

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

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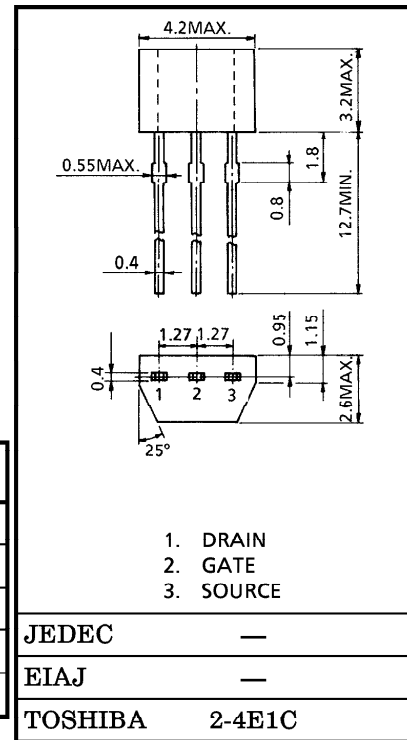
LOW NOISE AUDIO AMPLIFIER APPLICATIONS

Unit in mm

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

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	200	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	-55~125	°C



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

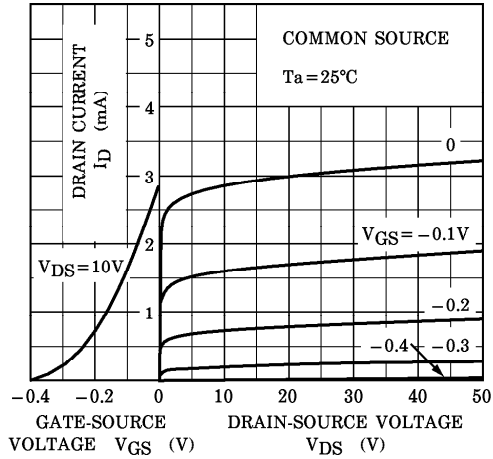
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Cut-off Current	I_{GSS}	$V_{GS}=-30\text{V, }V_{DS}=0$	—	—	-1.0	nA
Gate-Drain Breakdown Voltage	$V_{(BR)GDS}$	$V_{DS}=0, I_G=-100\mu\text{A}$	-50	—	—	V
Drain Current	I_{DSS} (Note)	$V_{DS}=10\text{V, }V_{GS}=0$	1.2	—	14.0	mA
Gate-Source Cut-off Voltage	$V_{GS(OFF)}$	$V_{DS}=10\text{V, }I_D=0.1\mu\text{A}$	-0.2	—	-1.5	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS}=10\text{V, }V_{GS}=0, f=1\text{kHz}$	4.0	15	—	mS
Input Capacitance	C_{iss}	$V_{DS}=10\text{V, }V_{GS}=0, f=1\text{MHz}$	—	13	—	pF
Reverse Transfer Capacitance	C_{rss}	$V_{DG}=10\text{V, }I_D=0, f=1\text{MHz}$	—	3	—	pF
Noise Figure	NF (1)	$V_{DS}=10\text{V, }R_G=1\text{k}\Omega, I_D=0.5\text{mA, }f=10\text{Hz}$	—	5	10	dB
	NF (2)	$V_{DS}=10\text{V, }R_G=1\text{k}\Omega, I_D=0.5\text{mA, }f=1\text{kHz}$	—	1	2	

Note : I_{DSS} Classification Y : 1.2~3.0mA, GR : 2.6~6.5mA, BL : 6.0~14.0mA

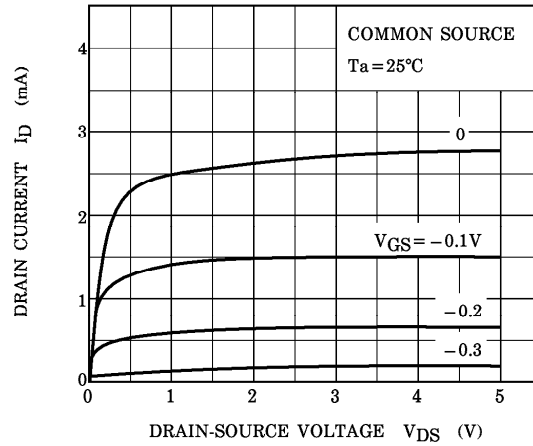
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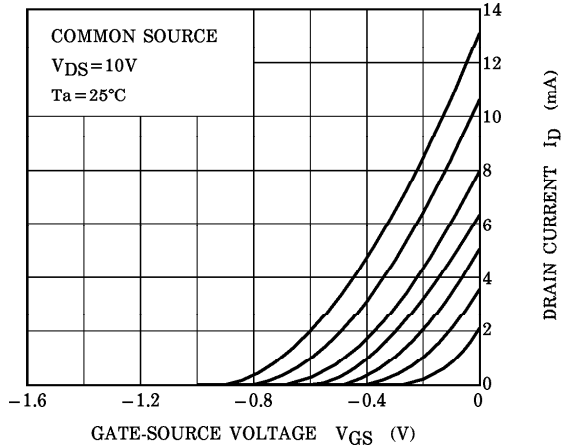
STATIC CHARACTERISTICS



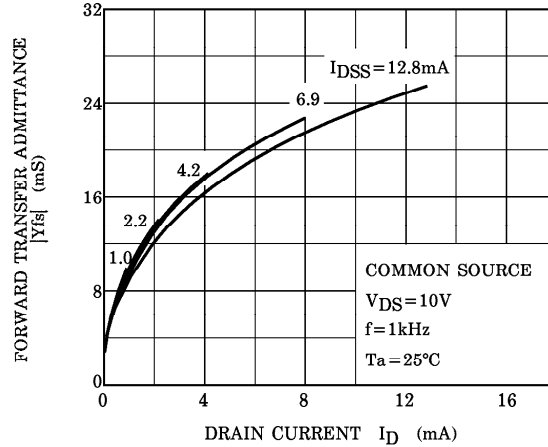
I_D - V_{DS} (LOW VOLTAGE REGION)



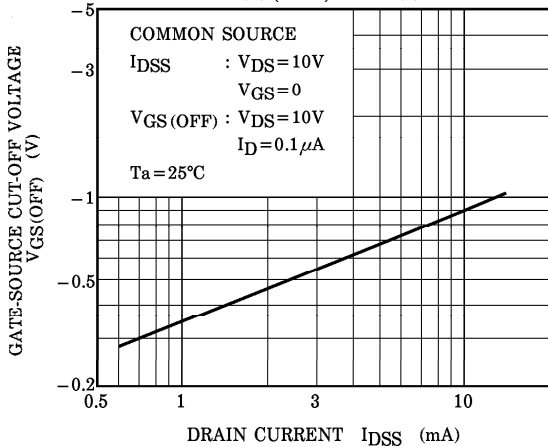
I_D - V_{GS}



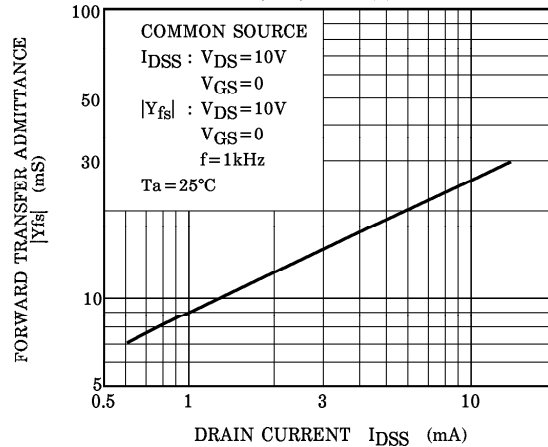
|Y_{fs}| - I_D



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



|Y_{fs}| - I_{DSS}



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