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

# 2SK324

HIGH SPEED, HIGH VOLTAGE SWITCHING APPLICATIONS.

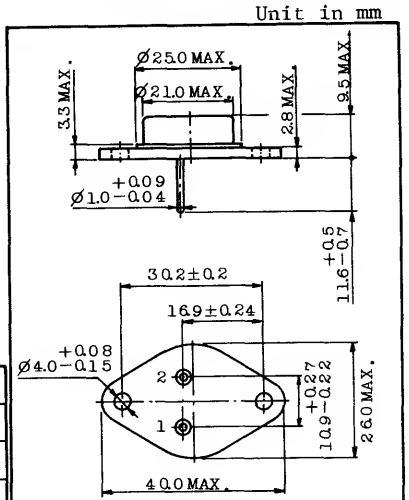
SWITCHING REGULATOR, DC-DC CONVERTER AND MOTOR DRIVE APPLICATIONS.

INDUSTRIAL APPLICATIONS

FEATURES:

- High Breakdown Voltage : $V_{(BR)DSS}$=400V
- High Forward Transfer Admittance : $|Y_{fs}|$=5S(Typ.)
- Low Leakage Current : $I_{GSS}$=±100nA(Max.) @ $V_{GS}$=±20V
  $I_{DSS}$=1mA(Max.) @ $V_{DS}$=400V
- Enhancement-Mode : $V_{th}$=1.5～3.5V @ $I_D$=1mA

Unit in mm




1. GATE
2. SOURCE
DRAIN(CASE)

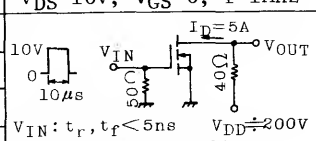
| | |
|---|---|
| JEDEC | TO-204MA/TO-3 |
| EIAJ | TC-3, TB-3 |
| TOSHIBA | 2-21E1B |

Weight : 15.8g

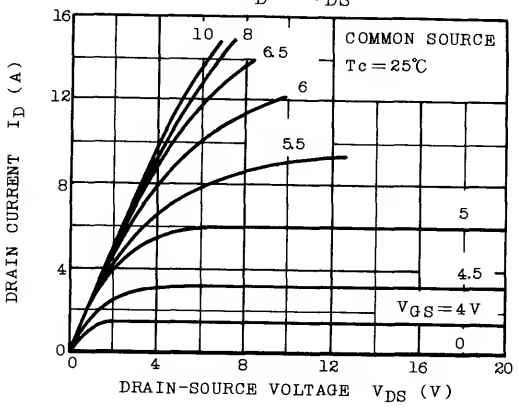
MAXIMUM RATINGS (Ta=25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DSX}$ | 400 | V |
| Gate-Source Voltage | | $V_{GSS}$ | ±20 | V |
| Drain Current | DC | $I_D$ | 10 | A |
| | Pulse | $I_{DP}$ | 15 | |
| Drain Power Dissipation (Tc=25°C) | | $P_D$ | 120 | W |
| Channel Temperature | | $T_{ch}$ | 150 | °C |
| Storage Temperature Range | | $T_{stg}$ | -65～150 | °C |

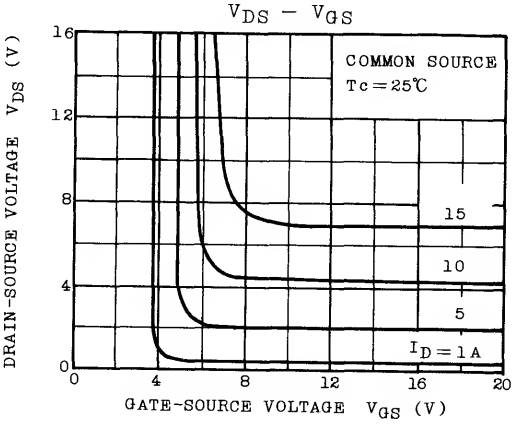
ELECTRICAL CHARACTERISTICS (Ta=25°C)

| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| Gate Leakage Current | | $I_{GSS}$ | $V_{GS}$=±20V, $V_{DS}$=0 | - | - | ±100 | nA |
| Drain Cut-off Current | | $I_{DSS}$ | $V_{DS}$=400V, $V_{GS}$=0 | - | - | 1.0 | mA |
| Drain-Source Breakdown Voltage | | $V_{(BR)DSS}$ | $I_D$=10mA, $V_{GS}$=0 | 400 | - | - | 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, $I_D$=5A | 3.0 | 5.0 | - | S |
| Drain-Source ON Resistance | | $R_{DS(ON)}$ | $I_D$=5A, $V_{GS}$=10V | - | 0.45 | 0.6 | Ω |
| Drain-Source ON Voltage | | $V_{DS(ON)}$ | $I_D$=10A, $V_{GS}$=10V | - | 5 | 7 | V |
| Input Capacitance | | $C_{iss}$ | $V_{DS}$=10V, $V_{GS}$=0, f=1MHz | - | 1500 | 2000 | pF |
| Reverse Transfer Capacitance | | $C_{rss}$ | $V_{DS}$=10V, $V_{GS}$=0, f=1MHz | - | 140 | 300 | pF |
| Output Capacitance | | $C_{oss}$ | $V_{DS}$=10V, $V_{GS}$=0, f=1MHz | - | 400 | 600 | pF |
| Switching Time | Rise Time | $t_r$ |  | - | 50 | 100 | ns |
| | Turn-on Time | $t_{on}$ | | - | 80 | 150 | ns |
| | Fall Time | $t_f$ | | - | 80 | 150 | ns |
| | Turn-off Time | $t_{off}$ | | - | 350 | 700 | ns |

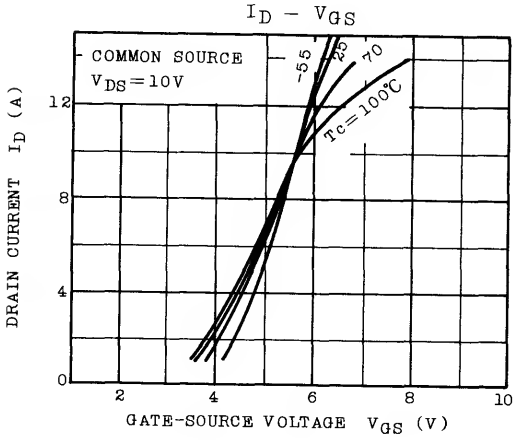
$I_D - V_{DS}$



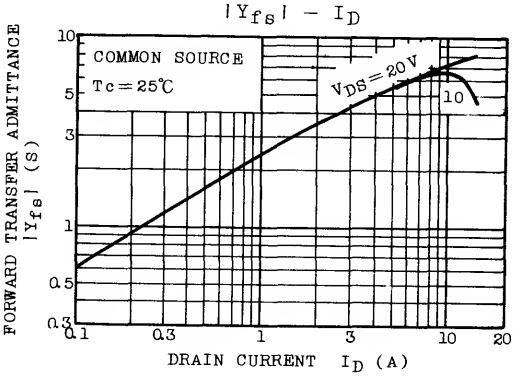

$V_{DS} - V_{GS}$



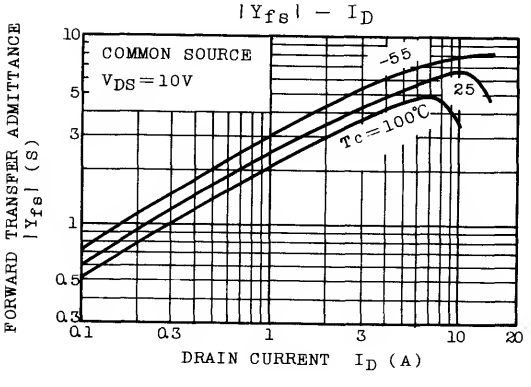

$I_D - V_{GS}$



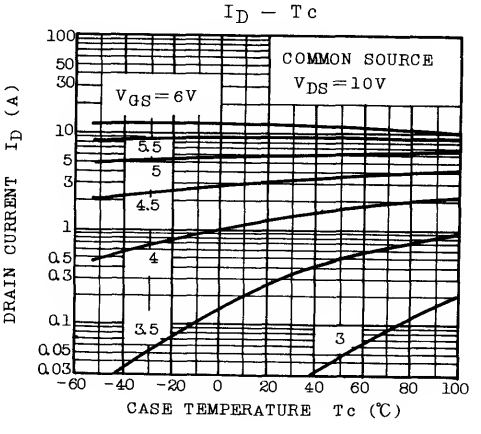

$|Y_{fs}| - I_D$



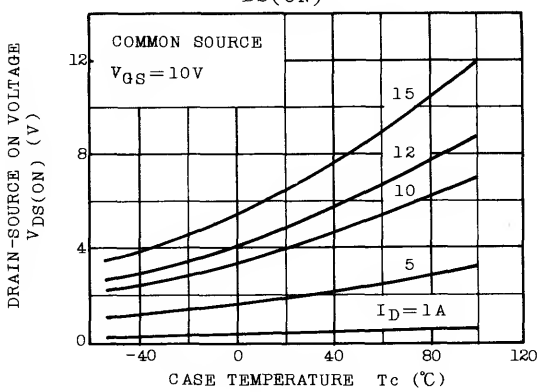

$|Y_{fs}| - I_D$



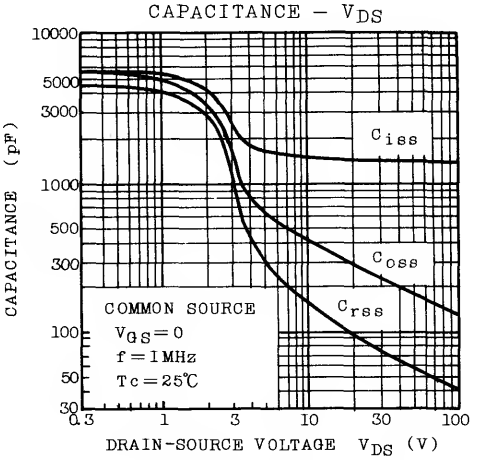

$I_D - Tc$



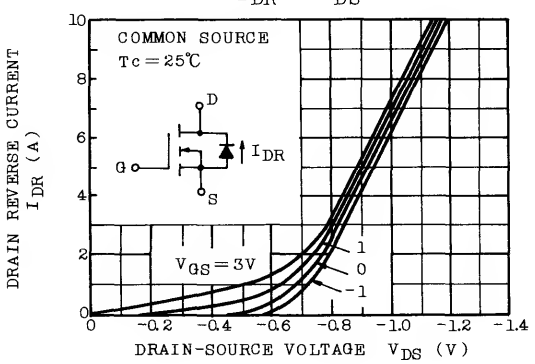
$V_{DS(ON)}$ – Tc



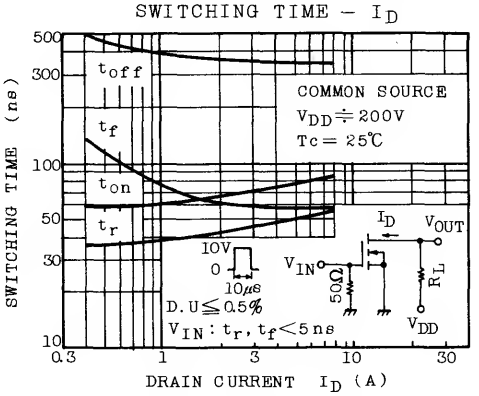

CAPACITANCE – $V_{DS}$



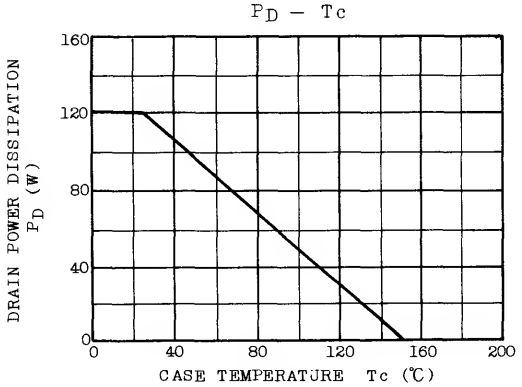

$I_{DR}$ – $V_{DS}$




SWITCHING TIME – $I_D$




$P_D$ – Tc




SAFE OPERATING AREA