



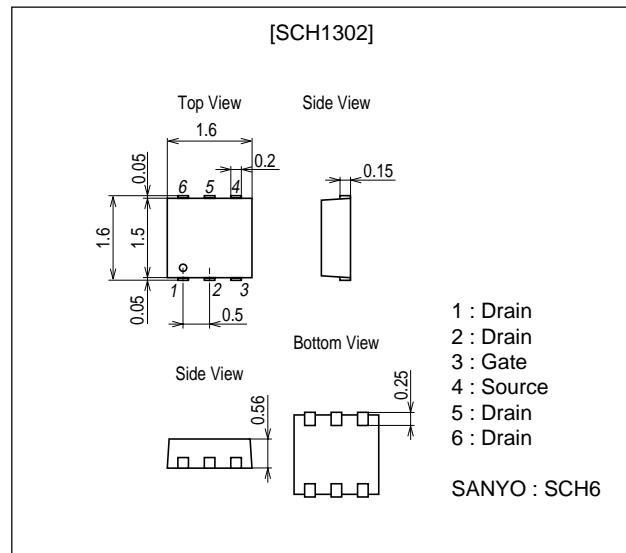
Ultrahigh-Speed Switching Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.8V drive.

Package Dimensions

unit : mm
2221



Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|------------------|---|-------------|------|
| Drain-to-Source Voltage | V _{DSS} | | -20 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±10 | V |
| Drain Current (DC) | I _D | | -2 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10μs, duty cycle≤1% | -8 | A |
| Allowable Power Dissipation | P _D | Mounted on a ceramic board (900mm²×0.8mm) | 0.8 | W |
| Channel Temperature | T _{ch} | | 150 | °C |
| Storage Temperature | T _{stg} | | -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 | -20 | | | V |
| Zero-Gate Voltage Drain Current | I _{DSS1} | V _{DS} =-20V, V _{GS} =0 | | | -10 | μA |
| | I _{DSS2} | V _{DS} =-4V, V _{GS} =0 | | | -1 | μA |
| Gate-to-Source Leakage Current | I _{GSS1} | V _{GS} =±8V, V _{DS} =0 | | | ±10 | μA |
| | I _{GSS2} | V _{GS} =±4V, V _{DS} =0 | | | ±1 | μA |
| Cutoff Voltage | V _{GS(off)} | V _{DS} =-10V, I _D =-1mA | -0.3 | | -1.0 | V |
| Forward Transfer Admittance | y _{fs} | V _{DS} =-10V, I _D =-1A | 1.8 | 3.0 | | S |

Marking : JB

Continued on next page.

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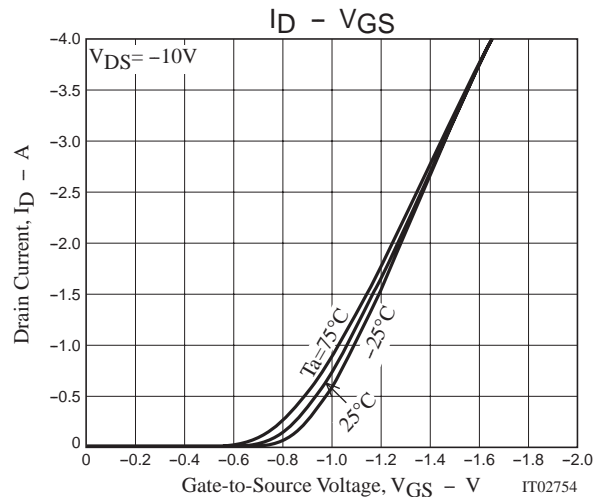
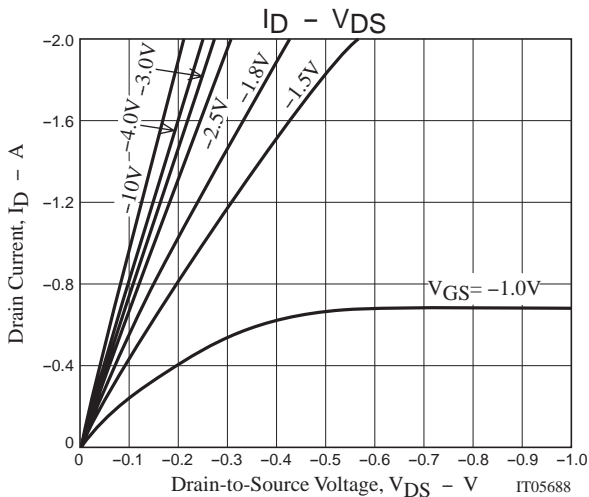
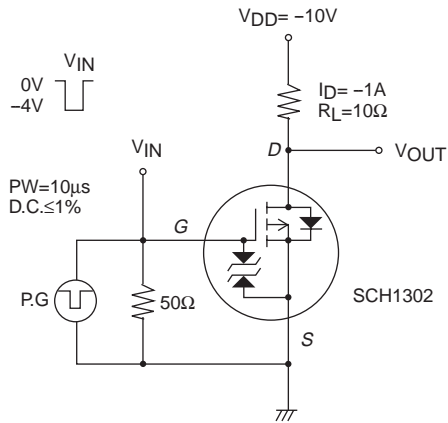
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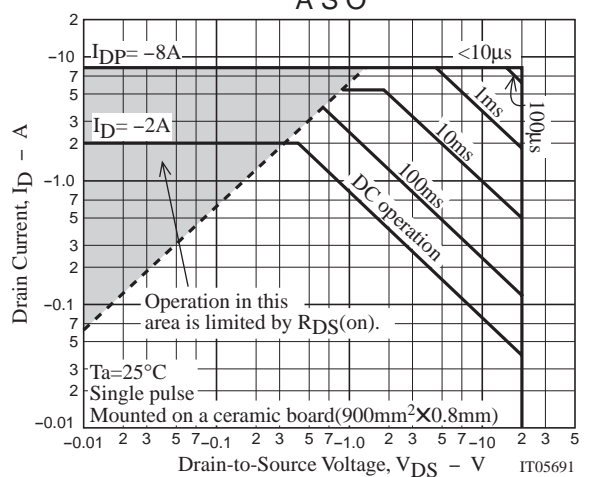
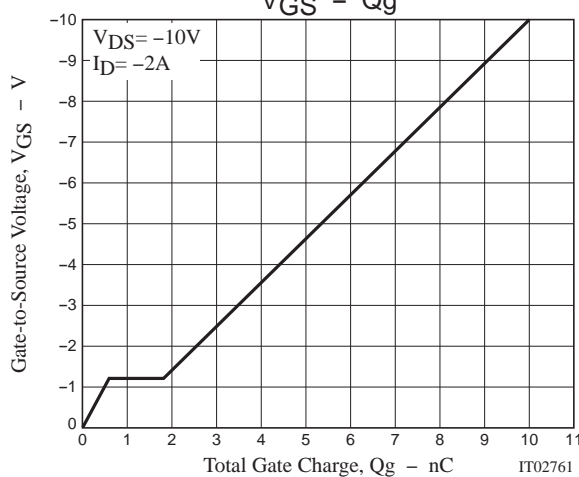
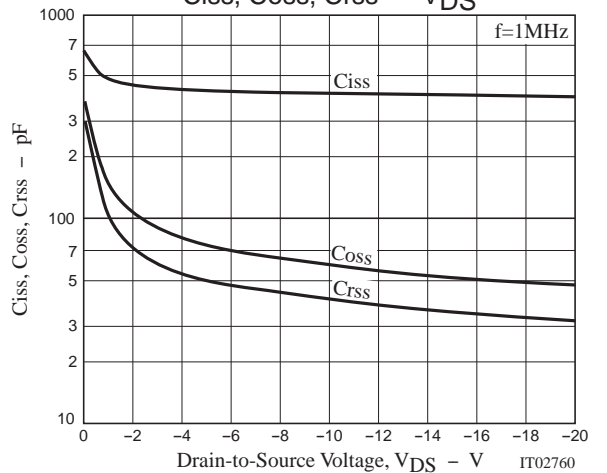
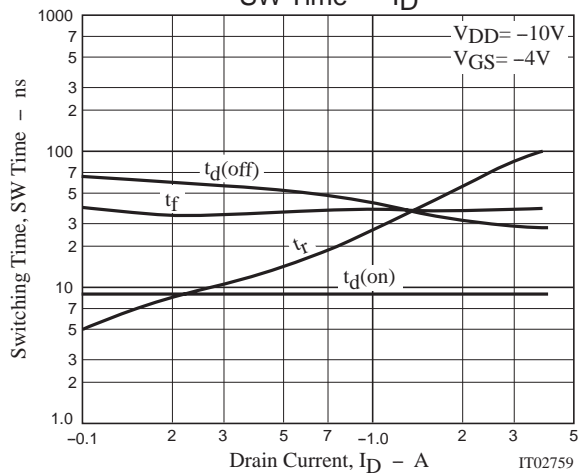
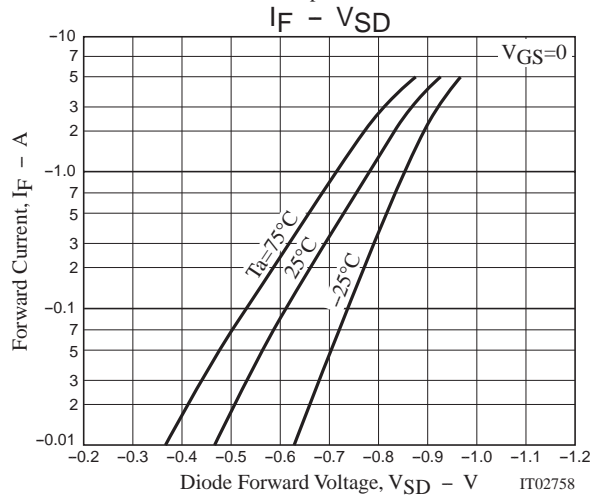
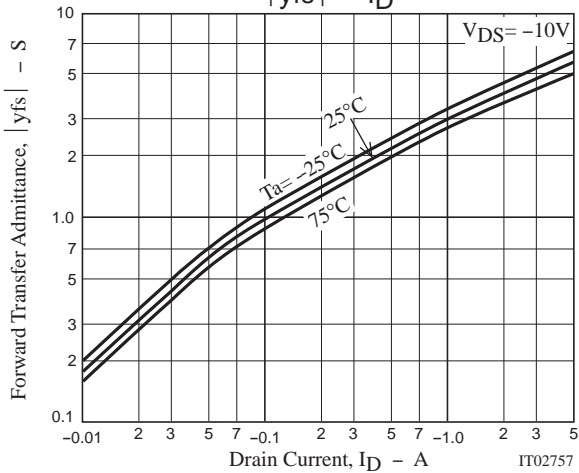
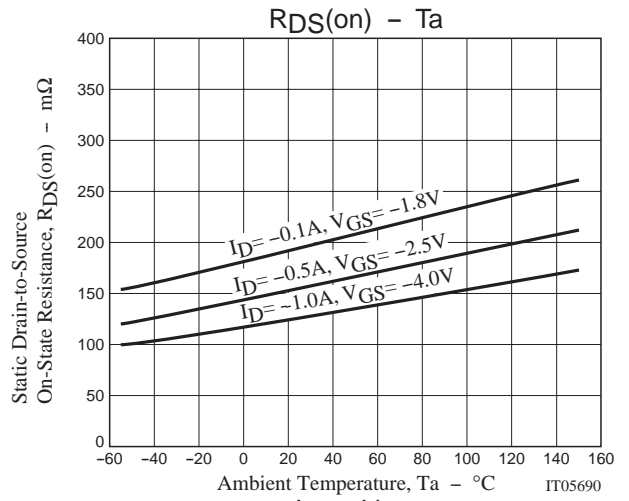
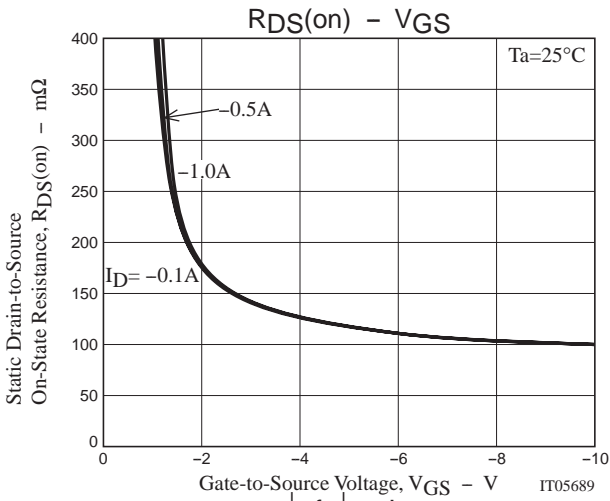
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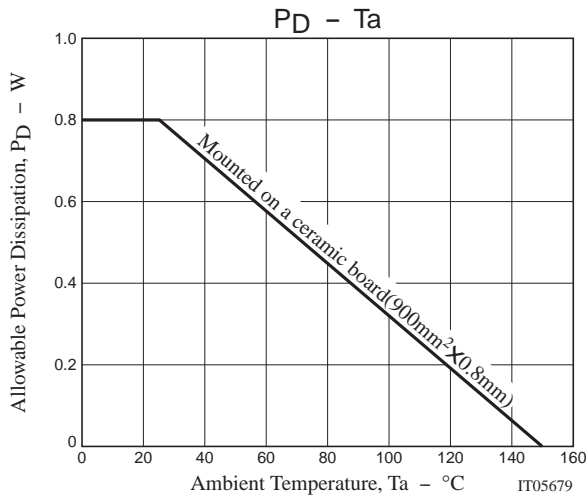
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|---|---------|-------|------|------------|
| | | | min | typ | max | |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D = -1A, V_{GS} = -4V$ | | 125 | 165 | m Ω |
| | $R_{DS(on)2}$ | $I_D = -0.5A, V_{GS} = -2.5V$ | | 155 | 220 | m Ω |
| | $R_{DS(on)3}$ | $I_D = -0.1A, V_{GS} = -1.8V$ | | 195 | 280 | m Ω |
| Input Capacitance | C_{iss} | $V_{DS} = -10V, f = 1MHz$ | | 410 | | pF |
| Output Capacitance | C_{oss} | $V_{DS} = -10V, f = 1MHz$ | | 60 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS} = -10V, f = 1MHz$ | | 40 | | pF |
| Turn-ON Delay Time | $t_d(on)$ | See specified Test Circuit. | | 9 | | ns |
| Rise Time | t_r | See specified Test Circuit. | | 27 | | ns |
| Turn-OFF Delay Time | $t_d(off)$ | See specified Test Circuit. | | 42 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | 38 | | ns |
| Total Gate Charge | Q_g | $V_{DS} = -10V, V_{GS} = -10V, I_D = -2A$ | | 10 | | nC |
| Gate-to-Source Charge | Q_{gs} | $V_{DS} = -10V, V_{GS} = -10V, I_D = -2A$ | | 0.6 | | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | $V_{DS} = -10V, V_{GS} = -10V, I_D = -2A$ | | 1.2 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S = -2A, V_{GS} = 0$ | | -0.88 | -1.2 | V |

Switching Time Test Circuit



SCH1302





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