



Small Signal Switch and Interface Applications

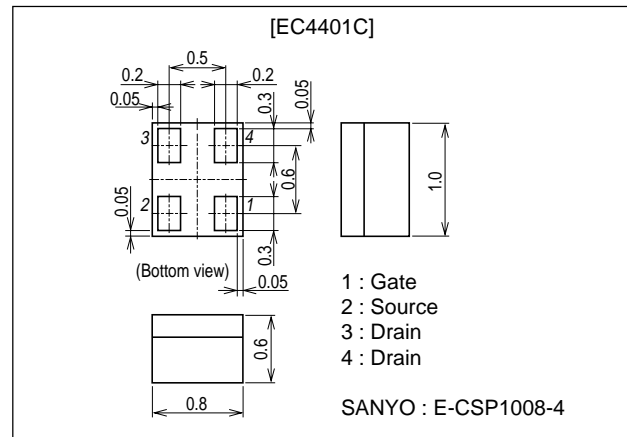
Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

Package Dimensions

unit : mm

2197



Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|-----------|---|-------------|------|
| Drain-to-Source Voltage | V_{DS} | | 30 | V |
| Gate-to-Source Voltage | V_{GS} | | ± 10 | V |
| Drain Current (DC) | I_D | | 0.15 | A |
| Drain Current (Pulse) | I_{DP} | $PW \leq 10\mu s$, duty cycle $\leq 1\%$ | 0.6 | A |
| Allowable Power Dissipation | P_D | | 0.15 | 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 | $V_{(BR)DSS}$ | $I_D=1mA$, $V_{GS}=0$ | 30 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS}=30V$, $V_{GS}=0$ | | | 10 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 8V$, $V_{DS}=0$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}=10V$, $I_D=100\mu A$ | 0.4 | | 1.3 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS}=10V$, $I_D=80mA$ | 0.15 | 0.22 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D=80mA$, $V_{GS}=4V$ | | 2.9 | 3.7 | Ω |
| | $R_{DS(on)2}$ | $I_D=40mA$, $V_{GS}=2.5V$ | | 3.7 | 5.2 | Ω |
| | $R_{DS(on)3}$ | $I_D=10mA$, $V_{GS}=1.5V$ | | 6.4 | 12.8 | Ω |

Continued on next page.

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EC4401C

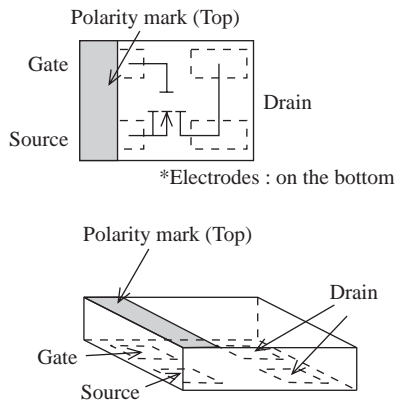
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-------------------------------|--------------|-------------------------------------|---------|------|-----|------|
| | | | min | typ | max | |
| Input Capacitance | Ciss | $V_{DS}=10V, f=1MHz$ | | 7.0 | | pF |
| Output Capacitance | Coss | $V_{DS}=10V, f=1MHz$ | | 5.9 | | pF |
| Reverse Transfer Capacitance | Crss | $V_{DS}=10V, f=1MHz$ | | 2.3 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | See specified Test Circuit. | | 19 | | ns |
| Rise Time | t_r | See specified Test Circuit. | | 65 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | See specified Test Circuit. | | 155 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | 120 | | ns |
| Total Gate Charge | Qg | $V_{DS}=10V, V_{GS}=10V, I_D=150mA$ | | 1.58 | | nC |
| Gate-to-Source Charge | Qgs | $V_{DS}=10V, V_{GS}=10V, I_D=150mA$ | | 0.26 | | nC |
| Gate-to-Drain "Miller" Charge | Qgd | $V_{DS}=10V, V_{GS}=10V, I_D=150mA$ | | 0.31 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S=150mA, V_{GS}=0$ | | 0.95 | 1.2 | V |

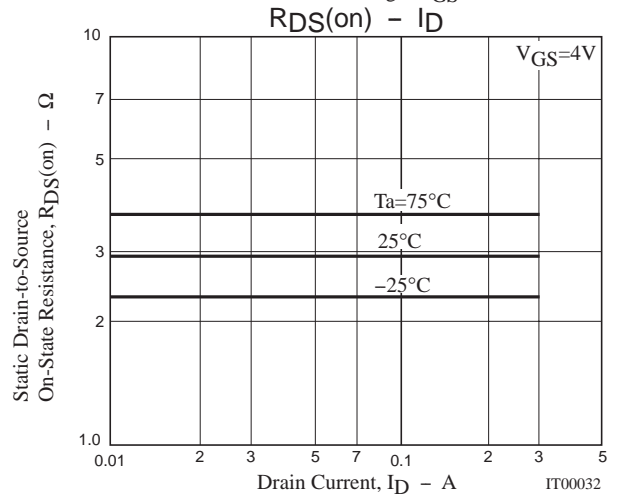
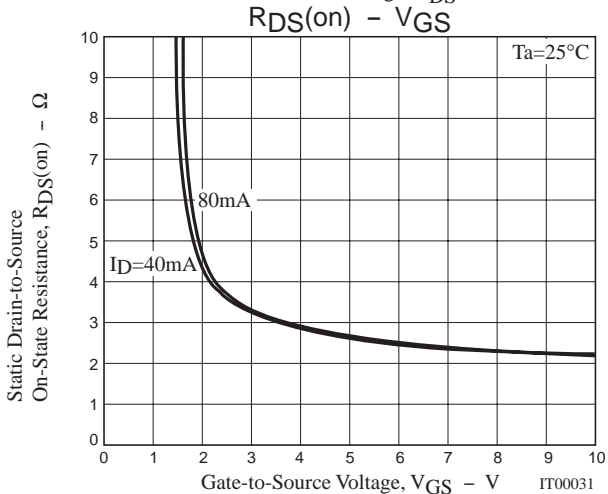
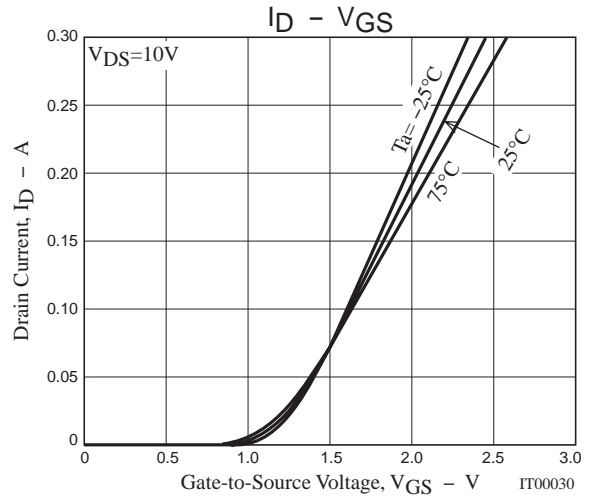
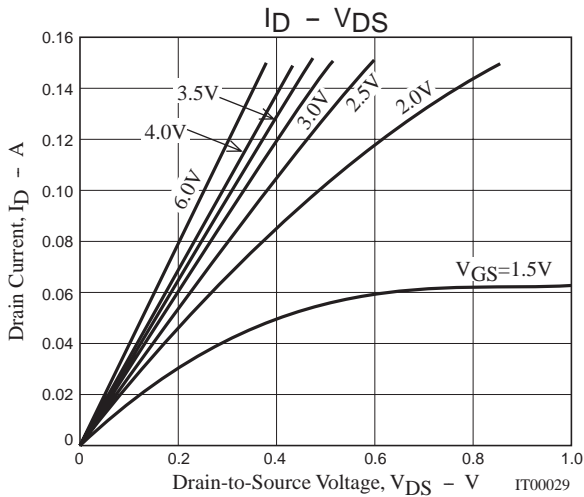
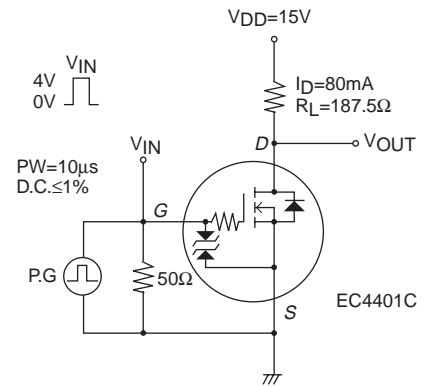
Type No. Indication (Top view)



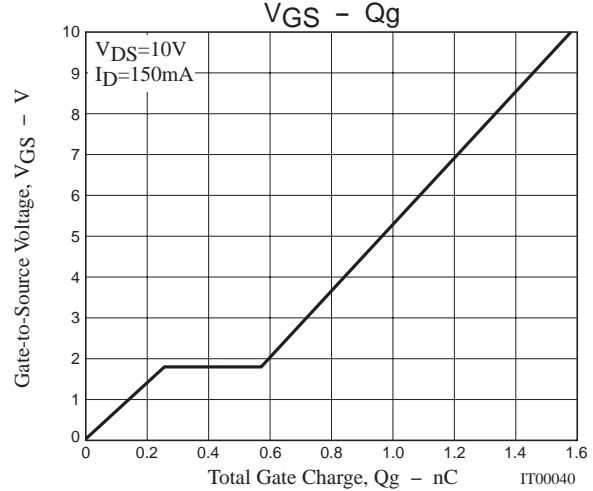
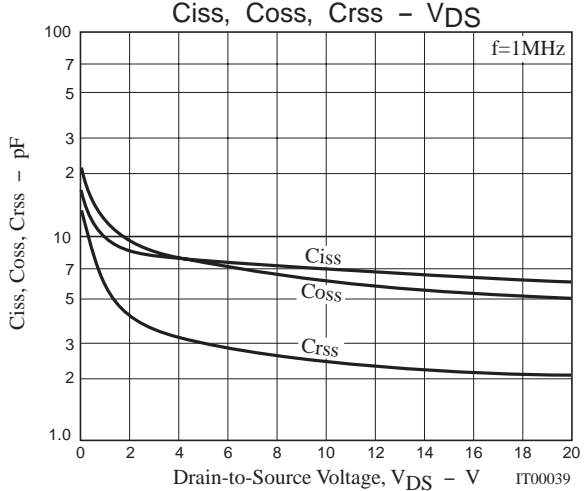
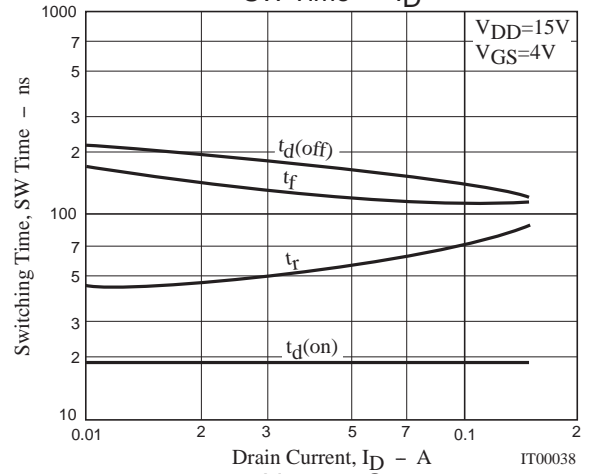
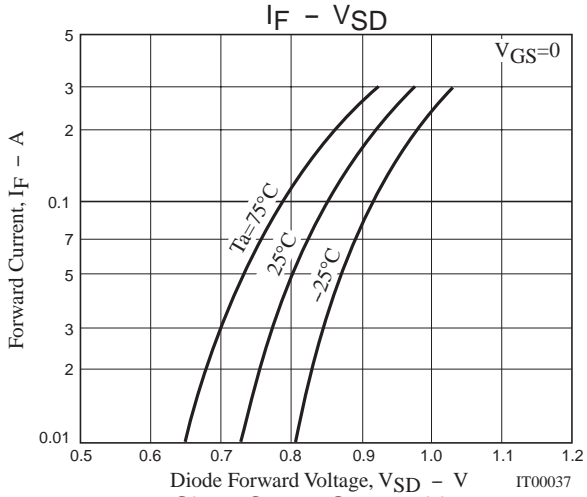
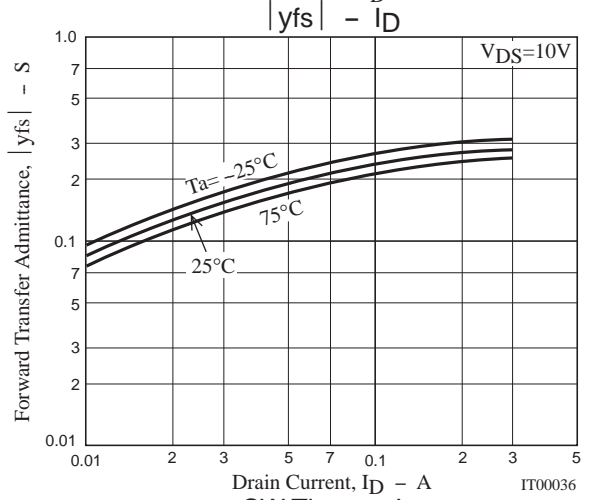
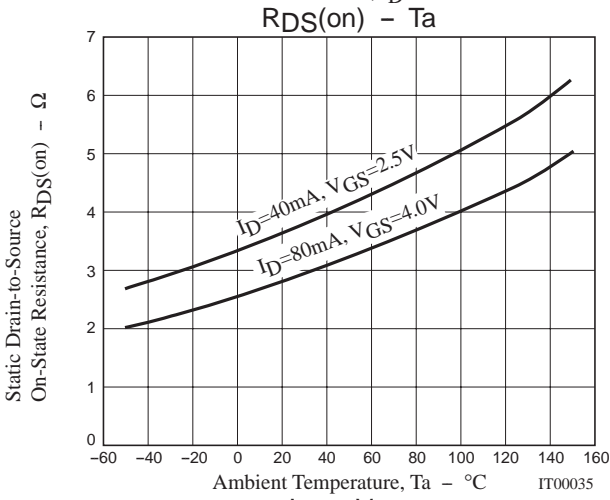
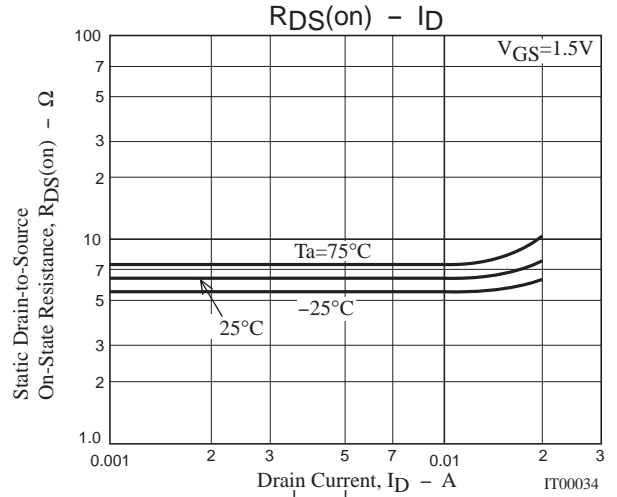
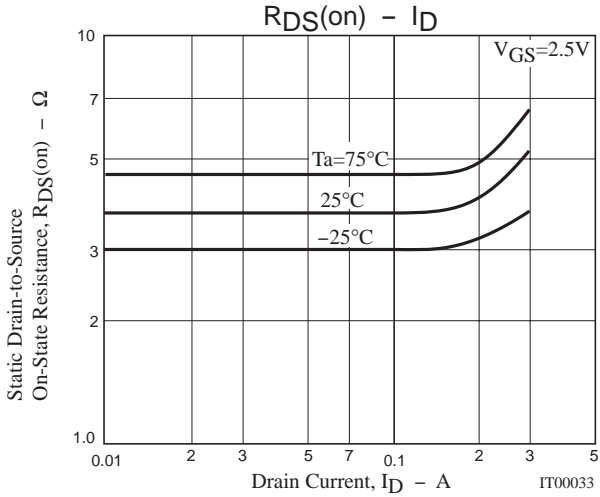
Electrical Connection (Top view)

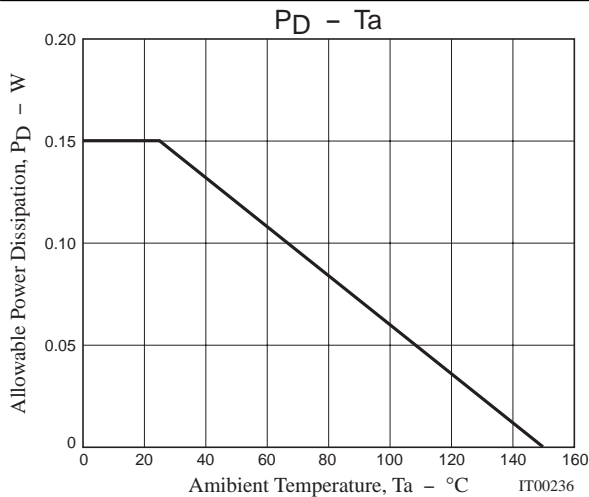


Switching Time Test Circuit



EC4401C





Note on usage : Since the EC4401C is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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