

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL MOS TYPE (π -MOSII⁻⁵)

2SK2274

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

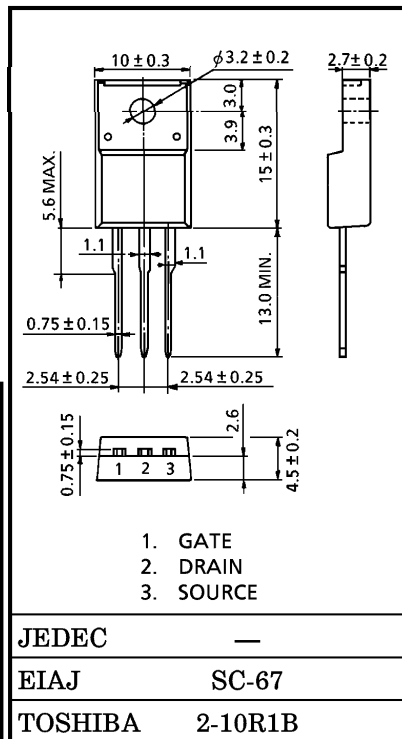
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 1.5\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 2.5S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 300\mu A$ (Max.) ($V_{DS} = 640V$)
- Enhancement-Mode : $V_{th} = 1.5 \sim 3.5V$ ($V_{DS} = 10V, I_D = 1mA$)

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

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|--|-----------|----------------|------------|
| Drain-Source Voltage | V_{DSS} | 700 | V |
| Drain-Gate Voltage ($R_{GS} = 20k\Omega$) | V_{DGR} | 700 | V |
| Gate-Source Voltage | V_{GSS} | ± 30 | V |
| Drain Current | DC | I_D | 5 A |
| | Pulse | I_{DP} | 15 A |
| Drain Power Dissipation ($T_c = 25^\circ C$) | P_D | 45 | W |
| Channel Temperature | T_{ch} | 150 | $^\circ C$ |
| Storage Temperature Range | T_{stg} | $-55 \sim 150$ | $^\circ C$ |



Weight : 1.9g

Thermal Characteristics

| CHARACTERISTIC | SYMBOL | MAX. | UNIT |
|--|----------------|------|----------------|
| Thermal Resistance, Channel To Case | $R_{th(ch-c)}$ | 2.77 | $^\circ C / W$ |
| Thermal Resistance, Channel To Ambient | $R_{th(ch-a)}$ | 62.5 | $^\circ C / W$ |

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

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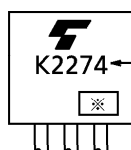
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---------------|---------------|---|---|------|-----------|----------|
| Gate Leakage Current | | I_{GSS} | $V_{GS} = \pm 30V, V_{DS} = 0V$ | — | — | ± 100 | nA |
| Drain Cut-off Current | | I_{DSS} | $V_{DS} = 640V, V_{GS} = 0V$ | — | — | 300 | μA |
| Drain-Source Breakdown Voltage | | $V_{(BR)DSS}$ | $I_D = 10mA, V_{GS} = 0V$ | 700 | — | — | V |
| Gate Threshold Voltage | | V_{th} | $V_{DS} = 10V, I_D = 1mA$ | 1.5 | — | 3.5 | V |
| Drain-Source ON Resistance | | $R_{DS(ON)}$ | $V_{GS} = 10V, I_D = 2A$ | — | 1.5 | 1.7 | Ω |
| Forward Transfer Admittance | | $ Y_{fs} $ | $V_{DS} = 20V, I_D = 2A$ | 1.0 | 2.5 | — | S |
| Input Capacitance | | C_{iss} | $V_{DS} = 10V, V_{GS} = 0V$ $f = 1MHz$ | — | 610 | — | pF |
| Reverse Transfer Capacitance | | C_{rss} | | — | 60 | — | |
| Output Capacitance | | C_{oss} | | — | 110 | — | |
| Switching Time | Rise Time | t_r | | — | 55 | — | ns |
| | Turn-on Time | t_{on} | | — | 80 | — | |
| | Fall Time | t_f | | — | 65 | — | |
| | Turn-off Time | t_{off} | | $V_{IN} : t_r, t_f < 5ns$ $Duty \leq 1\%, t_w = 10\mu s$ | — | 240 | |
| Total Gate Charge (Gate-Source Plus Gate-Drain) | | Q_g | $V_{DD} = 400V, V_{GS} = 10V$ $I_D = 5A$ | — | 44 | — | nC |
| Gate-Source Charge | | Q_{gs} | | — | 20 | — | |
| Gate-Drain (“Miller”) Charge | | Q_{gd} | | — | 24 | — | |

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} | — | — | — | 15 | A |
| Diode Forward Voltage | V_{DSF} | $I_{DR} = 5A, V_{GS} = 0V$ | — | — | -1.9 | V |
| Reverse Recovery Time | t_{rr} | $I_{DR} = 5A, V_{GS} = 0V$ | — | 520 | — | ns |
| Reverse Recovery Charge | Q_{rr} | $dI_{DR} / dt = 100A / \mu s$ | — | 10.4 | — | μC |

MARKING



TYPE

※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

