

TOSHIBA Field Effect Transistor Silicon P Channel MOS Type

2SJ168

High Speed Switching Applications

Analog Switch Applications

Interface Applications

- Excellent switching time: $t_{on} = 14 \text{ ns}$ (typ.)
- High forward transfer admittance: $|Y_{fs}| = 100 \text{ mS}$ (min)
@ $I_D = -50 \text{ mA}$
- Low on resistance: $R_{DS(ON)} = 1.3 \Omega$ (typ.) @ $I_D = -50 \text{ mA}$
- Enhancement-mode
- Complementary to 2SK1062

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

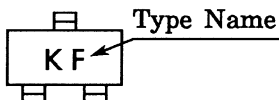
Characteristics		Symbol	Rating	Unit
Drain-source voltage		V_{DSS}	-60	V
Gate-source voltage		V_{GSS}	± 20	V
Drain current	DC	I_D	-200	mA
	Pulse	I_{DP}	-800	
Drain power dissipation ($T_a = 25^\circ\text{C}$)		P_D	200	mW
Channel temperature		T_{ch}	150	$^\circ\text{C}$
Storage temperature range		T_{stg}	-55~150	$^\circ\text{C}$

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.

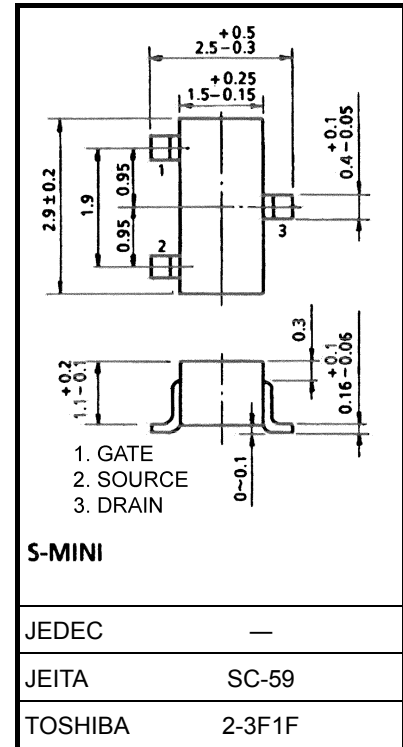
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc.).

Note: This transistor is the electrostatic sensitive device. Please handle with caution.

Marking

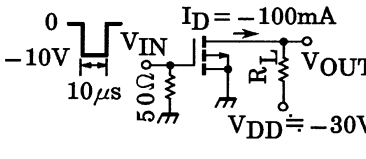


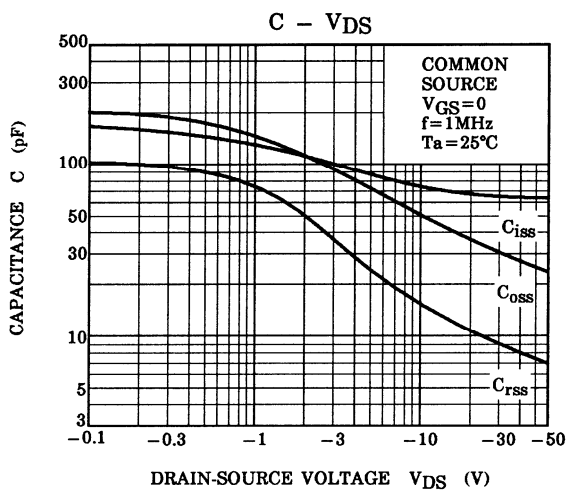
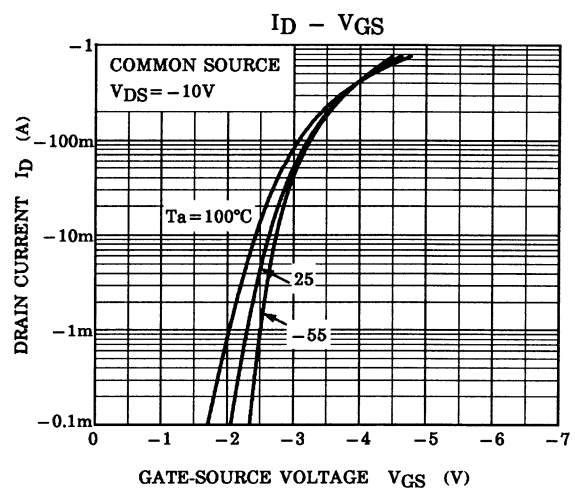
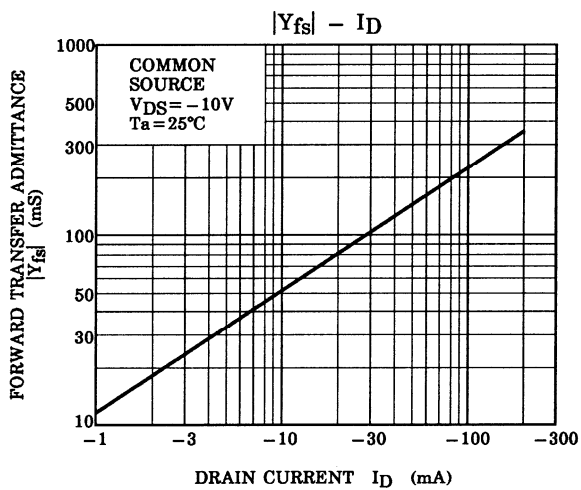
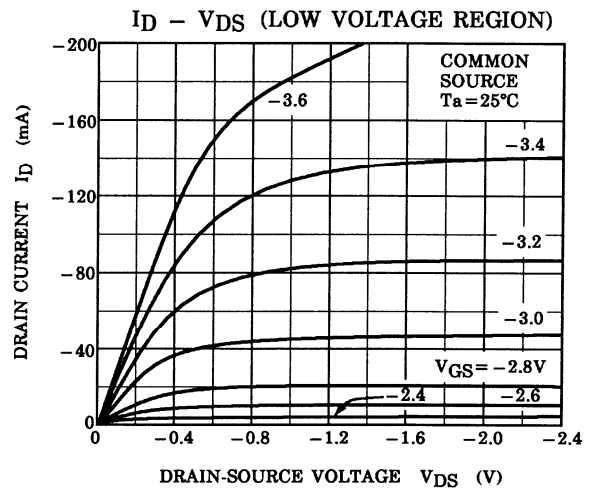
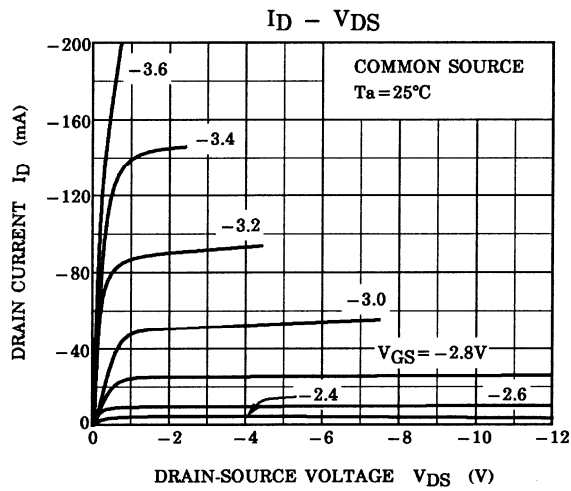
Unit: mm

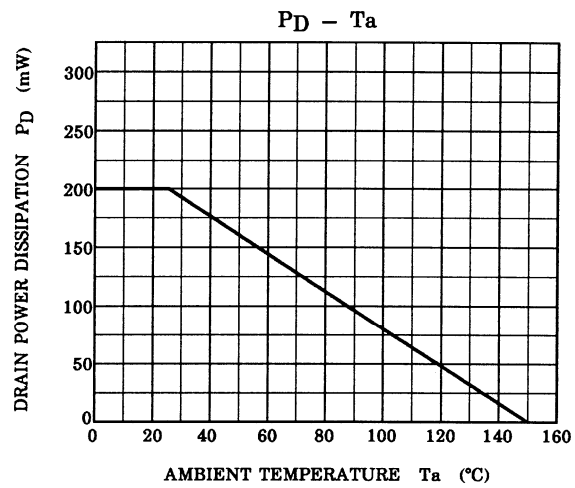
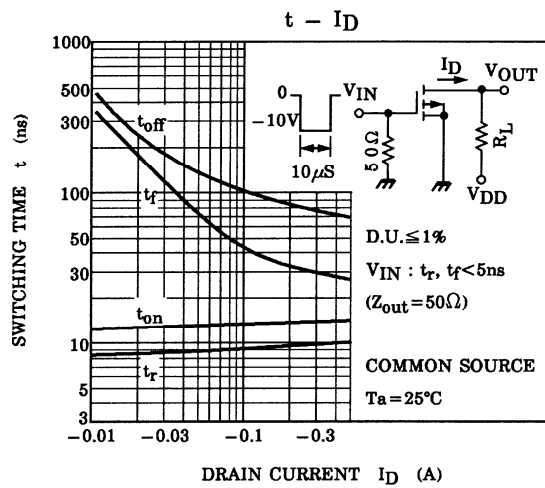
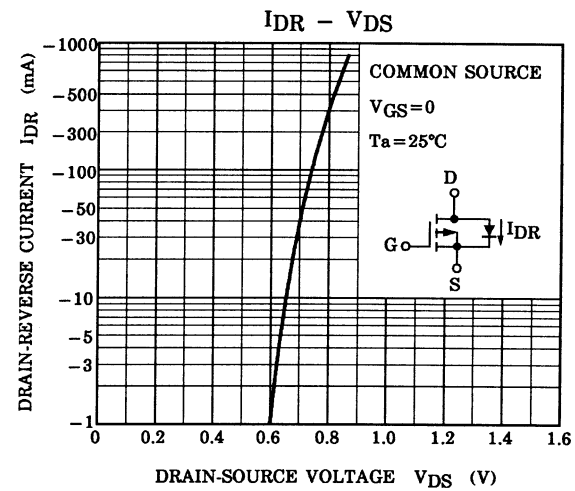
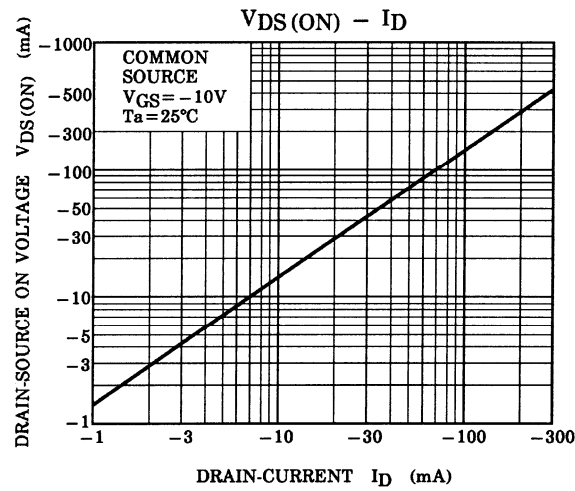


Weight: 0.012 g (typ.)

Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GSS}	$V_{GS} = \pm 10 \text{ V}, V_{DS} = 0$	—	—	± 100	nA
Drain cut-off current		I_{DSS}	$V_{DS} = -60 \text{ V}, V_{GS} = 0$	—	—	-10	μA
Drain-source breakdown voltage		$V_{(BR)DSS}$	$I_D = -1 \text{ mA}, V_{GS} = 0$	-60	—	—	V
Gate threshold voltage		V_{th}	$V_{DS} = -10 \text{ V}, I_D = -1 \text{ mA}$	-2	—	-3.5	V
Forward transfer admittance		$ Y_{fs} $	$V_{DS} = -10 \text{ V}, I_D = -50 \text{ mA}$	100	—	—	mS
Drain-source ON resistance		$R_{DS(ON)}$	$I_D = -50 \text{ mA}, V_{GS} = -10 \text{ V}$	—	1.3	2.0	Ω
Drain-source ON voltage		$V_{DS(ON)}$	$I_D = -50 \text{ mA}, V_{GS} = -10 \text{ V}$	—	-65	-100	mV
Input capacitance		C_{iss}	$V_{DS} = -10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	73	85	pF
Reverse transfer capacitance		C_{rss}	$V_{DS} = -10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	15	22	pF
Output capacitance		C_{oss}	$V_{DS} = -10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	48	60	pF
Switching time	Rise time	t_r	 <p>$I_D = -100 \text{ mA}$ $V_{DD} = -30 \text{ V}$ V_{IN} V_{OUT} $10 \mu\text{s}$ 50Ω R_L $Z_{out} = 50 \Omega$</p>	—	8	—	ns
	Turn-on time	t_{on}		—	14	—	
	Fall time	t_f		—	35	—	
	Turn-off Time	t_{off}		—	100	—	





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