TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

2SK1829

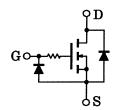
High Speed Switching Applications Analog Switch Applications

- 2.5 V gate drive
- Low threshold voltage: $V_{th} = 0.5 \sim 1.5 \text{ V}$
- · High speed
- Enhancement-mode
- Small package

Marking

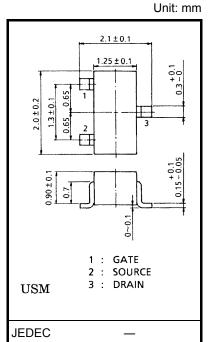
Equivalent Circuit





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	ID	50	mA
Drain power dissipation	P _D	100	mW
Channel temperature	T _{ch}	150	°C
Storage temperature range	T _{stg}	-55~150	°C



SC-70

2-2E1E

Weight: 0.006 g (typ.)

JEITA

TOSHIBA

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).

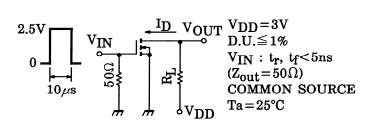
Note: This transistor is electrostatic sensitive device.

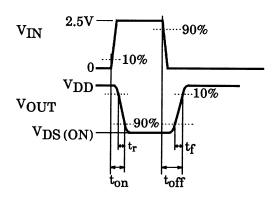
Please handle with caution.

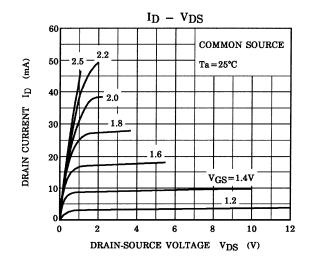
Electrical Characteristics (Ta = 25°C)

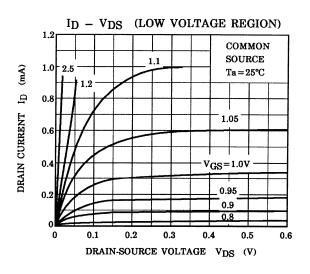
Characteristics		Symbol	Test Condition	Min	Тур.	Max	Unit
Gate leakage current		I _{GSS}	V _{GS} = 10 V, V _{DS} = 0	_	_	1	μА
Drain-source breakdown voltage		V (BR) DSS	$I_D = 100 \ \mu A, \ V_{GS} = 0$	20	_	_	V
Drain cut-off curre	ent	I _{DSS}	$V_{DS} = 20 \text{ V}, V_{GS} = 0$	_	_	1	μА
Gate threshold vo	Itage	V _{th}	$V_{DS} = 3 \text{ V}, I_D = 0.1 \text{ mA}$	0.5	_	1.5	V
Forward transfer admittance		Y _{fs}	$V_{DS} = 3 \text{ V}, I_D = 10 \text{ mA}$	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}	$V_{DS} = 3 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	_	5.5	_	pF
Reverse transfer capacitance		C _{rss}	$V_{DS} = 3 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	_	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}	$V_{DD} = 3 \text{ V}, I_D = 10 \text{ mA}, V_{GS} = 0~2.5 \text{ V}$	_	0.14	_	μS
	Turn-off time	t _{off}	$V_{DD} = 3 \text{ V}, I_D = 10 \text{ mA}, V_{GS} = 0~2.5 \text{ V}$	_	0.14	_	

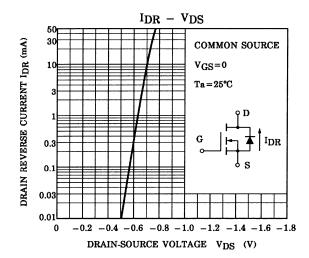
Switching Time Test Circuit

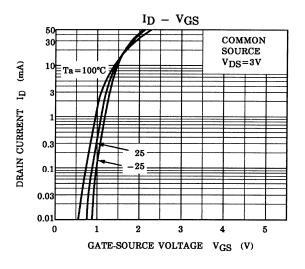


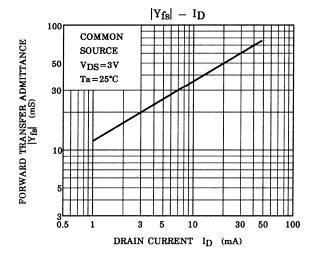


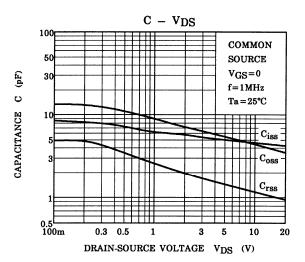


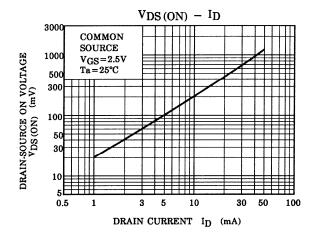


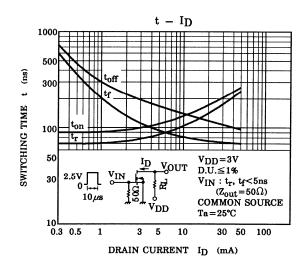


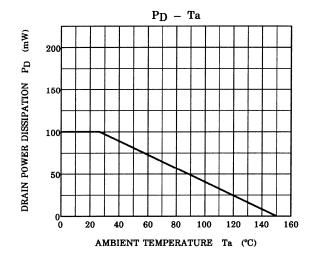












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