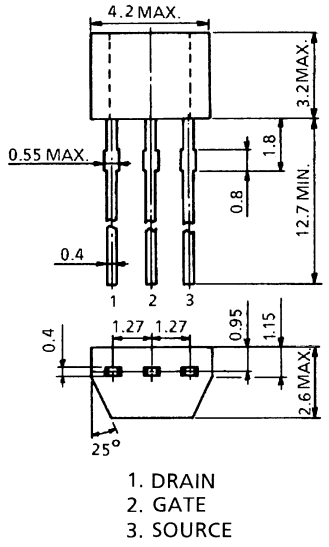
TOSHIBA Field Effect Transistor Silicon P Channel Junction Type

2SJ107

For Audio Amplifier, Analog Switch, Constant Current and Impedance Converter Applications

- High input impedance: I_{GSS} = 1.0 nA (max) (V_{GS} = 25 V)
- Low $R_{DS\ (ON)}$: $R_{DS\ (ON)}$ = 40 Ω (typ.)
- Small package
- Complementary to 2SK366

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-4E1C

Weight: 0.13 g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Gate-drain voltage	V_{GDS}	25	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).

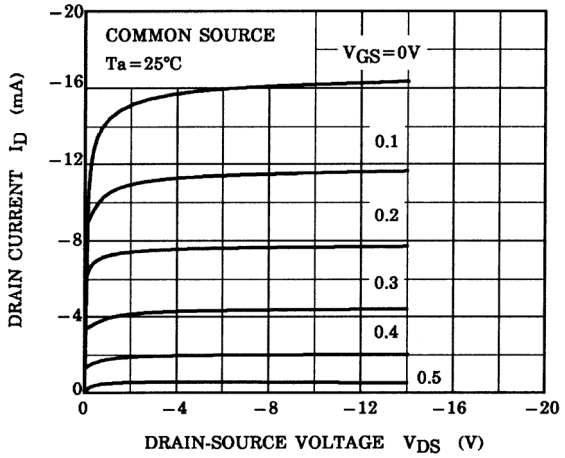
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate cut-off current	I_{GSS}	V_{GS} = 25 V, V_{DS} = 0	—	—	1.0	nA
Gate-drain breakdown voltage	$V_{(BR)\ GDS}$	V_{DS} = 0, I_G = 100 μA	25	—	—	V
Drain current	I_{DSS} (Note 1)	V_{DS} = −10 V, V_{GS} = 0	−2.6	—	−20	mA
Gate-source cut-off voltage	$V_{GS\ (OFF)}$	V_{DS} = −10 V, I_D = −0.1 μA	0.2	—	2.0	V
Forward transfer admittance	$\|Y_{fs}\|$	V_{DS} = −10 V, V_{GS} = 0, f = 1 kHz (Note 2)	12	30	—	mS
Input capacitance	C_{iss}	V_{DS} = −10 V, V_{GS} = 0, f = 1 MHz	—	105	—	pF
Reverse transfer capacitance	C_{rss}	V_{GD} = 10 V, I_D = 0, f = 1 MHz	—	32	—	pF
Drain-source ON resistance	$R_{DS\ (ON)}$	V_{DS} = −10 mV, V_{GS} = 0 (Note 2)	—	40	—	Ω

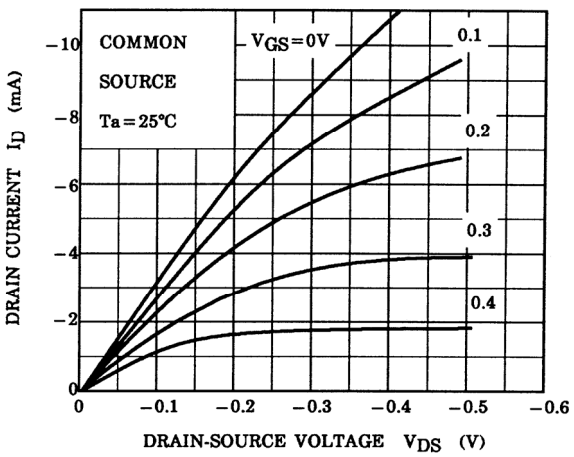
Note 1: I_{DSS} classification GR: −2.6~−6.5 mA, BL: −6~−12 mA, V: −10~−20 mA

Note 2: Condition of the typical value I_{DSS} = −5 mA

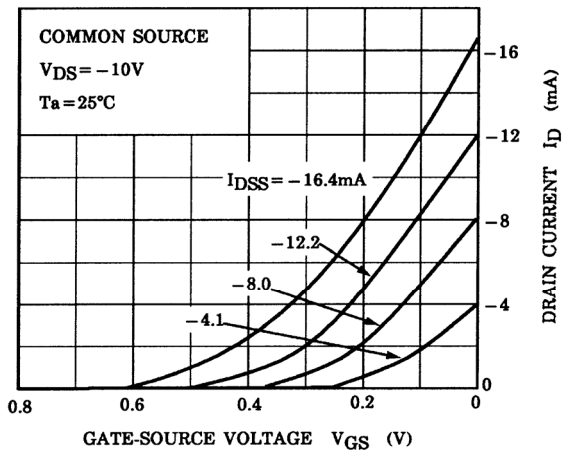
$I_D - V_{DS}$



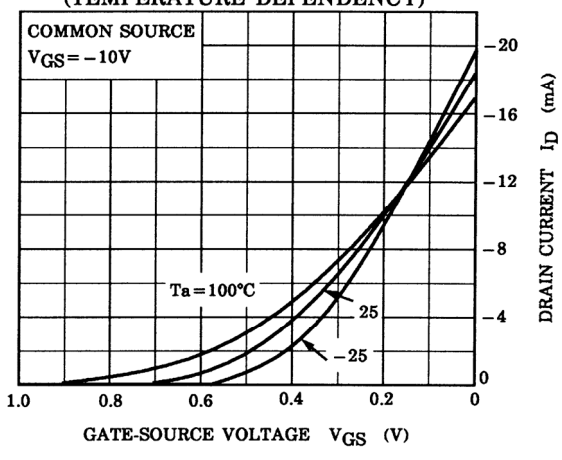
$I_D - V_{DS}$ (LOW VOLTAGE REGION)



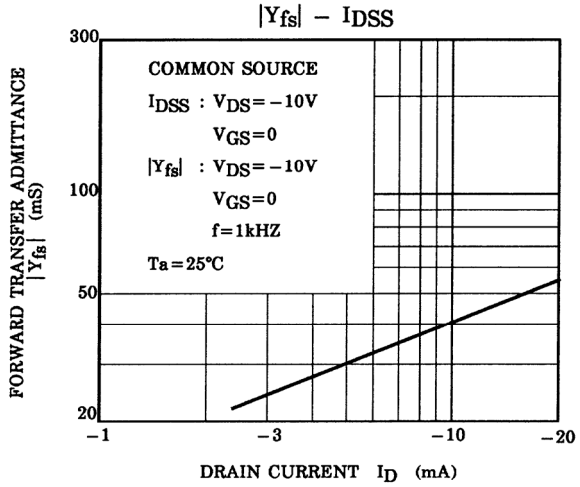
$I_D - V_{GS}$



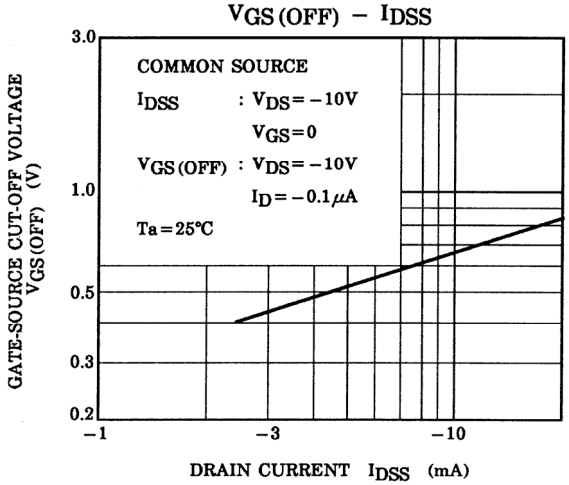
$I_D - V_{GS}$ (TEMPERATURE DEPENDENCY)



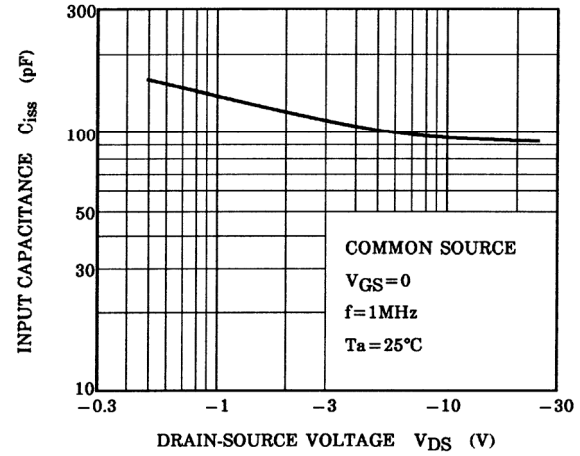
$|Y_{fs}| - I_{DSS}$



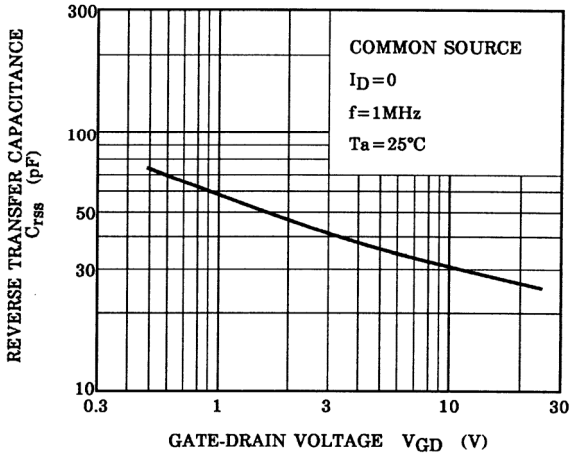
$V_{GS(OFF)} - I_{DSS}$



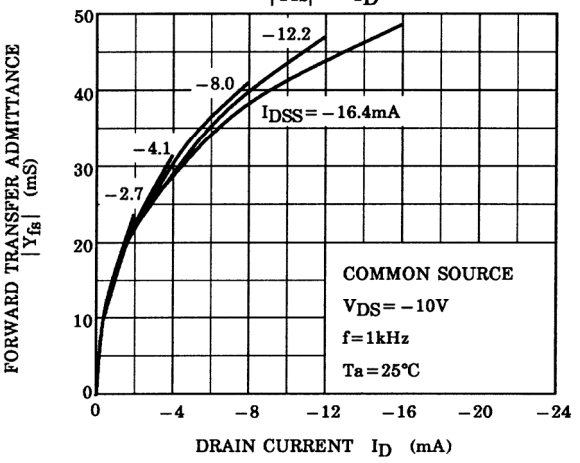
C_{iss} – V_{DS}



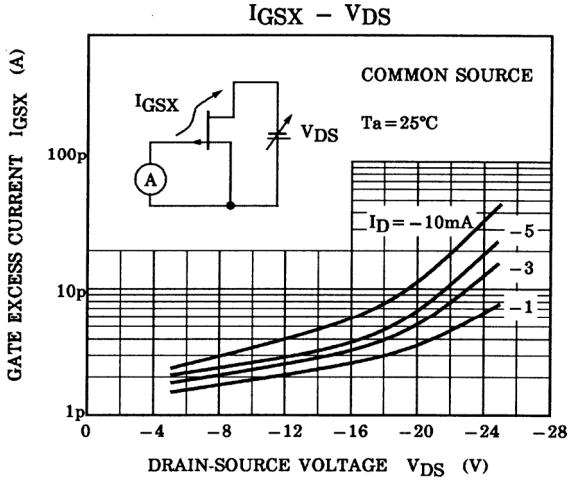
C_{rss} – V_{GD}



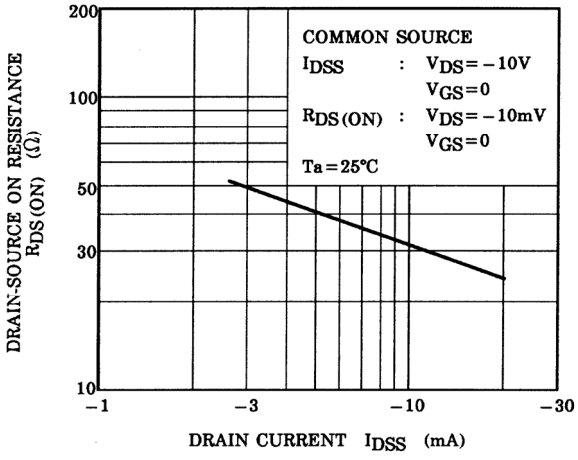
$|Y_{fs}|$ – I_D



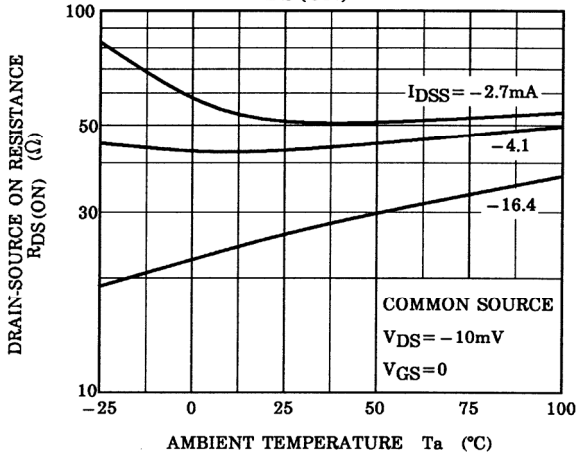
I_{GSX} – V_{DS}

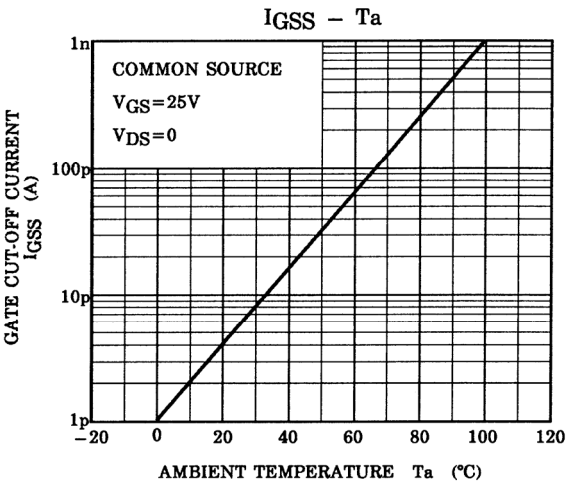


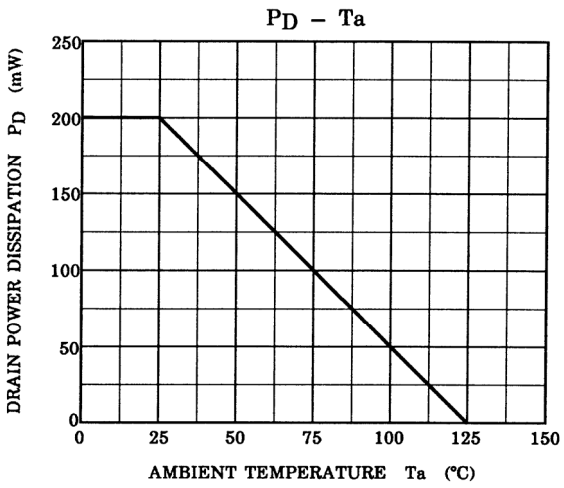
$R_{DS(ON)}$ – I_{DSS}



$R_{DS(ON)}$ – Ta




I_{GSS} – Ta
COMMON SOURCE
V_{GS}=25V
V_{DS}=0
GATE CUT-OFF CURRENT I_{GSS} (A)
1n
100p
10p
1p
−20
0
20
40
60
80
100
120
AMBIENT TEMPERATURE Ta (°C)


P_D – Ta
DRAIN POWER DISSIPATION P_D (mW)
250
200
150
100
50
0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE Ta (°C)

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20070701-EN GENERAL

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