

# 2SK419

SILICON N CHANNEL MOS TYPE ( $\pi$ -MOS)

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

## FEATURES:

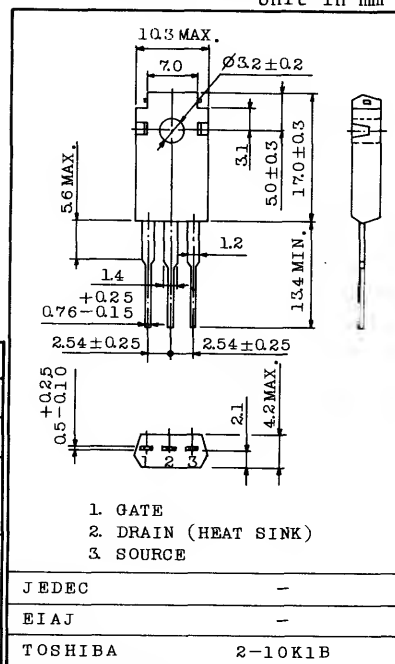
- High Brakdwon Voltage :  $V_{(BR)DSS}=450V$
- High Forward Transfer Admittance :  $|Y_{fs}|=1.2S$  (Typ.)
- Low Leakage Current :  $I_{GSS}=\pm 100nA$  (Max.) @  $V_{GS}=\pm 20V$   
 $I_{DSS}=1mA$  (Max.) @  $V_{DS}=450V$
- Enhancement-Mode :  $V_{th}=1.5 \sim 3.5V$  @  $I_D=1mA$

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

| CHARACTERISTIC                                  |       | SYMBOL    | RATING         | UNIT       |
|-------------------------------------------------|-------|-----------|----------------|------------|
| Drain-Source Voltage                            |       | $V_{DSX}$ | 450            | V          |
| Gate-Source Voltage                             |       | $V_{GSS}$ | $\pm 20$       | V          |
| Drain Current                                   | DC    | $I_D$     | 2              | A          |
|                                                 | Pulse | $I_{DP}$  | 4              |            |
| Drain Power Dissipation<br>( $T_c=25^\circ C$ ) |       | $P_D$     | 50             | W          |
| Channel Temperature                             |       | $T_{ch}$  | 150            | $^\circ C$ |
| Storage Temperature Range                       |       | $T_{stg}$ | $-55 \sim 150$ | $^\circ C$ |

## INDUSTRIAL APPLICATIONS

Unit in mm



Weight : 2.0g

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

| CHARACTERISTIC                 |               | SYMBOL        | TEST CONDITION                 | MIN. | TYP. | MAX.      | UNIT     |
|--------------------------------|---------------|---------------|--------------------------------|------|------|-----------|----------|
| Gate Leakage Current           |               | $I_{GSS}$     | $V_{GS}=\pm 20V, V_{DS}=0$     | -    | -    | $\pm 100$ | nA       |
| Drain Cut-off Current          |               | $I_{DSS}$     | $V_{DS}=450V, V_{GS}=0$        | -    | -    | 1.0       | mA       |
| Drain-Source Breakdown Voltage |               | $V_{(BR)DSS}$ | $I_D=10mA, V_{GS}=0$           | 450  | -    | -         | V        |
| Gate Threshold Voltage         |               | $V_{th}$      | $V_{DS}=10V, I_D=1mA$          | 1.5  | -    | 3.5       | V        |
| Forward Transfer Admittance    |               | $ Y_{fs} $    | $V_{DS}=10V, I_D=1A$           | 0.6  | 1.2  | -         | S        |
| Drain-Source ON Resistance     |               | $R_{DS(ON)}$  | $I_D=1A, V_{GS}=10V$           | -    | 1.8  | 2.5       | $\Omega$ |
| Drain-Source ON Voltage        |               | $V_{DS(ON)}$  | $I_D=4A, V_{GS}=10V$           | -    | 9.0  | 14        | V        |
| Input Capacitance              |               | $C_{iss}$     | $V_{DS}=10V, V_{GS}=0, f=1MHz$ | -    | 410  | 600       | pF       |
| Reverse Transfer Capacitance   |               | $C_{rss}$     | $V_{DS}=10V, V_{GS}=0, f=1MHz$ | -    | 35   | 70        | pF       |
| Output Capacitance             |               | $C_{oss}$     | $V_{DS}=10V, V_{GS}=0, f=1MHz$ | -    | 115  | 170       | pF       |
| Switching Time                 | Rise Time     | $t_r$         |                                | -    | 15   | 30        | ns       |
|                                | Turn-on Time  | $t_{on}$      |                                | -    | 30   | 60        | ns       |
|                                | Fall Time     | $t_f$         |                                | -    | 30   | 60        | ns       |
|                                | Turn-off Time | $t_{off}$     |                                | -    | 100  | 200       | ns       |

THIS TRANSISTOR IS THE ELECTROSTATIC SENSITIVE DEVICE. PLEASE HANDLE WITH CAUTION.

TOSHIBA CORPORATION