

2SK1487

FIELD EFFECT TRANSISTOR
SILICON N CHANNEL MOS TYPE (π -MOSIII-5)

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS.
DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS.

INDUSTRIAL APPLICATIONS

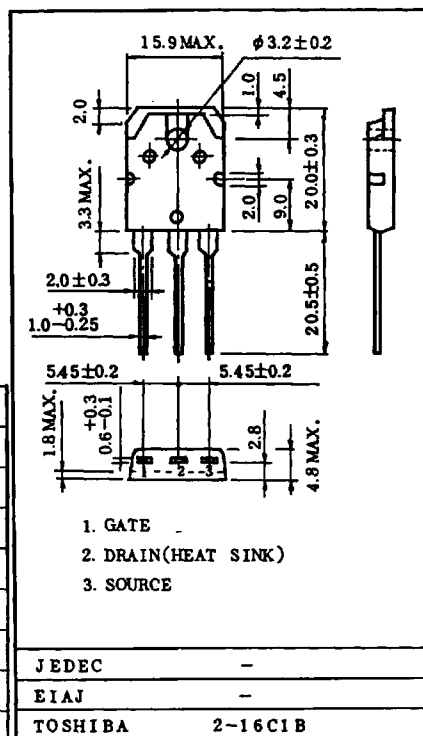
Unit in mm

FEATURES:

- Low Drain-Source ON Resistance : $R_{DS(ON)} = 0.64\Omega$ (Typ.)
- High Forward Transfer Admittance : $|Y_{fs}| = 4.5S$ (Typ.)
- Low Leakage Current : $I_{DSS} = 300\mu A$ (Max.) @ $V_{DS} = 450V$
- 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} | 450 | V |
| Drain-Gate Voltage ($R_{GS} = 20k\Omega$) | | V_{DGR} | 450 | V |
| Gate-Source Voltage | | V_{GSS} | ± 30 | V |
| Drain Current | DC | I_D | 10 | A |
| | Pulse | I_{DP} | 40 | A |
| Drain Power Dissipation ($T_c = 25^\circ C$) | | P_D | 125 | W |
| Channel Temperature | | T_{ch} | 150 | $^\circ C$ |
| Storage Temperature Range | | T_{stg} | $-55 \sim 150$ | $^\circ C$ |



Weight : 4.6g

THERMAL CHARACTERISTICS

| CHARACTERISTIC | SYMBOL | MAX. | UNIT |
|--|----------------|------|--------------|
| Thermal Resistance, Channel to Case | $R_{th(ch-c)}$ | 1.0 | $^\circ C/W$ |
| Thermal Resistance, Channel To Ambient | $R_{th(ch-a)}$ | 50 | $^\circ C/W$ |

THIS TRANSISTOR IS AN ELECTROSTATIC DEVICE. PLEASE HANDLE WITH CAUTION.

ELECTRICAL CHARACTERISTICS (Ta=25 °C)

| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---------------|----------------------|--|------|------|------|------|
| Gate Leakage Current | | I _{GSS} | V _{GS} = ±25V, V _{DS} =0V | — | — | ±100 | nA |
| Drain Cut-off Current | | I _{DSS} | V _{DS} =450V, V _{GS} =0V | — | — | 300 | μA |
| Drain-Source Breakdown Voltage | | V(BR) _{DSS} | I _D =10mA, V _{GS} =0V | 450 | — | — | 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 =5A | — | 0.64 | 1.0 | Ω |
| Forward Transfer Admittance | | Y _{fs} | V _{DS} =10V, I _D =5A | 3.0 | 4.5 | — | S |
| Input Capacitance | | C _{iss} | V _{DS} =10V, V _{GS} =0V, f=1MHz | — | 840 | 1100 | pF |
| Reverse Transfer Capacitance | | C _{rss} | | — | 140 | 250 | |
| Output Capacitance | | C _{oss} | | — | 230 | 300 | |
| Switching Time | Rise Time | t _r | | — | 45 | 90 | ns |
| | Turn-on Time | t _{on} | | — | 70 | 140 | |
| | Fall Time | t _f | | — | 65 | 130 | |
| | Turn-off Time | t _{off} | | — | 150 | 300 | |
| Total Gate Charge (Gate-Source Plus Gate-Drain) | | Q _g | V _{DD} ≅400V, V _{GS} =10V, I _D =10A | — | 72 | 85 | nC |
| Gate-Source Charge | | Q _{gs} | | — | 28 | — | |
| Gate-Drain(" Miller")Charge | | Q _{gd} | | — | 44 | — | |

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

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------------------|------------------|---|------|------|------|------|
| Continuous Drain Reverse Current | I _{DR} | ---- | — | — | 10 | A |
| Pulse Drain Reverse Current | I _{DRP} | ---- | — | — | 40 | A |
| Diode Forward Voltage | V _{DSF} | I _{DR} =10A, V _{GS} =0V | — | — | -2.0 | V |
| Reverse Recovery Time | t _{rr} | I _{DR} =10A, V _{GS} =0V | — | 800 | — | ns |
| Reverse Recovered Charge | Q _{rr} | d I _{DR} /dt =100A/μs | — | 3.7 | — | μC |