

TOSHIBA FIELD EFFECT TRANSISTOR SILICON P CHANNEL JUNCTION TYPE

## 2SJ108

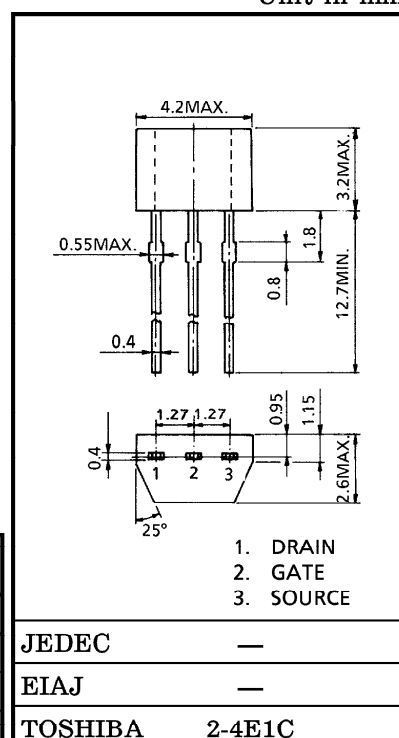
LOW NOISE AUDIO AMPLIFIER APPLICATIONS

Unit in mm

- Recommended for First Stages of EQ Amplifiers and MC Head Amplifiers.
- High  $|Y_{fs}|$   
:  $|Y_{fs}| = 22\text{mS}$  (Typ.) ( $V_{DS} = -10\text{V}$ ,  $V_{GS} = 0$ ,  $I_{DSS} = -3\text{mA}$ )
- Low Noise  
:  $E_n = 0.95\text{nV} / \sqrt{\text{Hz}}$  (Typ.) ( $V_{DS} = -10\text{V}$ ,  $I_D = -1\text{mA}$ ,  $f = 1\text{kHz}$ )
- High Input Impedance :  $I_{GSS} = 1.0\text{nA}$  (Max.) ( $V_{GS} = 25\text{V}$ )
- Complementary to 2SK370
- Small Package

MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

| CHARACTERISTIC            | 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     | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{stg}$ | -55~125 | $^\circ\text{C}$ |



JEDEC

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EIAJ

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TOSHIBA

2-4E1C

Weight : 0.13g (Typ.)

ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

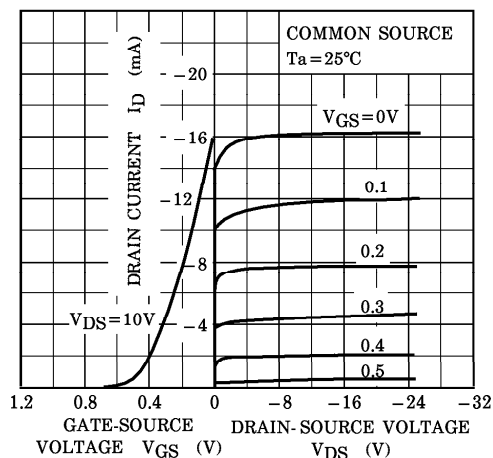
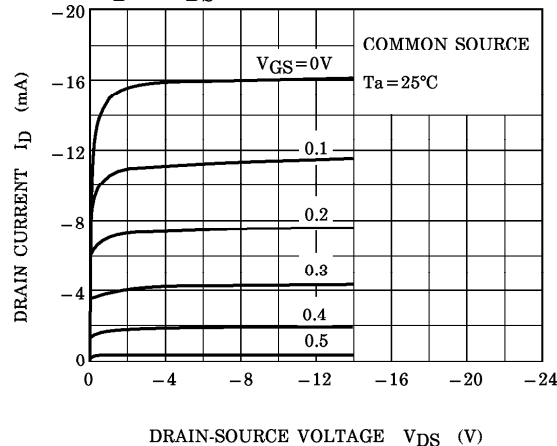
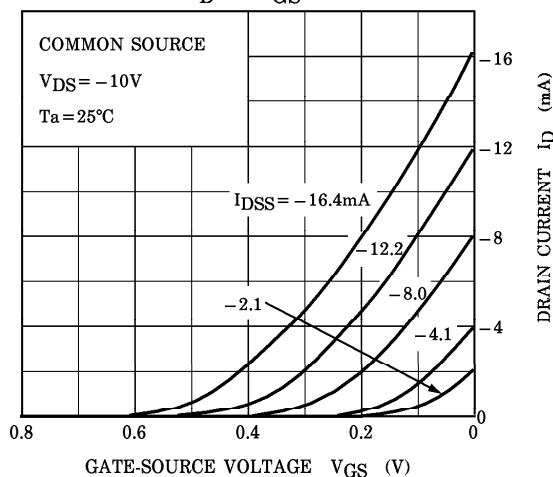
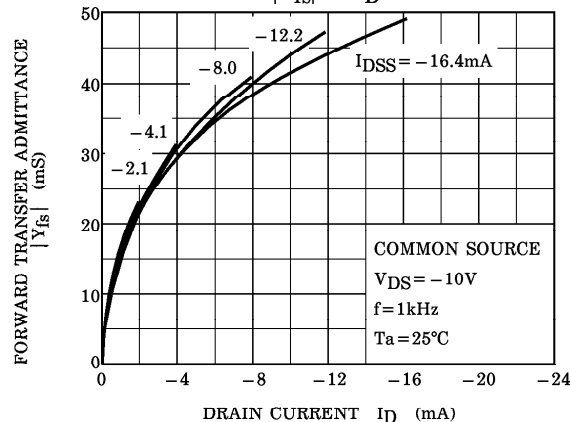
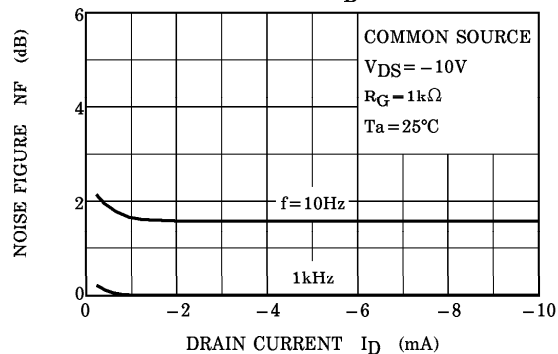
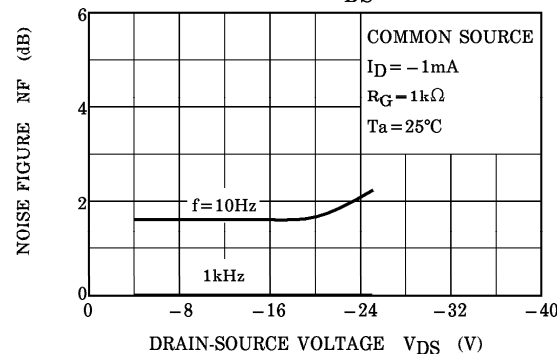
| CHARACTERISTIC               | SYMBOL               | TEST CONDITION                                                                                | MIN. | TYP. | MAX. | UNIT |
|------------------------------|----------------------|-----------------------------------------------------------------------------------------------|------|------|------|------|
| Gate Cut-off Current         | $I_{GSS}$            | $V_{GS} = 25\text{V}$ , $V_{DS} = 0$                                                          | —    | —    | 1.0  | nA   |
| Gate-Drain Breakdown Voltage | $V_{(BR)GDS}$        | $V_{DS} = 0$ , $I_G = 100\mu\text{A}$                                                         | 25   | —    | —    | V    |
| Drain Current                | $I_{DSS}$ (Note)     | $V_{DS} = -10\text{V}$ , $V_{GS} = 0$                                                         | -2.6 | —    | -20  | mA   |
| Gate-Source Cut-off Voltage  | $V_{GS}(\text{OFF})$ | $V_{DS} = -10\text{V}$ , $I_D = -0.1\mu\text{A}$                                              | 0.15 | —    | 2.0  | V    |
| Forward Transfer Admittance  | $ Y_{fs} $           | $V_{DS} = -10\text{V}$ , $V_{GS} = 0$ ,<br>$f = 1\text{kHz}$                                  | 8    | 22   | —    | mS   |
| Input Capacitance            | $C_{iss}$            | $V_{DS} = -10\text{V}$ , $V_{GS} = 0$ ,<br>$f = 1\text{MHz}$                                  | —    | 105  | —    | pF   |
| Reverse Transfer Capacitance | $C_{rss}$            | $V_{GD} = 10\text{V}$ , $I_D = 0$ ,<br>$f = 1\text{MHz}$                                      | —    | 32   | —    | pF   |
| Noise Figure                 | NF (1)               | $V_{DS} = -10\text{V}$ , $I_D = -1\text{mA}$ ,<br>$R_G = 1\text{k}\Omega$ , $f = 10\text{Hz}$ | —    | 1.0  | 10   | dB   |
|                              | NF (2)               | $V_{DS} = -10\text{V}$ , $I_D = -1\text{mA}$ ,<br>$R_G = 1\text{k}\Omega$ , $f = 1\text{kHz}$ | —    | 0.5  | 2    |      |

Note :  $I_{DSS}$  ClassificationGR : -2.6~-6.5mA, BL : -6.0~-12mA,  
V : -10~-20mA

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STATIC CHARACTERISTICS

 $I_D - V_{DS}$  (LOW VOLTAGE REGION) $I_D - V_{GS}$  $|Y_{fs}| - I_D$ NF -  $I_D$ NF -  $V_{DS}$ 

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