

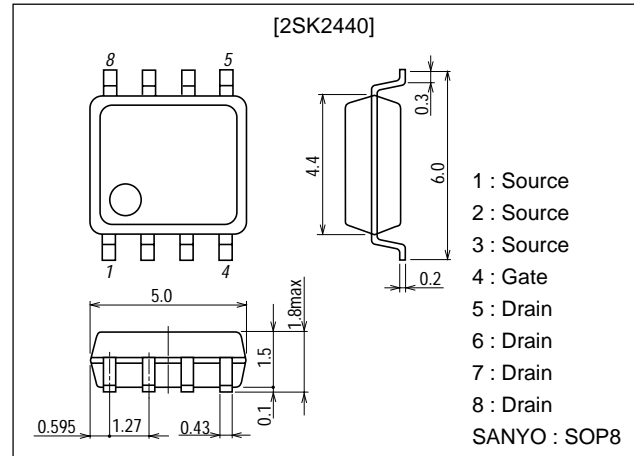
**2SK2440****Ultrahigh-Speed Switching Applications****Features**

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

**Package Dimensions**

unit:mm

2116

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

| Parameter                   | Symbol    | Conditions   | Ratings     | Unit |
|-----------------------------|-----------|--|-------------|------|
| Drain-to-Source Voltage     | $V_{DS}$  |  | 20          | V    |
| Gate-to-Source Voltage      | $V_{GS}$  |  | $\pm 10$    | V    |
| Drain Current (DC)          | $I_D$     |  | 6           | A    |
| Drain Current (Pulse)       | $I_{DP}$  | $PW \leq 10\mu s$ , duty cycle $\leq 1\%$              | 48          | A    |
| Allowable Power Dissipation | $P_D$     | Mounted on ceramic board (1200mm <sup>2</sup> × 0.8mm) | 2.0         | 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            | $I_{DSS}$     | $V_{DS} = 16V$ , $V_{GS} = 0$    |         |     | 100      | $\mu A$    |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS} = \pm 8V$ , $V_{DS} = 0$ |         |     | $\pm 10$ | $\mu A$    |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS} = 10V$ , $I_D = 1mA$     | 0.4     |     | 1.4      | V          |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS} = 10V$ , $I_D = 6A$      | 10      | 14  |          | S          |
| Static Drain-to-Source ON-State Resistance | $R_{DS(on)1}$ | $I_D = 6A$ , $V_{GS} = 4V$       |         | 30  | 38       | m $\Omega$ |
|  | $R_{DS(on)2}$ | $I_D = 2A$ , $V_{GS} = 2.5V$     |         | 40  | 58       | m $\Omega$ |

Continued on next page.

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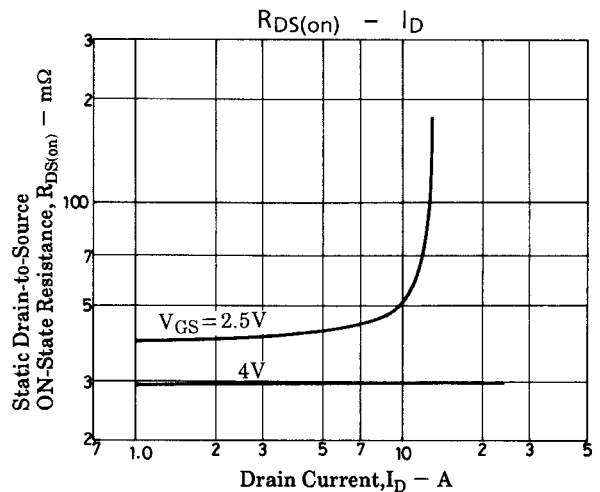
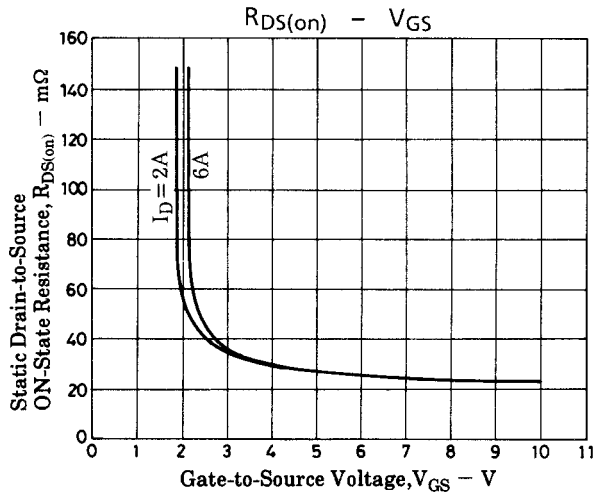
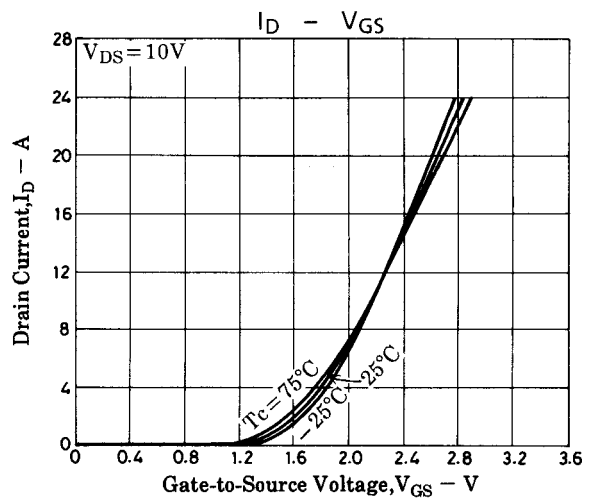
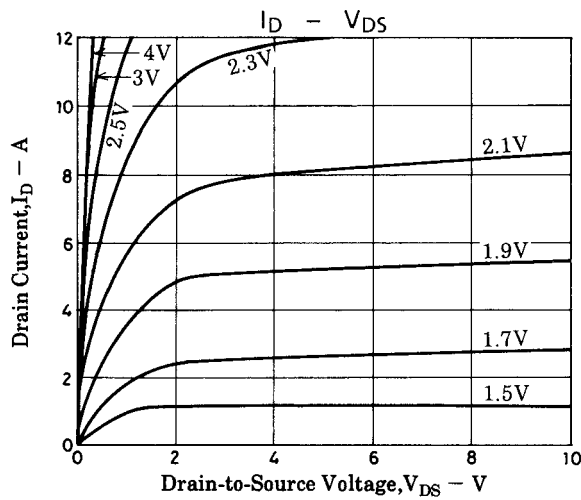
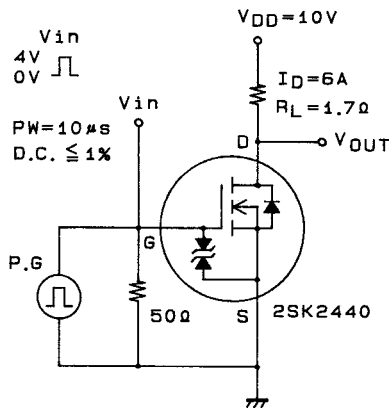
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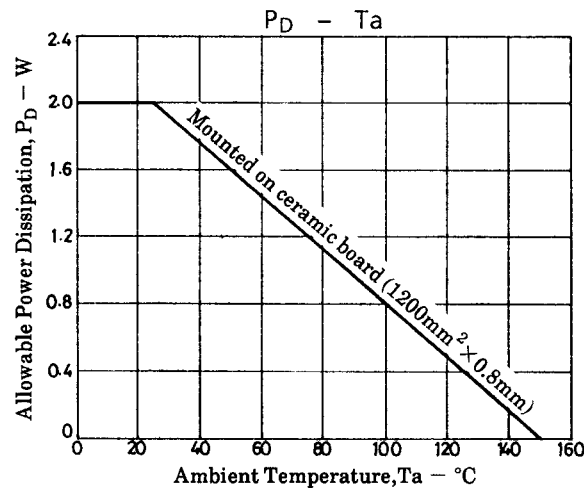
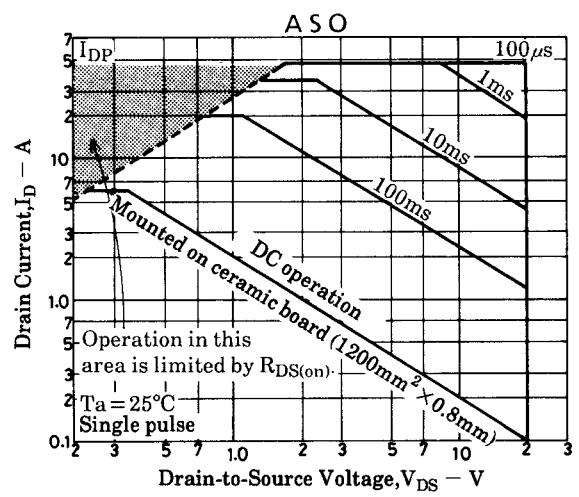
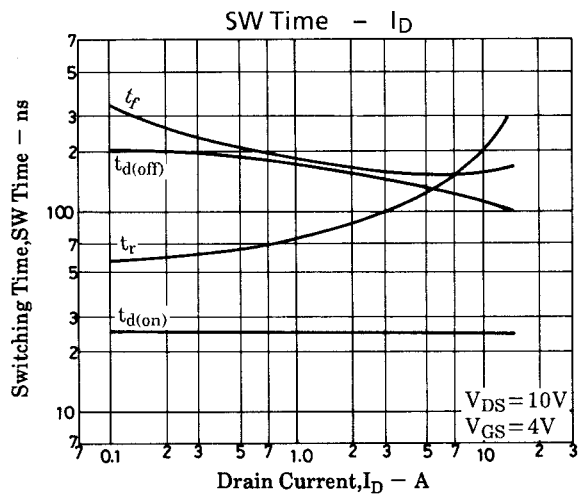
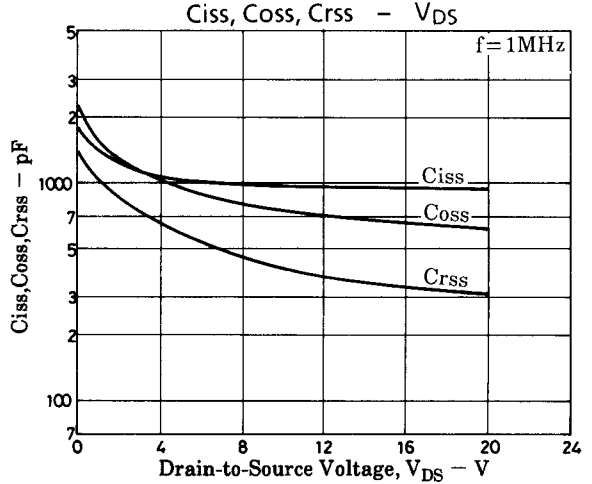
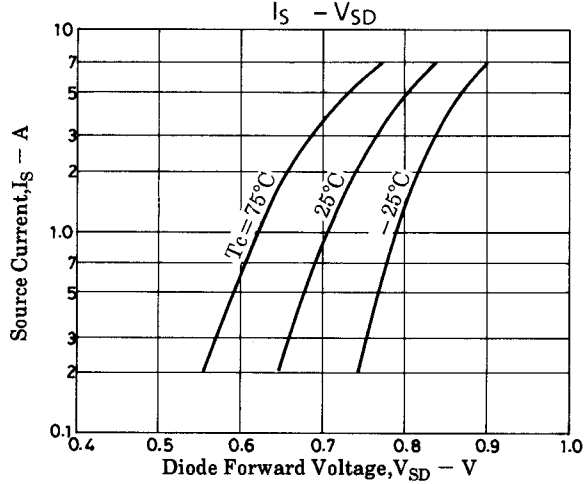
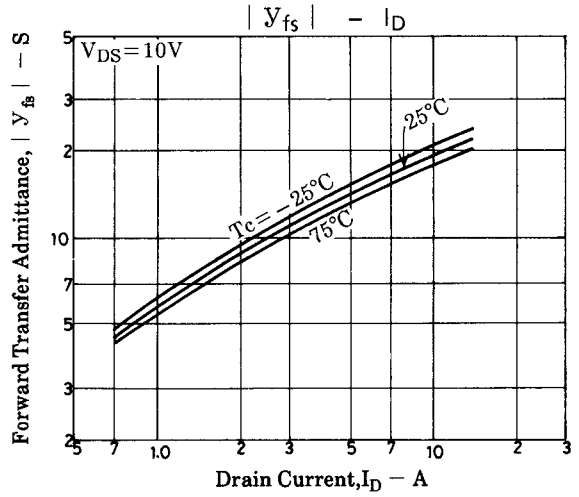
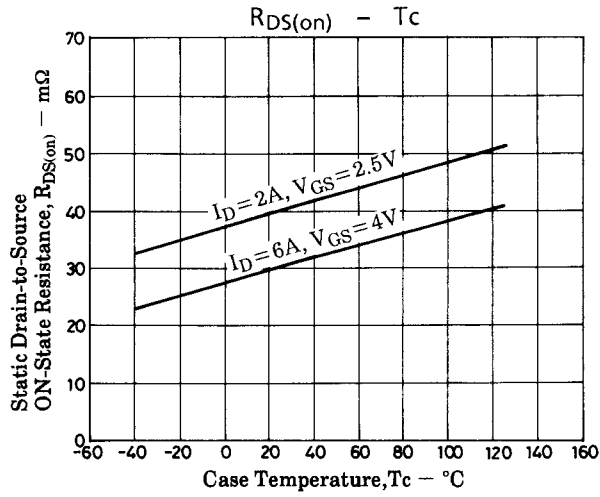
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| Parameter                    | Symbol       | Conditions                 | Ratings |      |     | Unit |
|------------------------------|--------------|----------------------------|---------|------|-----|------|
|                              |              |                            | min     | typ  | max |      |
| Input Capacitance            | Ciss         | $V_{DS}=10V, f=1MHz$       |         | 1000 |     | pF   |
| Output Capacitance           | Coss         | $V_{DS}=10V, f=1MHz$       |         | 750  |     | pF   |
| Reverse Transfer Capacitance | Crss         | $V_{DS}=10V, f=1MHz$       |         | 400  |     | pF   |
| Turn-ON Delay Time           | $t_{d(on)}$  | See specified Test Circuit |         | 25   |     | ns   |
| Rise Time                    | $t_r$        | See specified Test Circuit |         | 135  |     | ns   |
| Turn-OFF Delay Time          | $t_{d(off)}$ | See specified Test Circuit |         | 135  |     | ns   |
| Fall Time                    | $t_f$        | See specified Test Circuit |         | 150  |     | ns   |
| Diode Forward Voltage        | $V_{SD}$     | $I_S=6A, V_{GS}=0$         |         | 1.0  | 1.2 | V    |

## Switching Time Test Circuit



# 2SK2440



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