

TOSHIBA FIELD EFFECT TRANSISTOR SILICON MONOLITHIC P CHANNEL JUNCTION TYPE

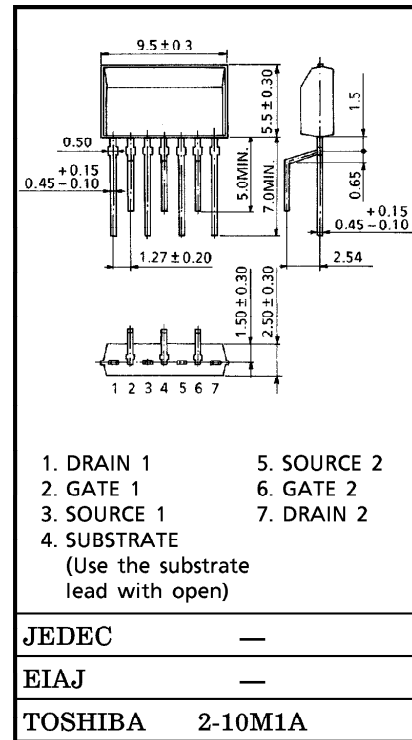
2SJ109

LOW NOISE AUDIO AMPLIFIER APPLICATIONS

DIFFERENTIAL AMPLIFIER APPLICATIONS

- 1 Chip Dual Type
- High $|Y_{fs}|$: $|Y_{fs}| = 22\text{mS (Typ.)}$
 $(V_{DS} = -10\text{V}, V_{GS} = 0, f = 1\text{kHz}, I_{DSS} = -3\text{mA})$
- Good Pair Characteristics : $|V_{GS1} - V_{GS2}| = 20\text{mV (Max.)}$
 $(V_{DS} = -10\text{V}, I_D = -1\text{mA})$
- Very Low Noise : $NF = 0.5\text{dB (Typ.)}$
 $(V_{DS} = -10\text{V}, I_D = -1\text{mA}, R_G = 1\text{k}\Omega, f = 1\text{kHz})$
- Very High Input Impedance : $I_{GSS} = 1.0\text{nA (Max.)}$
 $(V_{GS} = 30\text{V}, V_{DS} = 0)$
- Complementary to 2SK389

Unit in mm



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Gate-Drain Voltage	V_{GDS}	30	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

Weight : 0.37g (Typ.)

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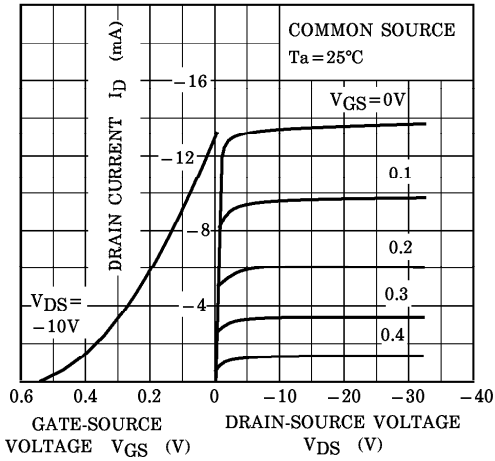
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

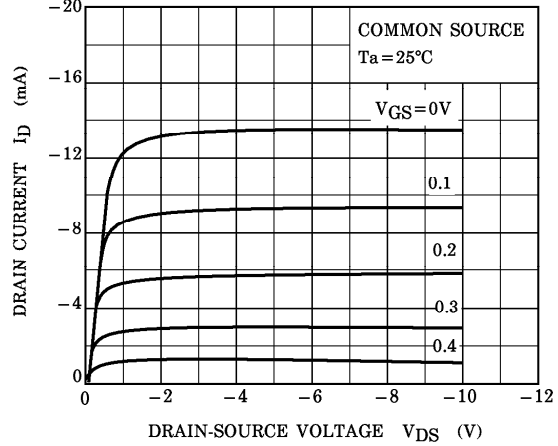
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Cut-off Current	I _{GSS}	V _{GS} = 30V, V _{DS} = 0	—	—	1.0	nA
Gate-Drain Breakdown Voltage	V (BR) GDS	V _{DS} = 0, I _G = 100μA	30	—	—	V
Drain Current	I _{DSS} *	V _{DS} = -10V, V _{GS} = 0	-2.6	—	-20	mA
Gate-Source Cut-off Voltage	V _{GS} (OFF)	V _{DS} = -10V, I _D = -0.1μA	0.2	—	2.0	V
Forward Transfer Admittance	Y _{fs}	V _{DS} = -10V, V _{GS} = 0, f = 1kHz, I _{DSS} = -3mA	8	22	—	mS
Drain Current Ratio	I _{DSS} / I _{DSS} (small) (large)	V _{DS} = -10V, V _{GS} = 0	0.9	—	—	—
Forward Transfer Admittance Ratio	Y _{fs} / Y _{fs} (small) (large)	V _{DS} = -10V, V _{GS} = 0, f = 1kHz	0.9	—	—	—
Differential Gate-Source Voltage	V _{GS1} - V _{GS2}	V _{DS} = -10V, I _D = -1mA	—	—	20	mV
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0, f = 1MHz	—	95	—	pF
Reverse Transfer Capacitance	C _{rss}	V _{GD} = 10V, I _D = 0, f = 1MHz	—	25	—	pF
Noise Figure	NF (1)	V _{DS} = -10V, I _D = -1mA, R _G = 1kΩ, f = 10Hz	—	1.5	11	dB
	NF (2)	V _{DS} = -10V, I _D = -1mA, R _G = 1kΩ, f = 1kHz	—	0.5	2	

* I_{DSS} Classification : GR = -2.6 ~ -6.5mA, BL = -6 ~ -12mA, V = -10 ~ -20mA

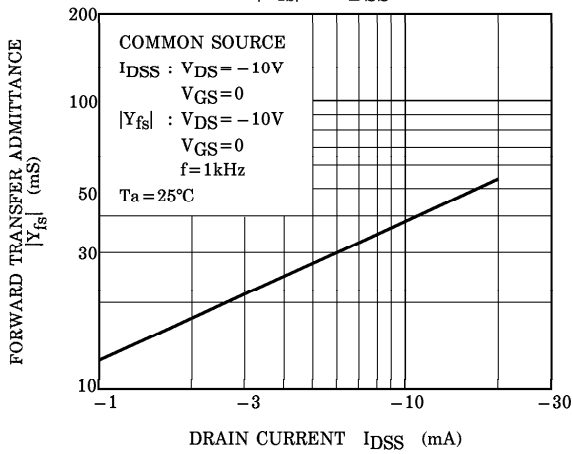
STATIC CHARACTERISTICS



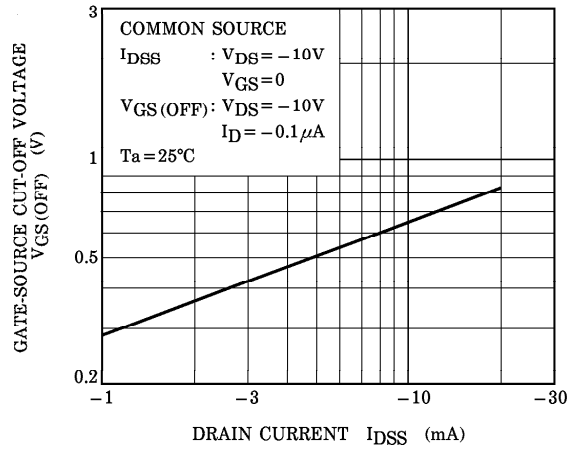
ID - VDS (LOW VOLTAGE REGION)



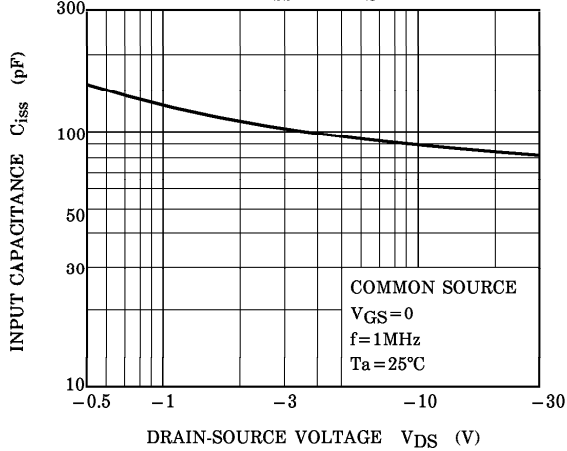
|Yfs| - IDSS



VGS(OFF) - IDSS



Ciss - VDS



Crss - VGD

