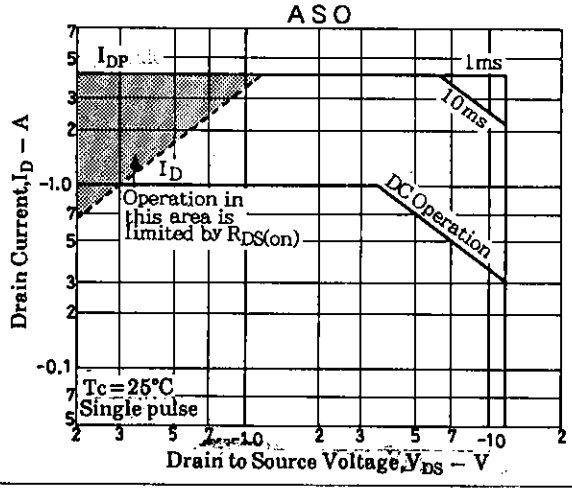

$I_D - V_{GS}$
$V_{DS}$ = −10 V
Drain Current, $I_D$ – A
Gate to Source Voltage, $V_{GS}$ – V
$T_C$ = 75°C
25°C
−25°C

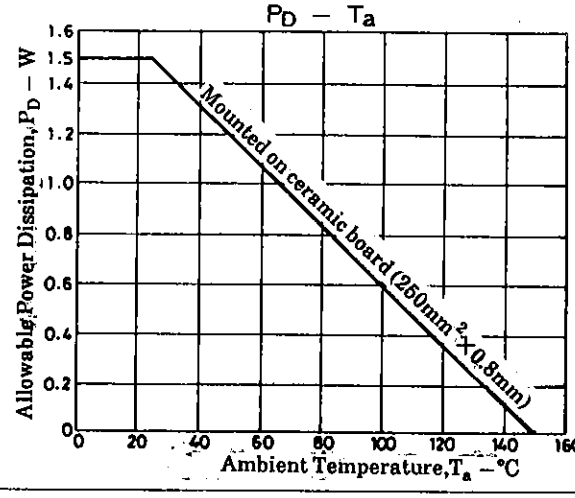

$R_{DS(on)} - V_{GS}$
$I_D$ = −500 mA
Static Drain to Source on State Resistance, $R_{DS(on)}$ – Ω
Gate to Source Voltage, $V_{GS}$ – V


$R_{DS(on)} - T_C$
$I_D$ = −500 mA
$V_{GS}$ = −4 V
−10 V
Static Drain to Source on State Resistance, $R_{DS(on)}$ – mΩ
Case Temperature, $T_c$ – °C


$|y_{fs}| - I_D$
$V_{DS}$ = −10 V
$T_C$ = −25°C
75°C
25°C
Forward Transfer Admittance, $|y_{fs}|$ – S
Drain Current, $I_D$ – A


SW Time – $I_D$
$V_{DD}$ = −10 V
$V_{GS}$ = −10 V
$t_{d(off)}$
$t_f$
$t_r$
$t_{d(on)}$
Switching Time, SW Time – ns
Drain Current, $I_D$ – A


ASO
$I_{DP}$
$I_D$
1 ms
10 ms
DC Operation
Operation in this area is limited by $R_{DS(on)}$
$T_C$ = 25°C
Single pulse
Drain Current, $I_D$ – A
Drain to Source Voltage, $V_{DS}$ – V


$P_D - T_a$
Mounted on ceramic board (250mm² × 0.8mm)
Allowable Power Dissipation, $P_D$ – W
Ambient Temperature, $T_a$ – °C