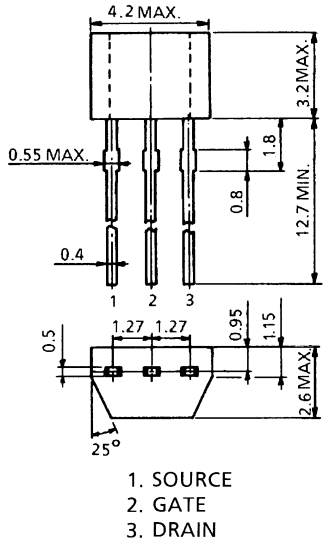
TOSHIBA Field Effect Transistor Silicon N Channel Junction Type

2SK367

For Audio, High Voltage Amplifier and Constant Current Applications

- High breakdown voltage: V_{GDS} = −100 V (min)
- High input impedance: I_{GSS} = −1.0 nA (max) (V_{GS} = −80 V)
- Small package

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-4E1B

Weight: 0.13 g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Gate-drain voltage	V_{GDS}	−100	V
Gate current	I_G	10	mA
Drain power dissipation	P_D	200	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

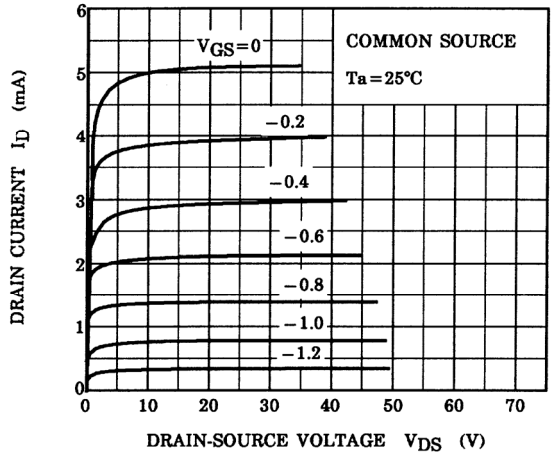
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

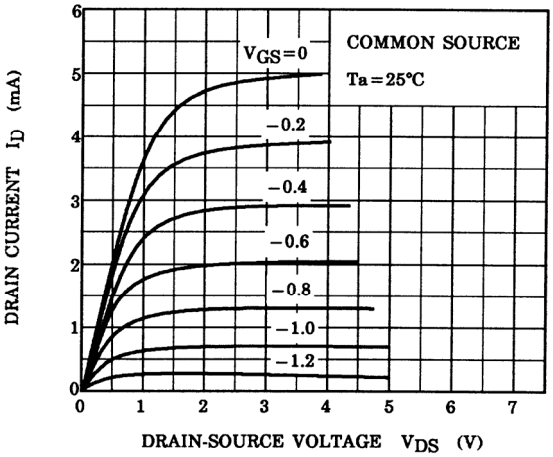
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate cut-off current	I_{GSS}	V_{GS} = −80 V, V_{DS} = 0	—	—	−1.0	nA
Gate-drain breakdown voltage	$V_{(BR)\ GDS}$	V_{DS} = 0, I_G = −100 μA	−100	—	—	V
Drain current	I_{DSS} (Note)	V_{DS} = 10 V, V_{GS} = 0	0.6	—	6.5	mA
Gate-source cut-off voltage	$V_{GS\ (OFF)}$	V_{DS} = 10 V, I_D = 0.1 μA	−0.4	—	−3.5	V
Forward transfer admittance	$\|Y_{fs}\|$	V_{DS} = 10 V, V_{GS} = 0, f = 1 kHz	1.5	4.6	—	mS
Input capacitance	C_{iss}	V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz	—	13	—	pF
Reverse transfer capacitance	C_{rss}	V_{DS} = 10 V, I_D = 0, f = 1 MHz	—	3	—	pF
Noise figure	NF	V_{DS} = 10 V, V_{GS} = 0, R_G = 100 kΩ, f = 100 Hz	—	0.5	—	dB

Note: I_{DSS} classification O: 0.6~1.4 mA, Y: 1.2~3.0 mA, GR: 2.6~6.5 mA

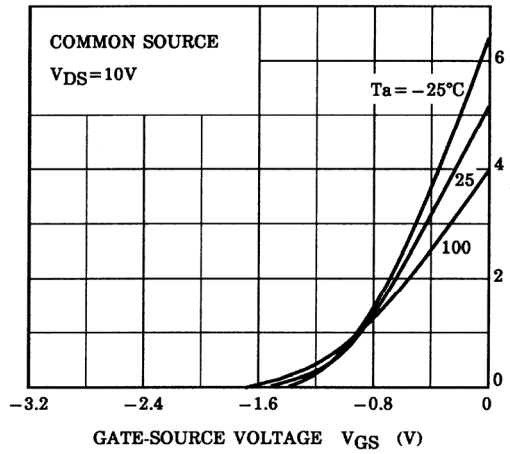
$I_D - V_{DS}$



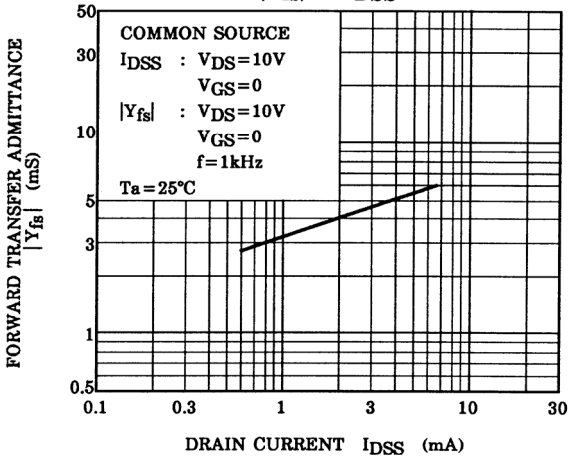
$I_D - V_{DS}$ (LOW VOLTAGE REGION)



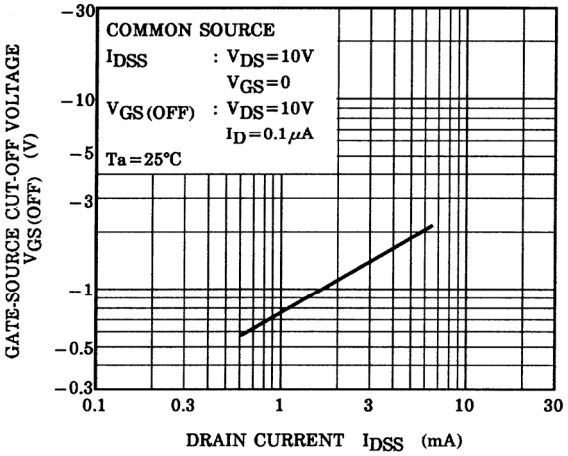
$I_D - V_{GS}$



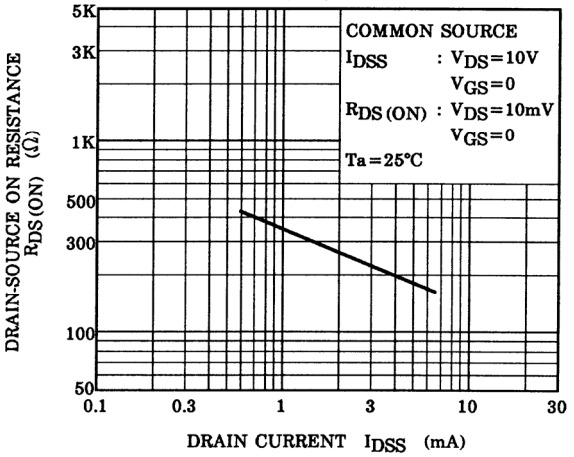
$|Y_{fs}| - I_{DSS}$

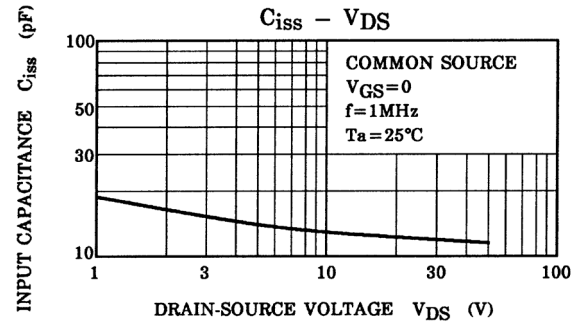


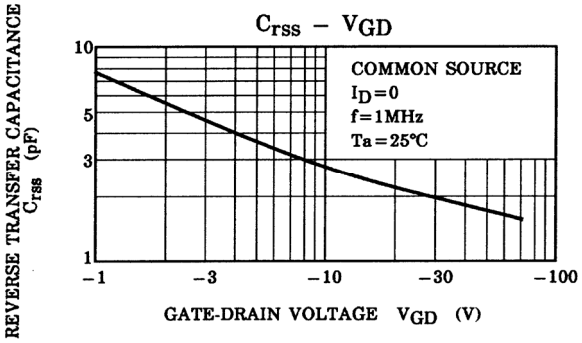
$V_{GS(OFF)} - I_{DSS}$

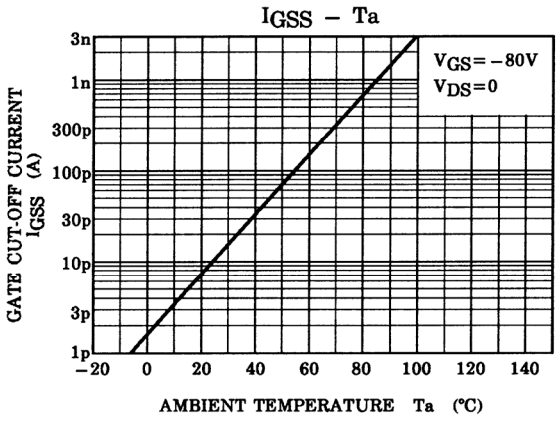


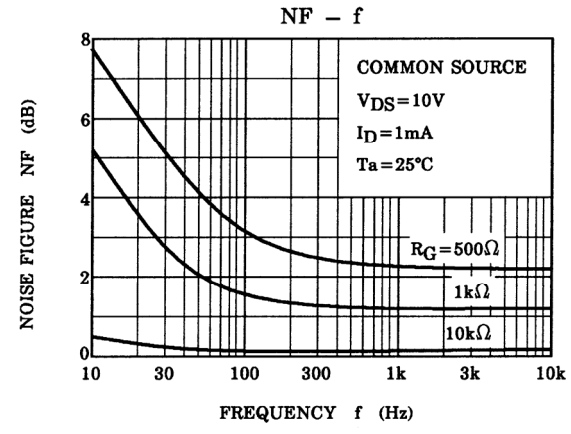
$R_{DS(ON)} - I_{DSS}$

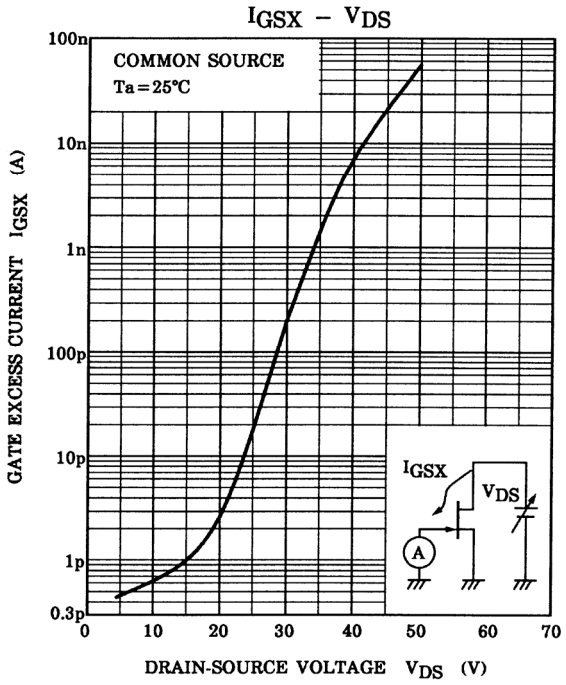


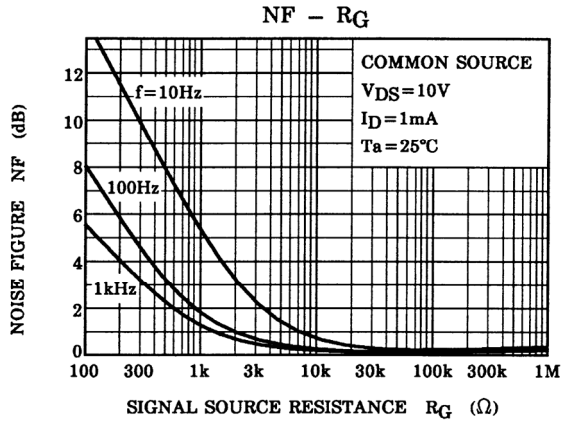

C_{iss} – V_{DS}
COMMON SOURCE
V_{GS}=0
f=1MHz
Ta=25°C
INPUT CAPACITANCE C_{iss} (pF)
DRAIN-SOURCE VOLTAGE V_{DS} (V)

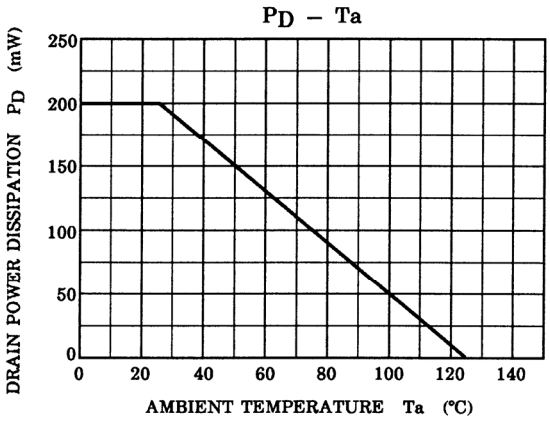

C_{rss} – V_{GD}
COMMON SOURCE
I_D=0
f=1MHz
Ta=25°C
REVERSE TRANSFER CAPACITANCE C_{rss} (pF)
GATE-DRAIN VOLTAGE V_{GD} (V)


I_{GSS} – Ta
V_{GS}=−80V
V_{DS}=0
GATE CUT-OFF CURRENT I_{GSS} (A)
AMBIENT TEMPERATURE Ta (°C)


NF – f
COMMON SOURCE
V_{DS}=10V
I_D=1mA
Ta=25°C
R_G=500Ω
1kΩ
10kΩ
NOISE FIGURE NF (dB)
FREQUENCY f (Hz)


I_{GSX} – V_{DS}
COMMON SOURCE
Ta=25°C
I_{GSX}
V_{DS}
A
GATE EXCESS CURRENT I_{GSX} (A)
DRAIN-SOURCE VOLTAGE V_{DS} (V)


NF – R_G
COMMON SOURCE
V_{DS}=10V
I_D=1mA
Ta=25°C
f=10Hz
100Hz
1kHz
NOISE FIGURE NF (dB)
SIGNAL SOURCE RESISTANCE R_G (Ω)


P_D – Ta
DRAIN POWER DISSIPATION P_D (mW)
AMBIENT TEMPERATURE Ta (°C)

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20070701-EN GENERAL

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