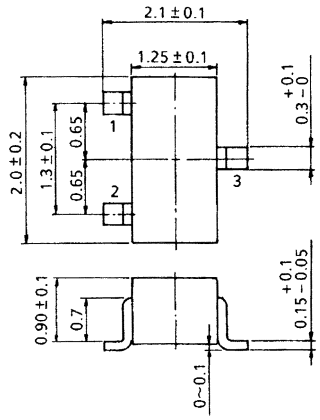
TOSHIBA Field Effect Transistor Silicon P Channel MOS Type

2SJ346

High Speed Switching Applications
Analog Switch Applications

- Low threshold voltage: V_{th} = −0.5~−1.5 V
- High speed
- Small package
- Complementary to 2SK1829

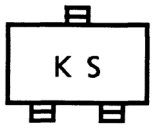
Unit: mm



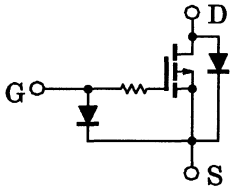
JEDEC	—
JEITA	SC-70
TOSHIBA	2-2E1E

Weight: 0.006 g (typ.)

Marking



Equivalent Circuit



Absolute Maximum Ratings (Ta = 25°C)

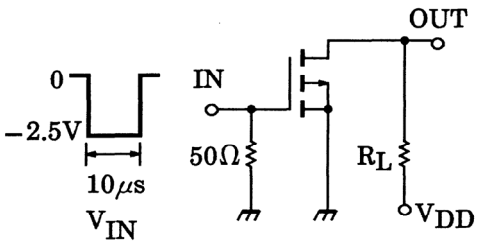
Characteristics	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	−20	V
Gate-source voltage	V_{GSS}	−7	V
DC drain current	I_D	−50	mA
Drain power dissipation	P_D	100	mW
Channel temperature	T_{ch}	150	°C
Storage temperature range	T_{stg}	−55~150	°C

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).

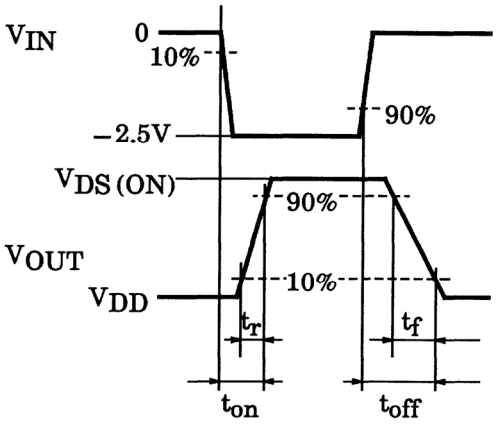
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gateate leakage current		I_{GSS}	V_{GS} = −7 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 threshould 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	15	—	—	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	—	10.4	—	pF
Reverse transfer capacitance		C_{rss}	V_{DS} = −3 V, V_{GS} = 0, f = 1 MHz	—	2.8	—	pF
Output capacitance		C_{oss}	V_{DS} = −3 V, V_{GS} = 0, f = 1 MHz	—	8.4	—	pF
Switching time	Turn-on time	t_{on}	V_{DD} = −3 V, I_D = −10 mA, V_{GS} = 0~−2.5 V	—	0.15	—	μs
	Turn-off time	t_{off}	V_{DD} = −3 V, I_D = −10 mA, V_{GS} = 0~−2.5 V	—	0.13	—	

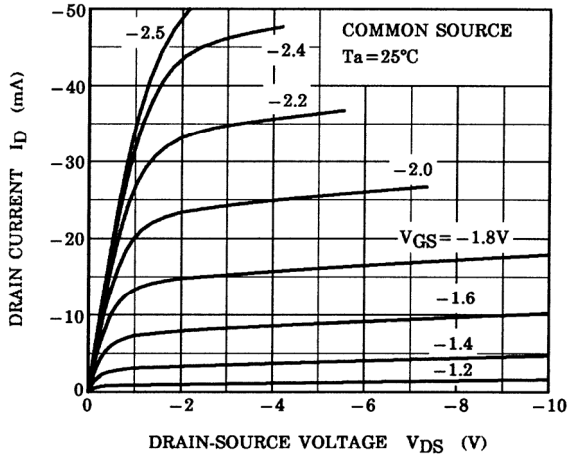
Switching Time Test Circuit



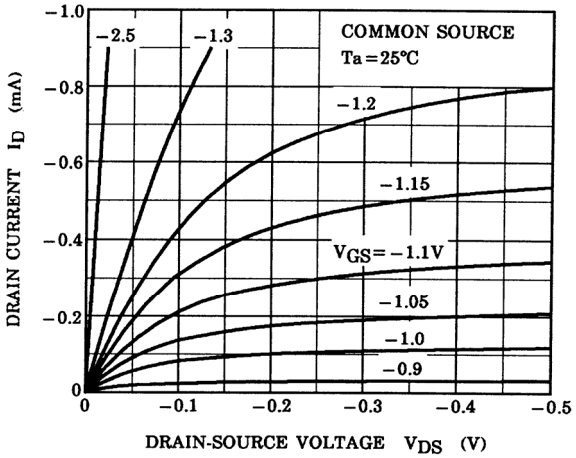
V_{DD} = −3V
D.U. ≦ 1%
V_{IN} : t_r, t_f < 5ns
(Zout = 50Ω)
COMMON SOURCE
Ta = 25°C



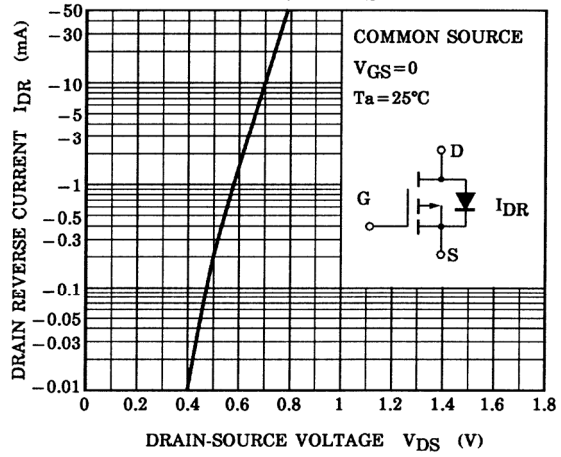
$I_D - V_{DS}$



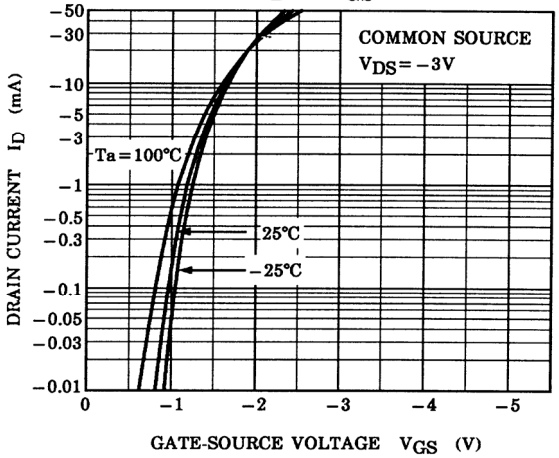
$I_D - V_{DS}$ (LOW VOLTAGE REGION)



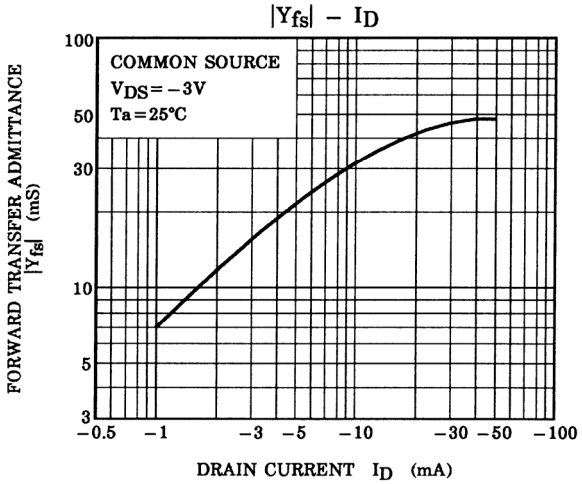
$I_{DR} - V_{DS}$



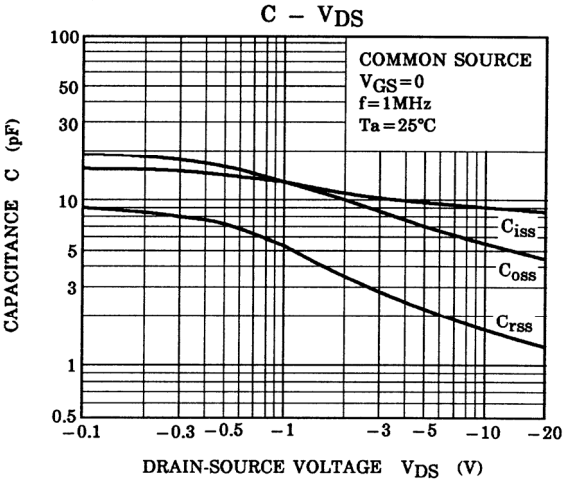
$I_D - V_{GS}$



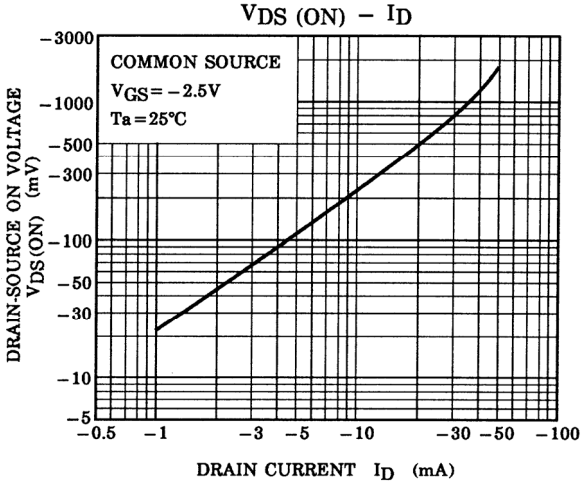
$|Y_{fs}| - I_D$



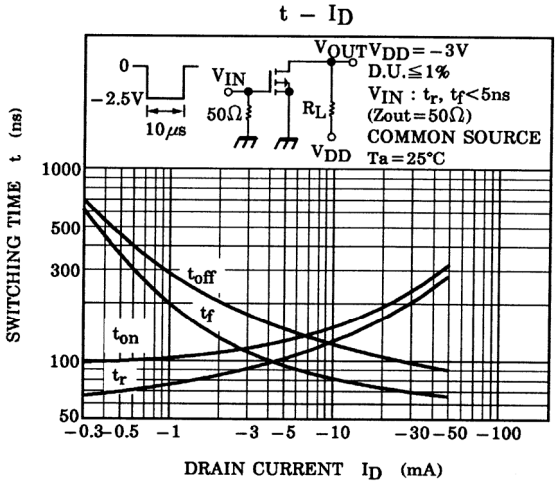
$C - V_{DS}$



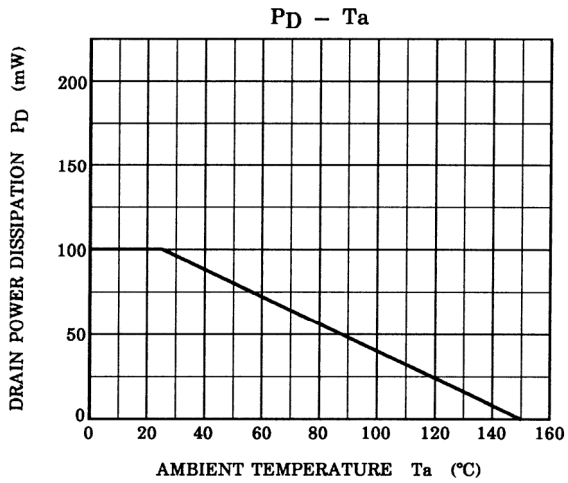
$V_{DS\ (ON)} - I_D$



$t - I_D$



$P_D - Ta$



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20070701-EN GENERAL

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