

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (π -MOSV)

2SK2662

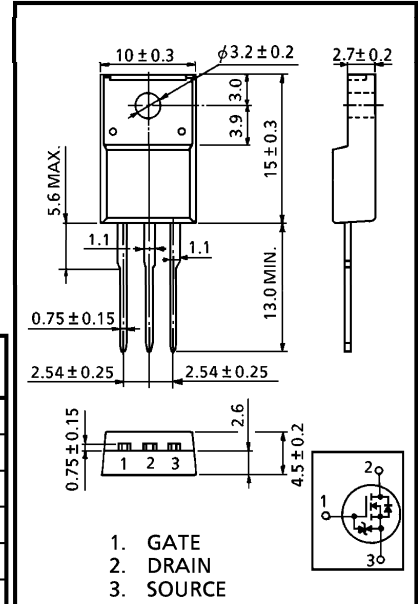
HIGH SPEED, HIGH VOLTAGE SWITCHING APPLICATIONS
DC-DC CONVERTER, RELAY DRIVE AND MOTOR DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS
Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 1.35\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 4.0S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100\mu A$ (Max.) ($V_{DS} = 500V$)
- Enhancement-Mode : $V_{th} = 2.0 \sim 4.0V$ ($V_{DS} = 10V, I_D = 1mA$)

MAXIMUM RATINGS ($T_a = 25^\circ C$)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|--|-----------|----------------|------------|
| Drain-Source Voltage | V_{DSS} | 500 | V |
| Drain-Gate Voltage ($R_{GS} = 20k\Omega$) | V_{DGR} | 500 | V |
| Gate-Source Voltage | V_{GSS} | ± 30 | V |
| Drain Current | DC | I_D | 5 A |
| | Pulse | I_{DP} | 20 A |
| Drain Power Dissipation ($T_c = 25^\circ C$) | P_D | 35 | W |
| Single Pulse Avalanche Energy** | E_{AS} | 180 | mJ |
| Avalanche Current | I_{AR} | 5 | A |
| Repetitive Avalanche Energy* | E_{AR} | 3.5 | mJ |
| Channel Temperature | T_{ch} | 150 | $^\circ C$ |
| Storage Temperature Range | T_{stg} | $-55 \sim 150$ | $^\circ C$ |



| | |
|---------|---------|
| JEDEC | — |
| EIAJ | SC-67 |
| TOSHIBA | 2-10R1B |

Weight : 1.9g

THERMAL CHARACTERISTICS

| CHARACTERISTIC | SYMBOL | MAX. | UNIT |
|--|----------------|------|----------------|
| Thermal Resistance, Channel to Case | $R_{th(ch-c)}$ | 3.57 | $^\circ C / W$ |
| Thermal Resistance, Channel to Ambient | $R_{th(ch-a)}$ | 62.5 | $^\circ C / W$ |

Note ;

* Repetitive rating ; Pulse Width Limited by Max. junction temperature.

** $V_{DD} = 90V$, Starting $T_{ch} = 25^\circ C$, $L = 12.2mH$, $R_G = 25\Omega$, $I_{AR} = 5A$

**This transistor is an electrostatic sensitive device.
Please handle with caution.**

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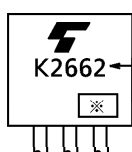
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---------------|---------------|---|--|------|----------|----------|
| Gate Leakage Current | | I_{GSS} | $V_{GS} = \pm 25V, V_{DS} = 0V$ | — | — | ± 10 | μA |
| Gate-Source Breakdown Voltage | | $V_{(BR)GSS}$ | $I_G = \pm 10\mu A, V_{DS} = 0V$ | ± 30 | — | — | V |
| Drain Cut-off Current | | I_{DSS} | $V_{DS} = 500V, V_{GS} = 0V$ | — | — | 100 | μA |
| Drain-Source Breakdown Voltage | | $V_{(BR)DSS}$ | $I_D = 10mA, V_{GS} = 0V$ | 500 | — | — | V |
| Gate Threshold Voltage | | V_{th} | $V_{DS} = 10V, I_D = 1mA$ | 2.0 | — | 4.0 | V |
| Drain-Source ON Resistance | | $R_{DS(ON)}$ | $V_{GS} = 10V, I_D = 2.5A$ | — | 1.35 | 1.50 | Ω |
| Forward Transfer Admittance | | $ Y_{fs} $ | $V_{DS} = 10V, I_D = 2.5A$ | 2.5 | 4.0 | — | S |
| Input Capacitance | | C_{iss} | $V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$ | — | 780 | — | pF |
| Reverse Transfer Capacitance | | C_{rss} | | — | 60 | — | |
| Output Capacitance | | C_{oss} | | — | 200 | — | |
| Switching Time | Rise Time | t_r | <p>$V_{GS} = 10V, 0V$ $I_D = 2.5A$ $R_L = 90\Omega$ $V_{DD} \doteq 225V$</p> | — | 12 | — | ns |
| | Turn-on Time | t_{on} | | — | 25 | — | |
| | Fall Time | t_f | | — | 15 | — | |
| | Turn-off Time | t_{off} | | $V_{IN} : t_r, t_f < 5ns,$ $Duty \leq 1\%, t_w = 10\mu s$ | — | 60 | |
| Total Gate Charge (Gate-Source Plus Gate-Drain) | | Q_g | $V_{DD} \doteq 400V, V_{GS} = 10V, I_D = 5A$ | — | 17 | — | nC |
| Gate-Source Charge | | Q_{gs} | | — | 11 | — | |
| Gate-Drain ("Miller") Charge | | Q_{gd} | | — | 6 | — | |

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------------------|-----------|-------------------------------|------|------|------|---------|
| Continuous Drain Reverse Current | I_{DR} | — | — | — | 5 | A |
| Pulse Drain Reverse Current | I_{DRP} | — | — | — | 20 | A |
| Diode Forward Voltage | V_{DSF} | $I_{DR} = 5A, V_{GS} = 0V$ | — | — | -1.7 | V |
| Reverse Recovery Time | t_{rr} | $I_{DR} = 5A, V_{GS} = 0V$ | — | 1400 | — | ns |
| Reverse Recovery Charge | Q_{rr} | $dI_{DR} / dt = 100A / \mu s$ | — | 9 | — | μC |

MARKING



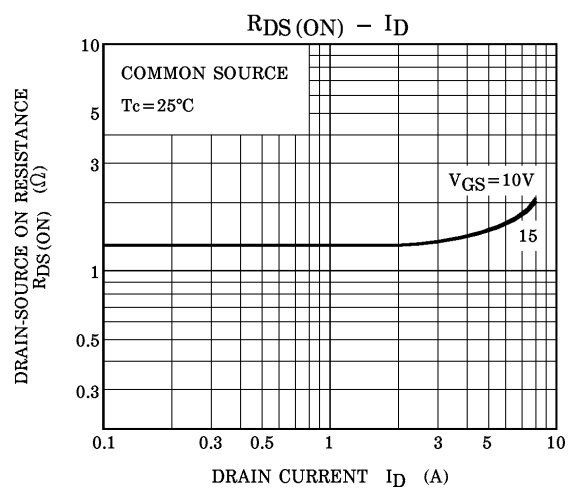
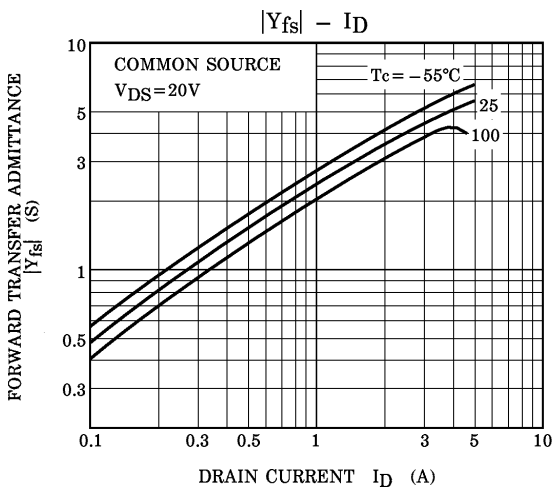
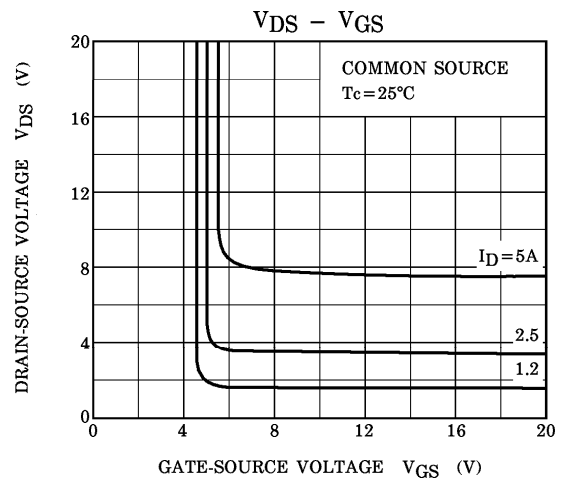
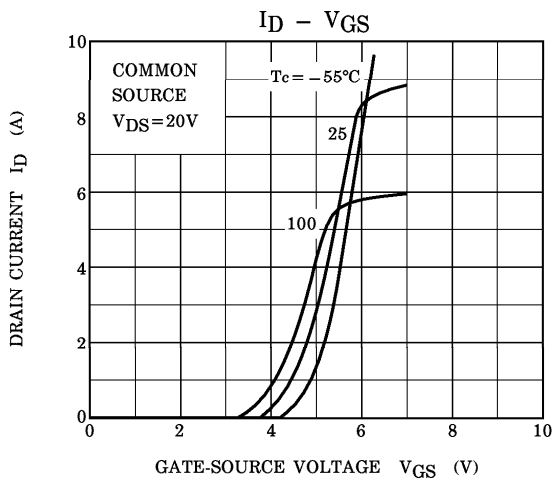
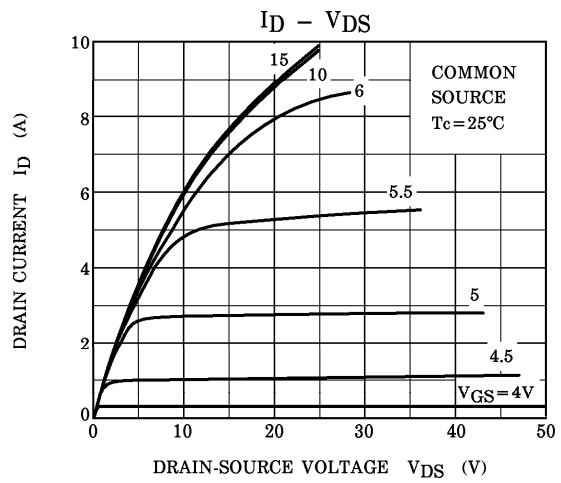
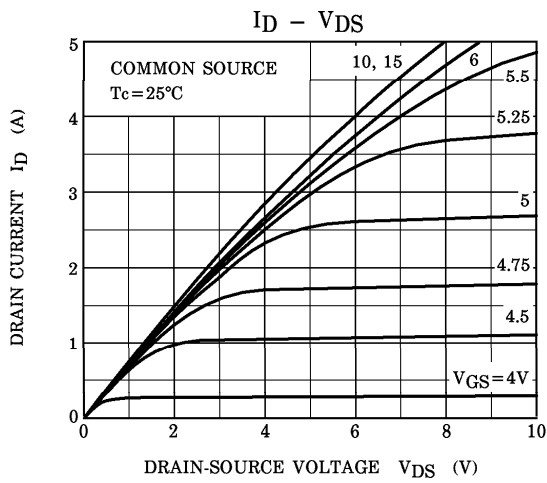
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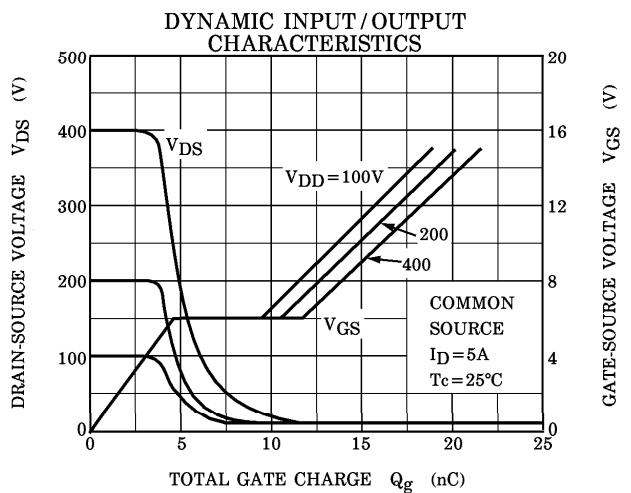
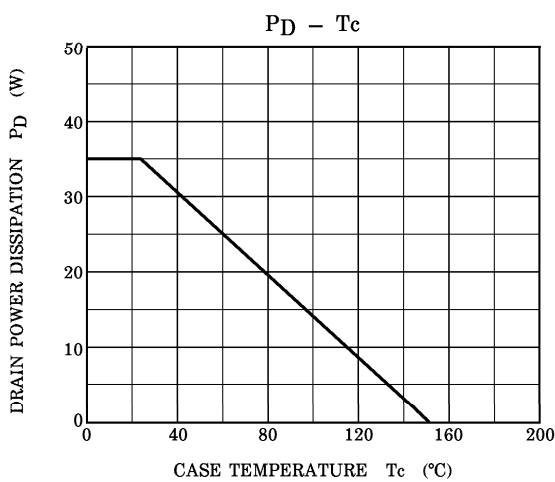
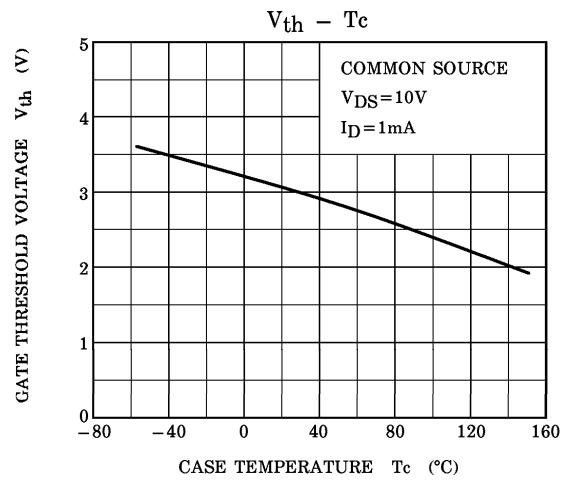
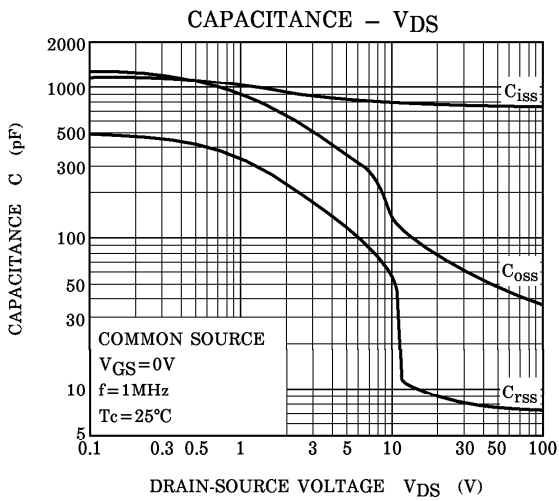
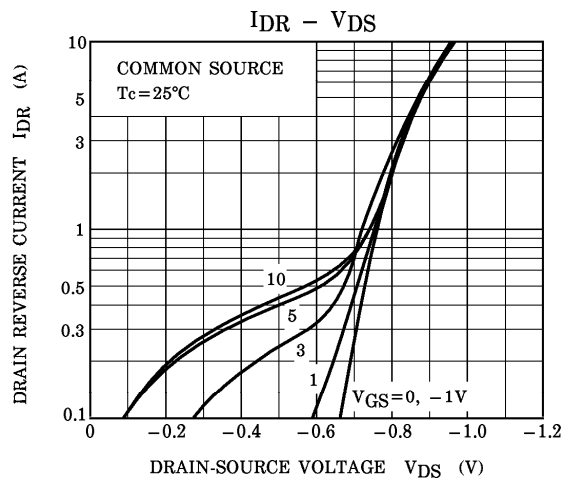
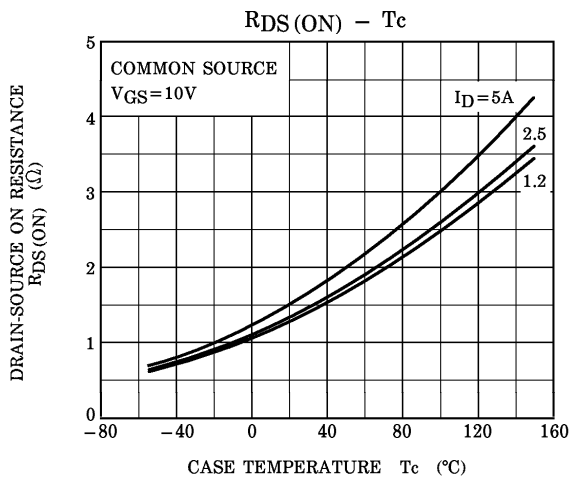
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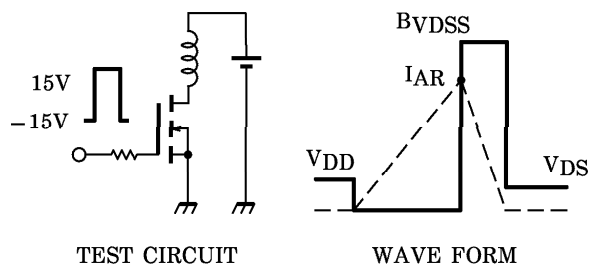
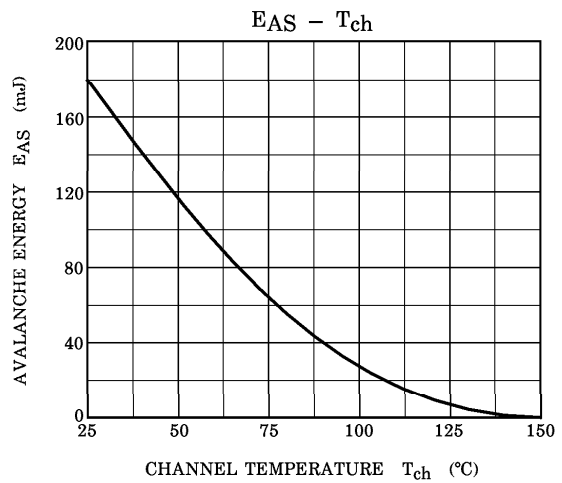
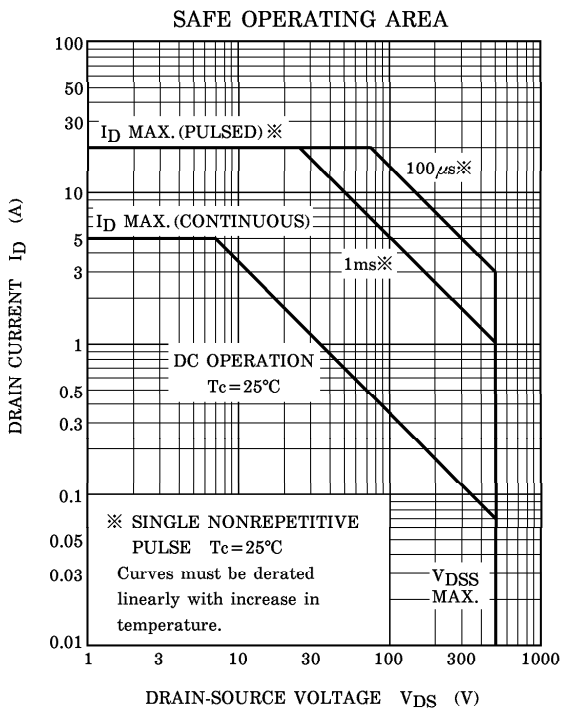
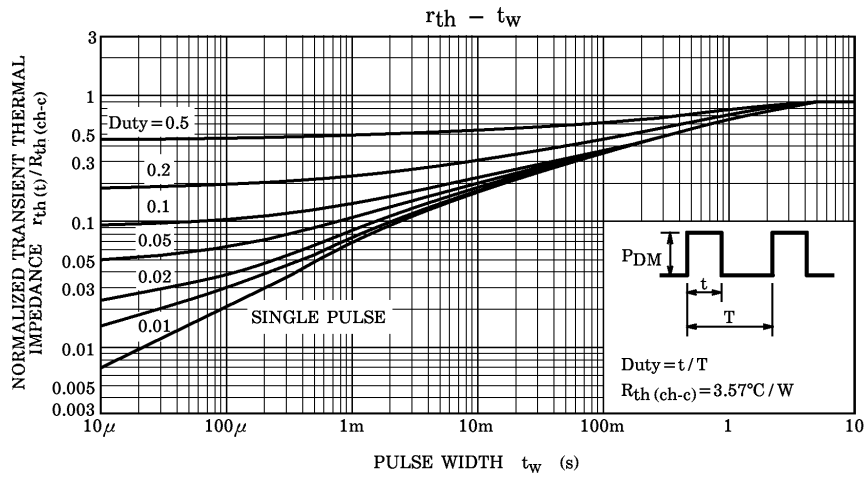


Month (Starting from Alphabet A)

Year (Last Number of the Christian Era)







Peak $I_{AR} = 5A$, $R_G = 25\Omega$
 $V_{DD} = 90V$, $L = 12.2mH$

$$E_{AS} = \frac{1}{2} \cdot L \cdot I^2 \cdot \left(\frac{BVDSS}{BVDSS - V_{DD}} \right)$$