

2SJ306

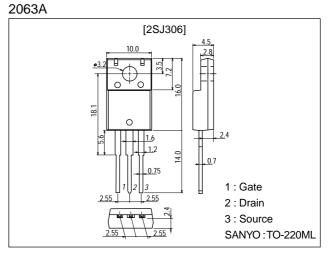
Ultrahigh-Speed Switching Applications

Features

- \cdot Low ON resistance.
- · Ultrahigh-speed switching.
- · Low-voltage drive.
- · Micaless package facilitating mounting.

Package Dimensions

unit:mm



Specifications

Absolute Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|------------------|------------------------|-------------|------|
| Drain-to-Source Voltage | V _{DSS} | | -250 | V |
| Gate-to-Source Voltage | VGSS | | ±30 | V |
| Drain Current (DC) | ۱ _D | | -3 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10µs, duty cycle≤1% | -12 | A |
| Allowable Power Dissipation | P- | | 2.0 | W |
| | PD | Tc=25°C | 25 | W |
| Channel Temperature | Tch | | 150 | °C |
| Storage Temperature | Tstg | | -55 to +150 | °C |

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} =0 | -250 | | | V |
| Gate-to-Source Breakdown Voltage | V(BR)GSS | I _G =±100µA, V _{DS} =0 | ±30 | | | V |
| Zero-Gate Voltage Drain Current | IDSS | V _{DS} =-250V, V _{GS} =0 | | | -100 | μΑ |
| Gate-to-Source Leakage Current | IGSS | $V_{GS}=\pm 25V, V_{DS}=0$ | | | ±10 | μΑ |
| Cutoff Voltage | VGS(off) | V_{DS} =-10V, I _D =-1mA | -1.5 | | -2.5 | V |
| Forward Transfer Admittance | yfs | V _{DS} =-10V, I _D =-1.5A | 1.5 | 2.5 | | S |
| Static Drain-to-Source ON-State Resistance | R _{DS(on)} | I _D =-1.5A, V _{GS} =-10V | | 1.5 | 2.0 | Ω |

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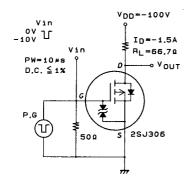
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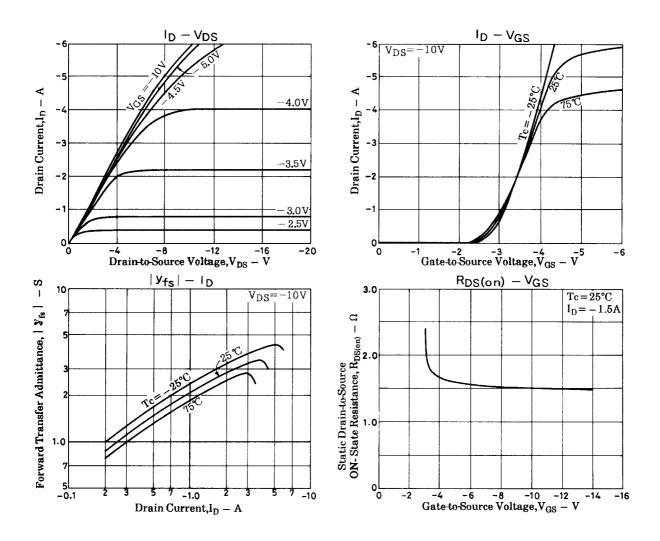
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Continued from preceding page.

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|------------------------------|---------------------|---|---------|------|------|------|
| | Symbol | | min | typ | max | |
| Input Capacitance | Ciss | V _{DS} =-20V, f=1MHz | | 600 | | pF |
| Output Capacitance | Coss | V _{DS} =-20V, f=1MHz | | 110 | | pF |
| Reverse Transfer Capacitance | Crss | V _{DS} =-20V, f=1MHz | | 50 | | pF |
| Turn-ON Delay Time | ^t d(on) | See specified Test Circuit | | 14 | | ns |
| Rise Time | tr | See specified Test Circuit | | 18 | | ns |
| Turn-OFF Delay Time | ^t d(off) | See specified Test Circuit | | 75 | | ns |
| Fall Time | t _f | See specified Test Circuit | | 65 | | ns |
| Diode Forward Voltage | V _{SD} | I _S =-3A, V _{GS} =0 | | -1.0 | -1.5 | V |

Switching Time Test Circuit





2SJ306 R_{DS(on)} - Tc Ciss, Coss, Crss – V_{DS} 3.0 $I_{D} = -1.5A$ f=1 M HzStatic Drain-to-Source ON-State Resistance, R_{DS(on)} – A 1000 104 Ciss, Coss, Crss - pF 7 Ciss 105 Coss 100 Cres 2 10년 0 0└ -80 0 40 80 Case Temperature,Tc – °C -8 -12 -16 -20 -24 -28 Drain-to-Source Voltage, V_{DS} - V -40 120 160 -4 -32 SW Time - ID ASO 2 $\begin{array}{c} v_{DD} = -100V \\ v_{GS} = -10V \end{array}$ IDP -10 Switching Time, SW Time - ns 100 Drain Current,I_D – A to off I_D Operation in this area is limited by RDS(on) .0 12 tr 00 operation t_{d(on)} 10 -0.1 Tc = 25°C 1 $\frac{7}{5} \frac{\text{Single pulse}}{3} \frac{5}{7} \frac{7}{-10}$ 57_{-1.0}2 Drain Current,I_D – A 7_{-10} 2 3 5 7_{-10} 2 Drain to Source Voltage, $V_{DS} - V$ 5 7 -10 3 -0.1 P_D – Ta P_D – Tc 2.4 28 Allowable Power Dissipation, $P_D - W$ Allowable Power Dissipation, $P_{\rm D}-W$ 25 20 20 1.6 No hearsing 16 1.2 12 0.8 8 0.4 of oL 0 140 60 80 100 120 160 20 20 40 100 120 140 60 80 160

Ambient Temperature, Ta - °C

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Case Temperature, Tc - °C

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