

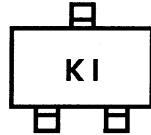
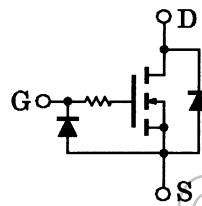
TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

2SK1830

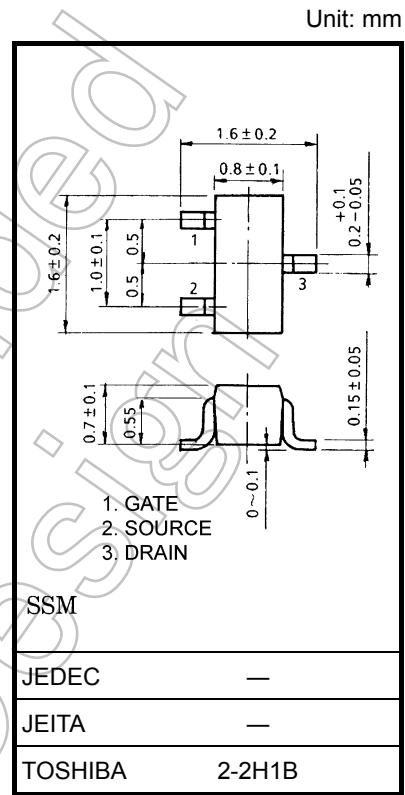
High Speed Switching Applications

Analog Switch Applications

- 2.5 V gate drive
- Low threshold voltage: $V_{th} = 0.5$ to 1.5 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}	20	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 to 150	°C



Weight: 2.4 mg (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.

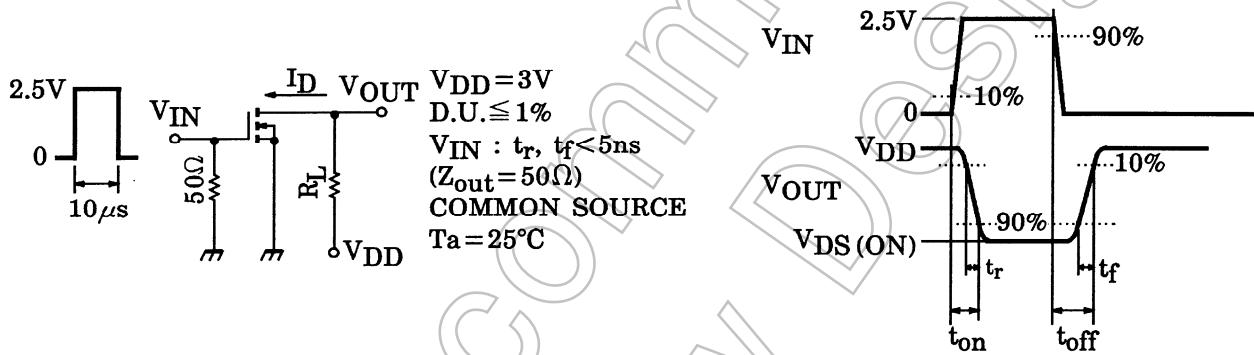
Please handle with caution.

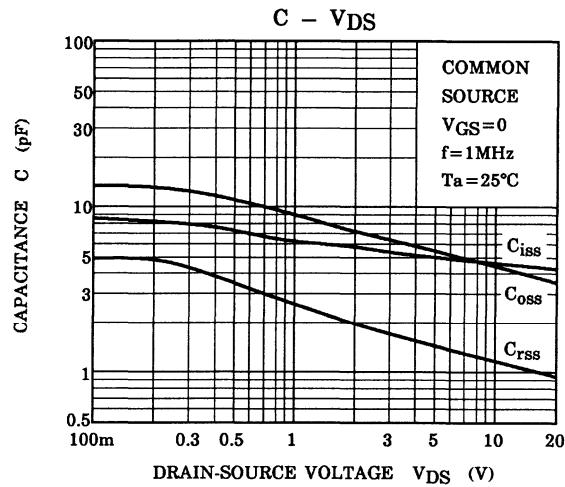
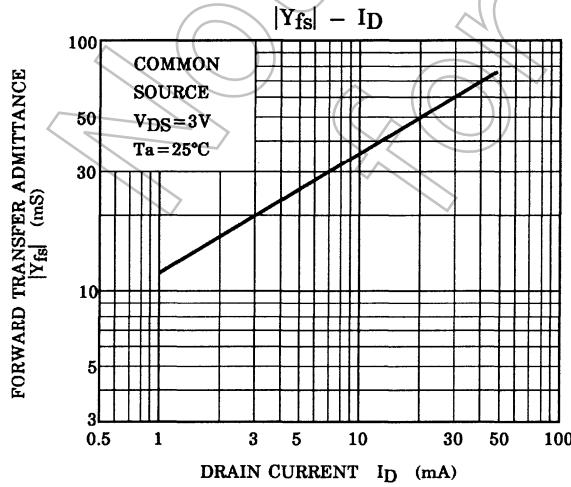
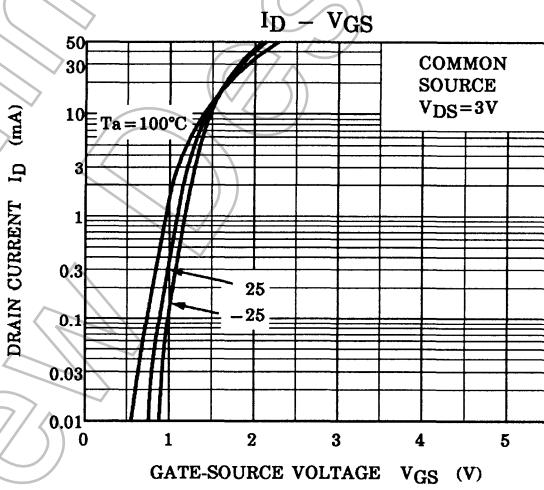
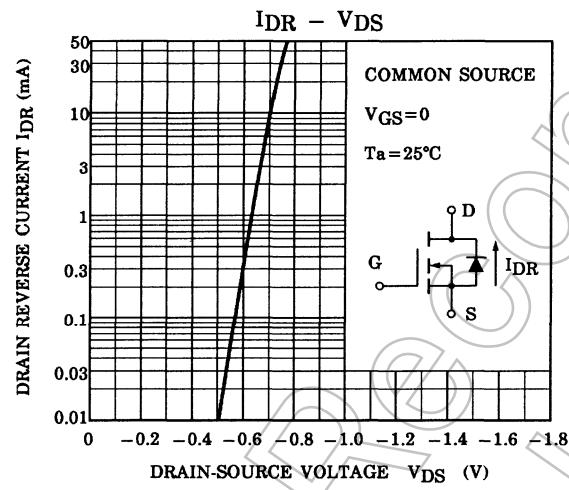
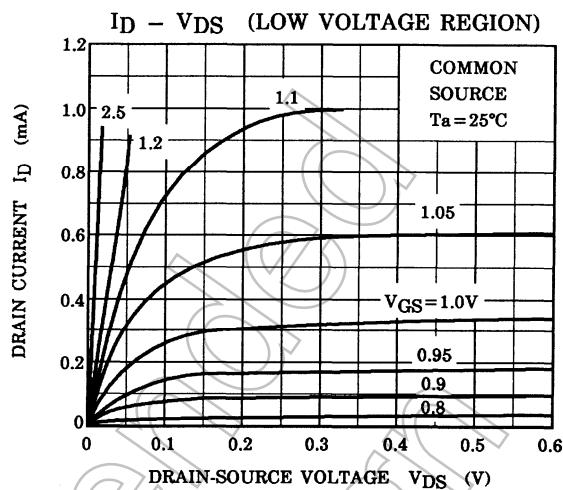
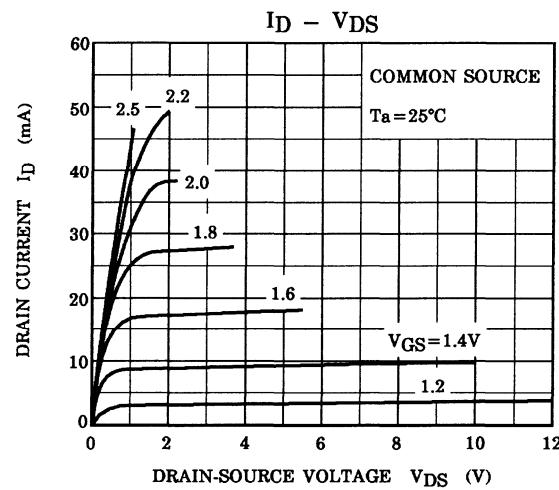
Start of commercial production
1991-02

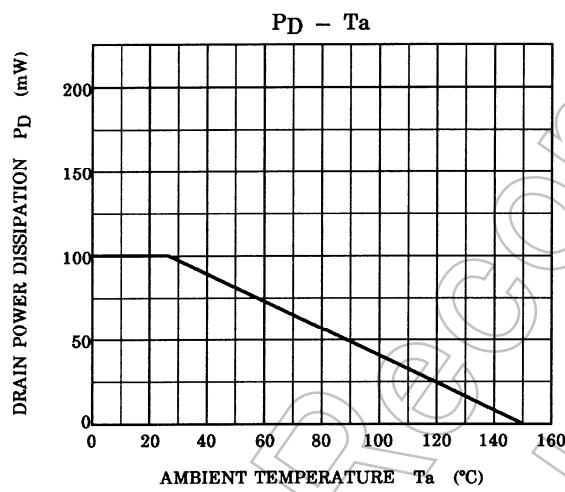
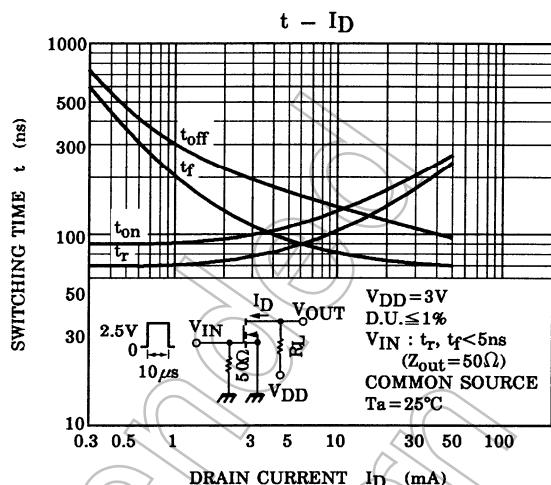
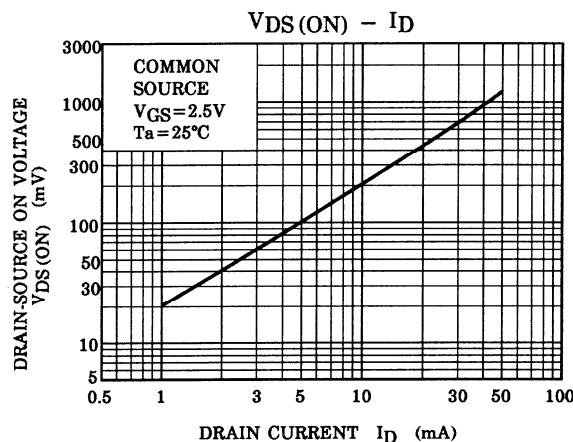
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	I _{GSS}	V _{GS} = 10 V, V _{DS} = 0	—	—	1	μA
Drain-source breakdown voltage	V _{(BR) DSS}	I _D = 100 μA, V _{GS} = 0	20	—	—	V
Drain cut-off current	I _{DSS}	V _{DS} = 20 V, V _{GS} = 0	—	—	1	μA
Gate threshold voltage	V _{th}	V _{DS} = 3 V, I _D = 0.1 mA	0.5	—	1.5	V
Forward transfer admittance	Y _{fs}	V _{DS} = 3 V, I _D = 10 mA	20	—	—	mS
Drain-source ON resistance	R _{Ds (ON)}	I _D = 10 mA, V _{GS} = 2.5 V	—	20	40	Ω
Input capacitance	C _{iss}	V _{DS} = 3 V, V _{GS} = 0, f = 1 MHz	—	5.5	—	pF
Reverse transfer capacitance	C _{rss}	V _{DS} = 3 V, V _{GS} = 0, f = 1 MHz	—	1.6	—	pF
Output capacitance	C _{oss}	V _{DS} = 3 V, V _{GS} = 0, f = 1 MHz	—	6.5	—	pF
Switching time	Turn-on time	t _{on}	V _{DD} = 3 V, I _D = 10 mA, V _{GS} = 0 to 2.5 V	—	0.14	—
	Turn-off time	t _{off}	V _{DD} = 3 V, I _D = 10 mA, V _{GS} = 0 to 2.5 V	—	0.14	—

Switching Time Test Circuit







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