

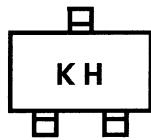
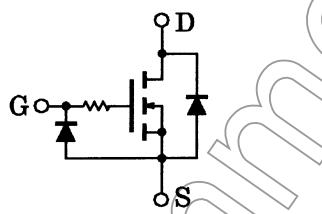
TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

**2SK1827**

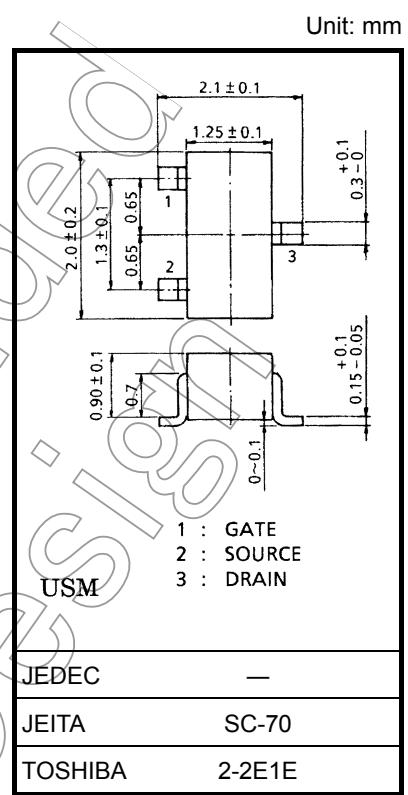
High Speed Switching Applications

Analog Switch Applications

- 4 V gate drive
- Low threshold voltage:  $V_{th} = 0.8\sim2.5$  V
- High speed
- Enhancement-mode
- Small package

**Marking****Equivalent Circuit****Absolute Maximum Ratings (Ta = 25°C)**

Characteristics	Symbol	Rating	Unit
Drain-source voltage	$V_{DS}$	50	V
Gate-source voltage	$V_{GSS}$	10	V
DC drain current	$I_D$	50	mA
Drain power dissipation	$P_D$	100	mW
Channel temperature	$T_{ch}$	150	°C
Storage temperature range	$T_{stg}$	-55~150	°C



Weight: 0.006 g (typ.)

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc.).

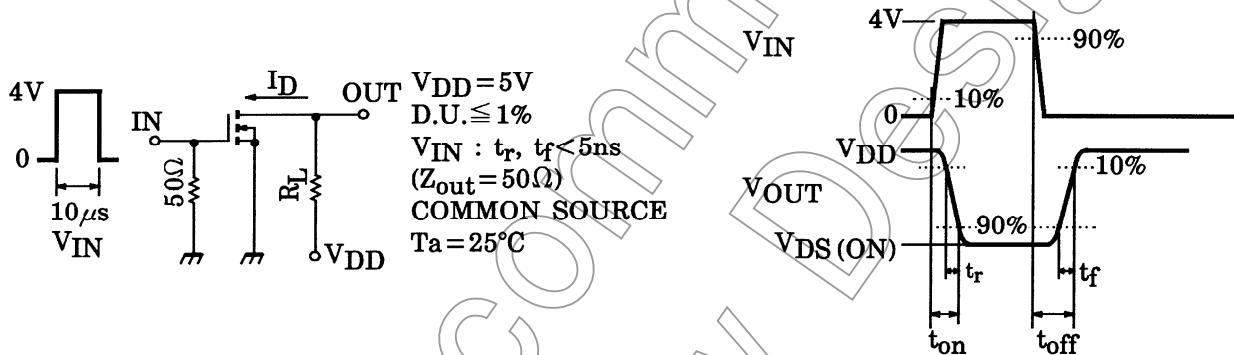
Note: This transistor is electrostatic sensitive device.

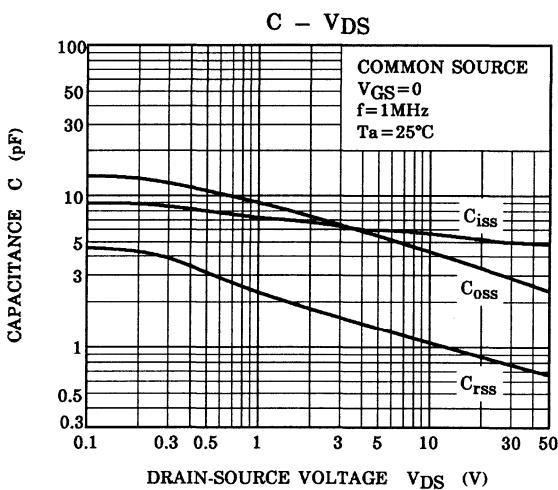
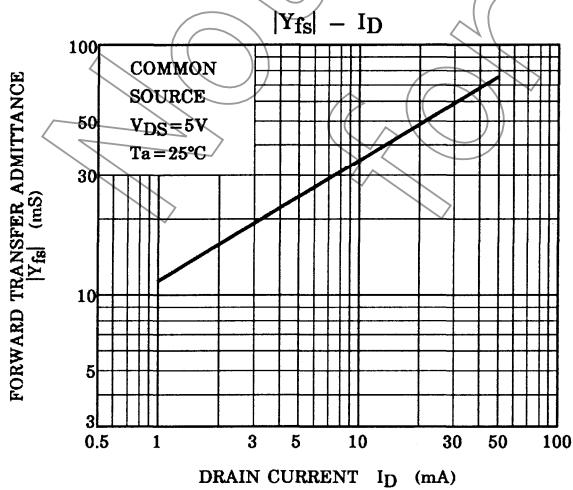
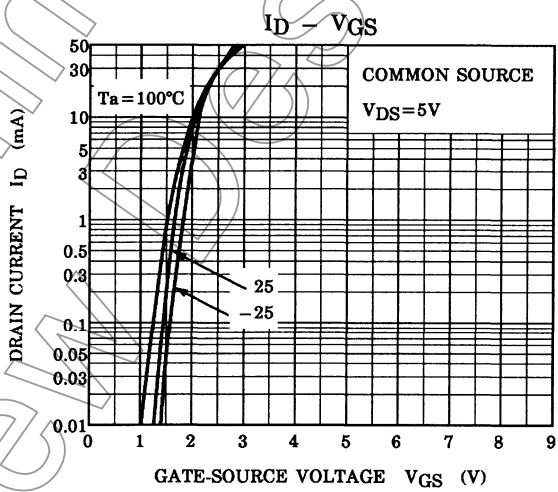
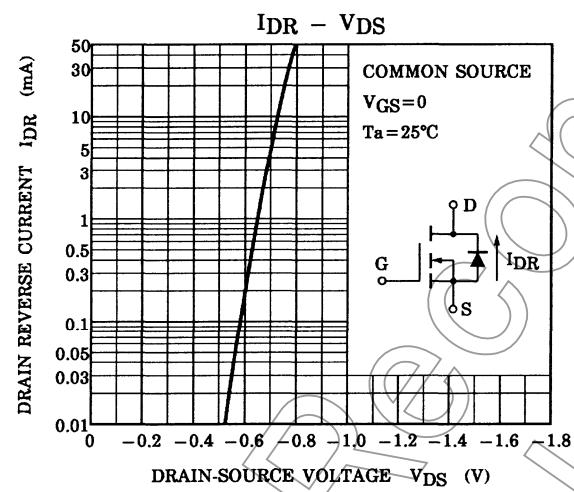
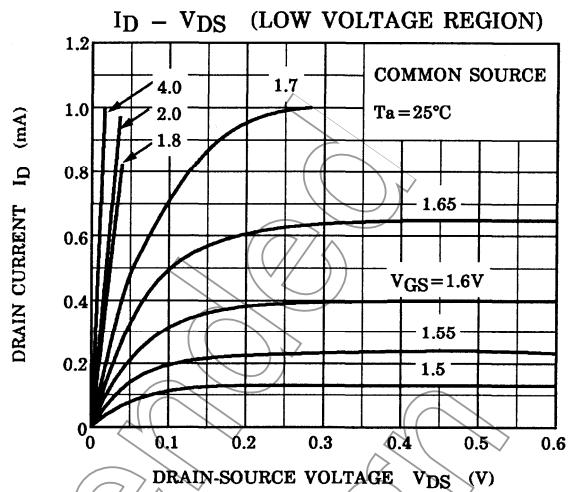
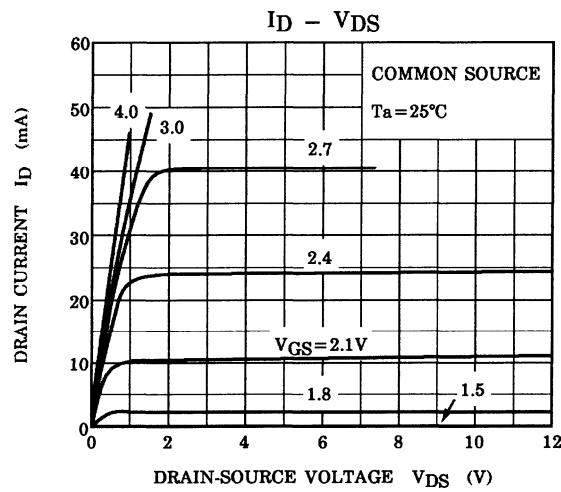
Please handle with caution.

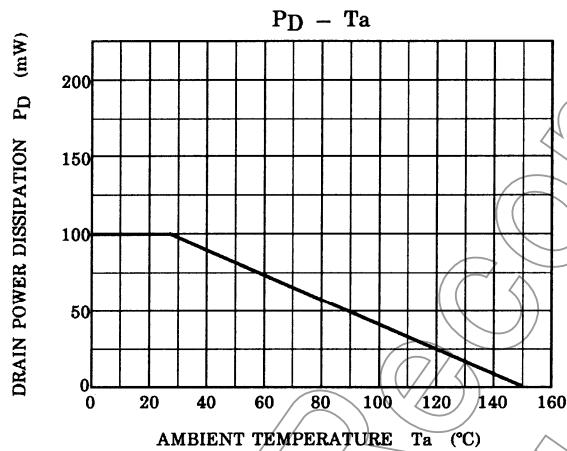
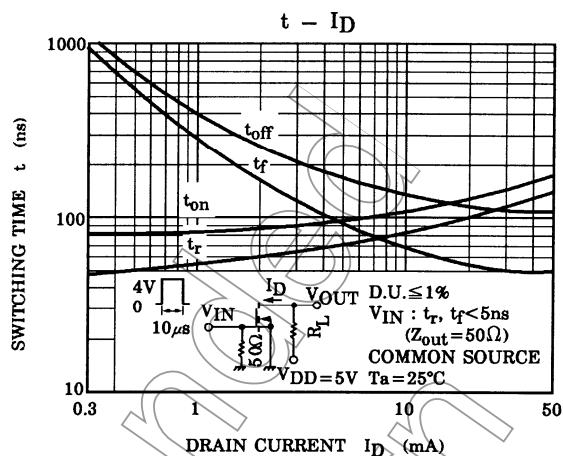
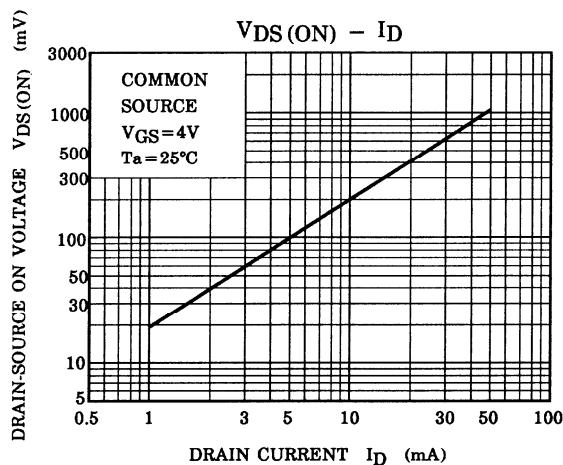
## Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	$I_{GSS}$	$V_{GS} = 10 \text{ V}, V_{DS} = 0$	—	—	1	$\mu\text{A}$
Drain-source breakdown voltage	$V_{(\text{BR})\text{DSS}}$	$I_D = 100 \mu\text{A}, V_{GS} = 0$	50	—	—	V
Drain cut-off current	$I_{DSS}$	$V_{DS} = 50 \text{ V}, V_{GS} = 0$	—	—	1	$\mu\text{A}$
Gate threshold voltage	$V_{th}$	$V_{DS} = 5 \text{ V}, I_D = 0.1 \text{ mA}$	0.8	—	2.5	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 5 \text{ V}, I_D = 10 \text{ mA}$	20	—	—	$\text{mS}$
Drain-source ON resistance	$R_{DS\text{ (ON)}}$	$I_D = 10 \text{ mA}, V_{GS} = 4.0 \text{ V}$	—	20	50	$\Omega$
Input capacitance	$C_{iss}$	$V_{DS} = 5 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	6.3	—	—	$\text{pF}$
Reverse transfer capacitance	$C_{rss}$	$V_{DS} = 5 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	1.3	—	$\text{pF}$
Output capacitance	$C_{oss}$	$V_{DS} = 5 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	5.7	—	$\text{pF}$
Switching time	Turn-on time	$t_{on}$	$V_{DD} = 5 \text{ V}, I_D = 10 \text{ mA}, V_{GS} = 0\text{--}4.0 \text{ V}$	—	0.11	—
	Turn-off time	$t_{off}$	$V_{DD} = 5 \text{ V}, I_D = 10 \text{ mA}, V_{GS} = 0\text{--}4.0 \text{ V}$	—	0.15	—
						$\mu\text{s}$

## Switching Time Test Circuit







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