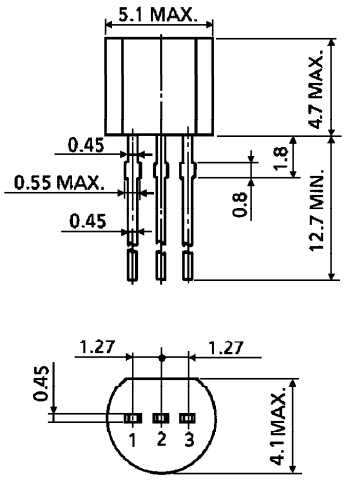
TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

2SK117

LOW NOISE AUDIO AMPLIFIER APPLICATIONS

Unit in mm

- High $|Y_{fs}|$: $|Y_{fs}|=15$mS (Typ.) ($V_{DS}=10$V, $V_{GS}=0$)
- High Breakdown Voltage : $V_{GDS}=-50$V
- Low Noise : NF = 1.0dB (Typ.) ($V_{DS}=10$V, $I_D=0.5$mA, f = 1kHz, $R_G=1$kΩ)
- High Input Impedance : $I_{GSS}=-1$nA (Max.) ($V_{GS}=-30$V)



1. DRAIN
2. GATE
3. SOURCE

JEDEC	TO-92
EIAJ	SC-43
TOSHIBA	2-5F1D

Weight : 0.21g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate-Drain Voltage	V_{GDS}	−50	V
Gate Current	I_G	10	mA
Drain Power Dissipation	P_D	300	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Cut-off Current	I_{GSS}	$V_{GS}=-30$V, $V_{DS}=0$	—	—	−1.0	nA
Gate-Drain Breakdown Voltage	$V_{(BR)GDS}$	$V_{DS}=0$, $I_G=-100\mu$A	−50	—	—	V
Drain Current	I_{DSS} (Note)	$V_{DS}=10$V, $V_{GS}=0$	1.2	—	14	mA
Gate-Source Cut-off Voltage	$V_{GS(OFF)}$	$V_{DS}=10$V, $I_D=0.1\mu$A	−0.2	—	−1.5	V
Forward Transfer Admittance	$\|Y_{fs}\|$	$V_{DS}=10$V, $V_{GS}=0$, f = 1kHz	4.0	15	—	mS
Input Capacitance	C_{iss}	$V_{DS}=10$V, $V_{GS}=0$, f = 1MHz	—	13	—	pF
Reverse Transfer Capacitance	C_{rss}	$V_{GD}=-10$V, $I_D=0$, f = 1MHz	—	3	—	pF
Noise Figure	NF (1)	$V_{DS}=10$V, $R_G=1$kΩ, $I_D=0.5$mA, f = 10Hz	—	5	10	dB
	NF (2)	$V_{DS}=10$V, $R_G=1$kΩ, $I_D=0.5$mA, f = 1kHz	—	1	2	

Note : I_{DSS} Classification Y : 1.2~3.0mA, GR : 2.6~6.5mA, BL : 6~14mA

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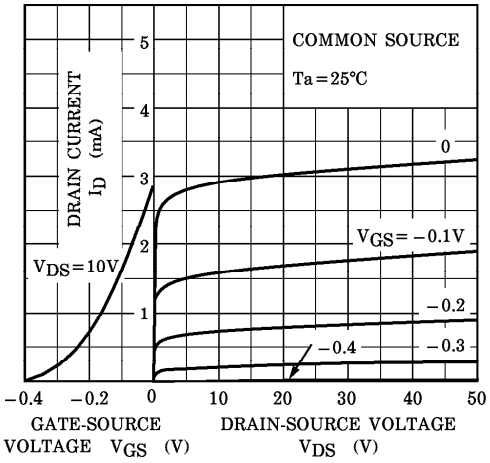
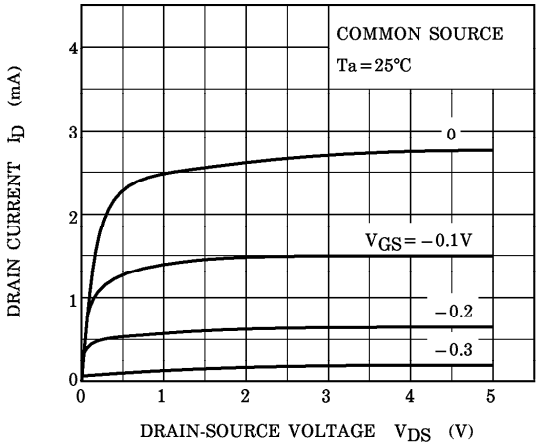
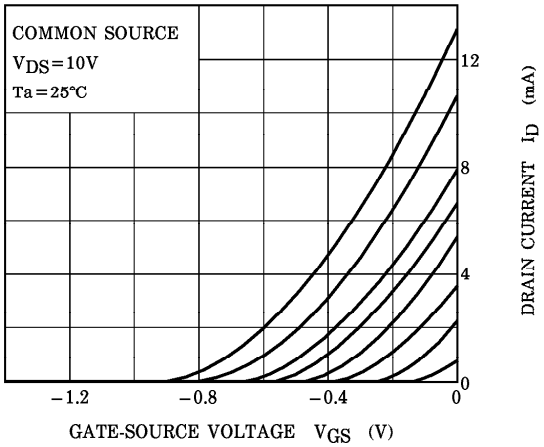
STATIC CHARACTERISTICS



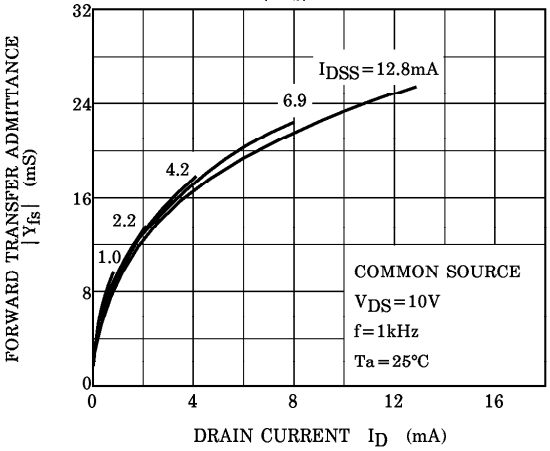
I_D – V_{DS} (LOW VOLTAGE REGION)



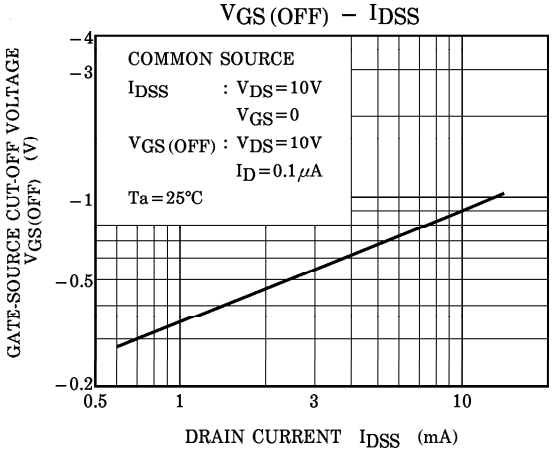
I_D – V_{GS}



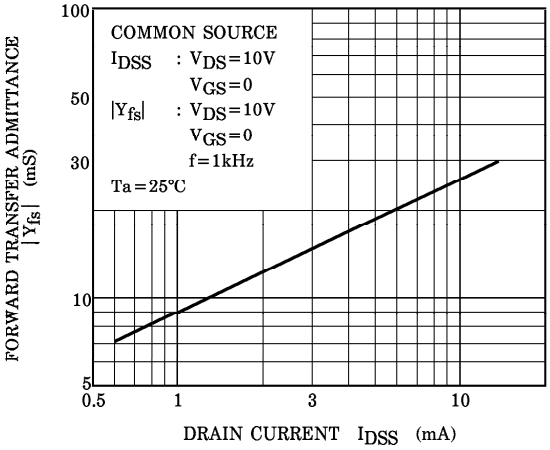
$|Y_{fs}|$ – I_D



$V_{GS(OFF)}$ – I_{DSS}



$|Y_{fs}|$ – I_{DSS}



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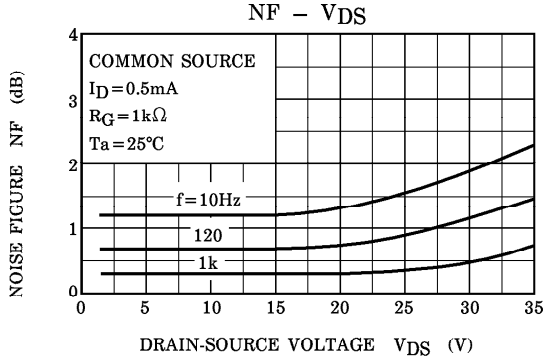
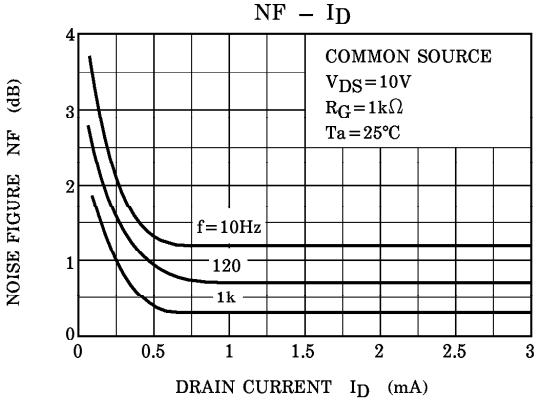
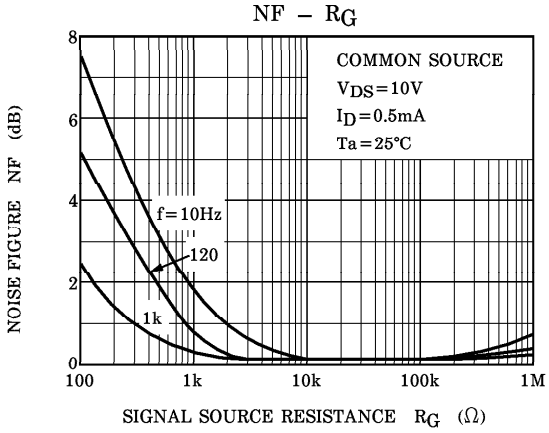
NF – V_{DS}



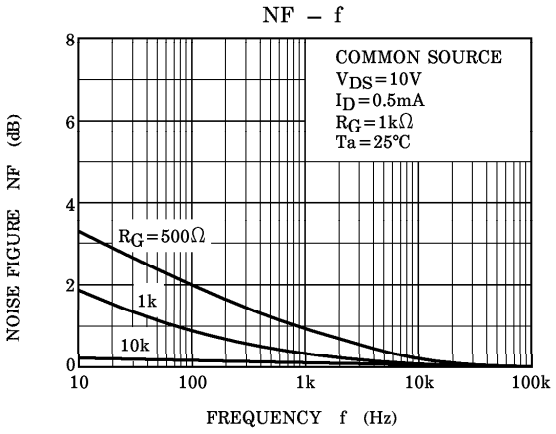
NF – I_D



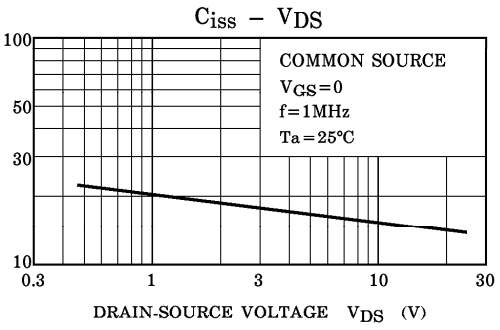
NF – R_G



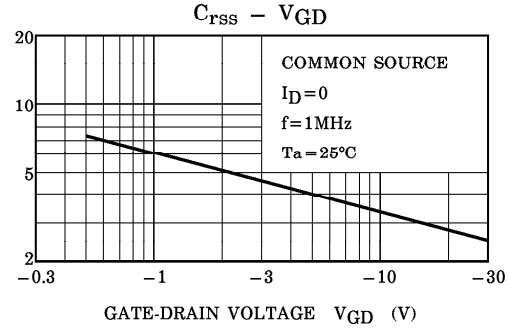
NF – f



C_{iss} – V_{DS}



C_{rss} – V_{GD}



P_D – Ta