

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

2SK3067

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

CHOPPER REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS

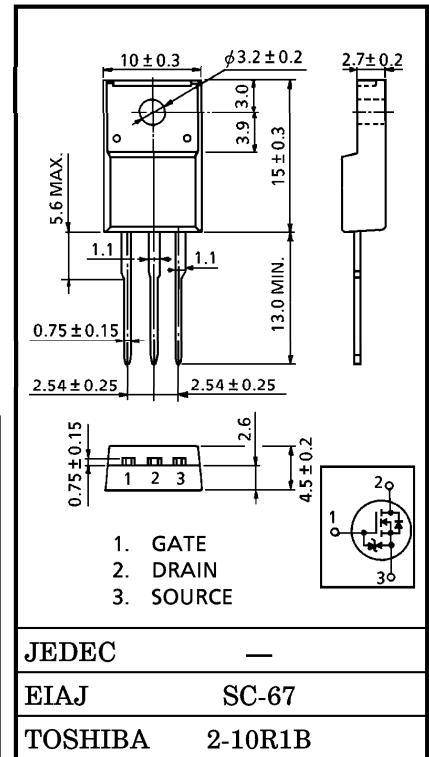
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 4.2 \Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 1.7 S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 100 \mu A$ (Max.) ($V_{DS} = 600 V$)
- Enhancement-Mode : $V_{th} = 2.0 \sim 4.0 V$ ($V_{DS} = 10 V, I_D = 1 mA$)

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

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|--|---------------------------|-----------|----------------|------------|
| Drain-Source Voltage | | V_{DSS} | 600 | V |
| Drain-Gate Voltage ($R_{GS} = 20 k\Omega$) | | V_{DGR} | 600 | V |
| Gate-Source Voltage | | V_{GSS} | ± 30 | V |
| Drain Current | DC | I_D | 2 | A |
| | Pulse ($t = 1 ms$) | I_{DP} | 5 | A |
| | Pulse ($t = 100 \mu s$) | I_{DP} | 8 | A |
| Drain Power Dissipation ($T_c = 25^\circ C$) | | P_D | 25 | W |
| Single Pulse Avalanche Energy** | | E_{AS} | 93 | mJ |
| Avalanche Current | | I_{AR} | 2 | A |
| Repetitive Avalanche Energy* | | E_{AR} | 2.5 | 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 |

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

| CHARACTERISTIC | SYMBOL | MAX. | UNIT |
|--|----------------|------|----------------|
| Thermal Resistance, Channel to Case | $R_{th(ch-c)}$ | 5.0 | $^\circ C / W$ |
| Thermal Resistance, Channel to Ambient | $R_{th(ch-a)}$ | 62.5 | $^\circ C / W$ |

Note ;

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

** $V_{DD} = 90 V, T_{ch} = 25^\circ C$ (initial), $L = 41 mH, R_G = 25 \Omega, I_{AR} = 2 A$

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

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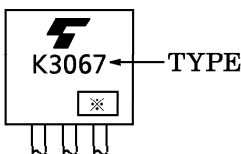
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---|----------------------|--|------|--|------|------|----|
| Gate Leakage Current | I _{GSS} | V _{GS} = ±25 V, V _{DS} = 0 V | — | — | ±10 | μA | |
| Gate-Source Breakdown Voltage | V _{(BR)GSS} | I _G = ±10 μA, V _{DS} = 0 V | ±30 | — | — | V | |
| Drain Cut-off Current | I _{DSS} | V _{DS} = 600 V, V _{GS} = 0 V | — | — | 100 | μA | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | I _D = 10 mA, V _{GS} = 0 V | 600 | — | — | V | |
| Gate Threshold Voltage | V _{th} | V _{DS} = 10 V, I _D = 1 mA | 2.0 | — | 4.0 | V | |
| Drain-Source ON Resistance | R _{DS(ON)} | V _{GS} = 10 V, I _D = 1 A | — | 4.2 | 5.0 | Ω | |
| Forward Transfer Admittance | Y _{fs} | V _{DS} = 10 V, I _D = 1 A | 0.8 | 1.7 | — | S | |
| Input Capacitance | C _{iss} | V _{DS} = 10 V, V _{GS} = 0 V, f = 1 MHz | — | 380 | — | pF | |
| Reverse Transfer Capacitance | C _{rss} | | — | 40 | — | | |
| Output Capacitance | C _{oss} | | — | 120 | — | | |
| Switching Time | Rise Time | t _r | | — | 15 | — | ns |
| | Turn-on Time | t _{on} | | — | 25 | — | |
| | Fall Time | t _f | | — | 20 | — | |
| | Turn-off Time | t _{off} | | V _{IN} : t _r , t _f < 5 ns, V _{DD} ≐ 200 V Duty ≦ 1%, t _w = 10 μs | — | 80 | |
| Total Gate Charge (Gate-Source Plus Gate-Drain) | Q _g | V _{DD} ≐ 480 V, V _{GS} = 10 V, I _D = 2 A | — | 9 | — | nC | |
| Gate-Source Charge | Q _{gs} | — | — | 5 | — | | |
| Gate-Drain ("Miller") Charge | Q _{gd} | — | — | 4 | — | | |

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

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------------------|------------------|--|------|------|------|------|
| Continuous Drain Reverse Current | I _{DR} | — | — | — | 2 | A |
| Pulse Drain Reverse Current | I _{DRP} | t = 1 ms | — | — | 5 | A |
| | I _{DRP} | t = 100 μs | — | — | 8 | A |
| Diode Forward Voltage | V _{DSF} | I _{DR} = 2 A, V _{GS} = 0 V | — | — | -1.5 | V |
| Reverse Recovery Time | t _{rr} | I _{DR} = 2 A, V _{GS} = 0 V | — | 1000 | — | ns |
| Reverse Recovery Charge | Q _{rr} | dI _{DR} / dt = 100 A / μs | — | 5.0 | — | μC |

MARKING



※ Lot Number

□ □ — Month (Starting from Alphabet A)

— Year (Last Number of the Christian Era)

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