

TOSHIBA Field Effect Transistor Silicon N Channel Junction Type

# 2SK118

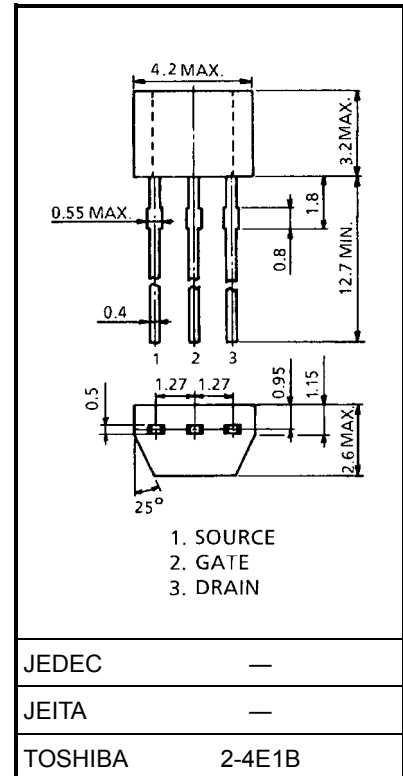
General Purpose and Impedance Converter and Condenser Microphone Applications

- High breakdown voltage:  $V_{GDS} = -50$  V
- High input impedance:  $I_{GSS} = -1$  nA (max) ( $V_{GS} = -30$  V)
- Low noise:  $NF = 0.5$ dB (typ.) ( $R_G = 100$  k $\Omega$ ,  $f = 120$  Hz)
- Small package

### Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

| Characteristics           | Symbol    | Rating  | Unit             |
|---------------------------|-----------|---------|------------------|
| Gate-drain voltage        | $V_{GDS}$ | -50     | V                |
| Gate current              | $I_G$     | 10      | mA               |
| Drain power dissipation   | $P_D$     | 100     | mW               |
| Junction temperature      | $T_j$     | 125     | $^\circ\text{C}$ |
| Storage temperature range | $T_{stg}$ | -55~125 | $^\circ\text{C}$ |

Unit: mm



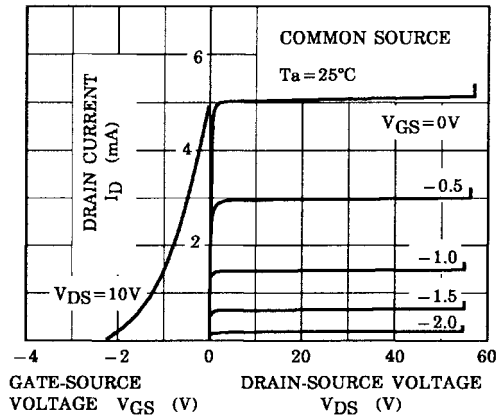
Weight: 0.13 g (typ.)

### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

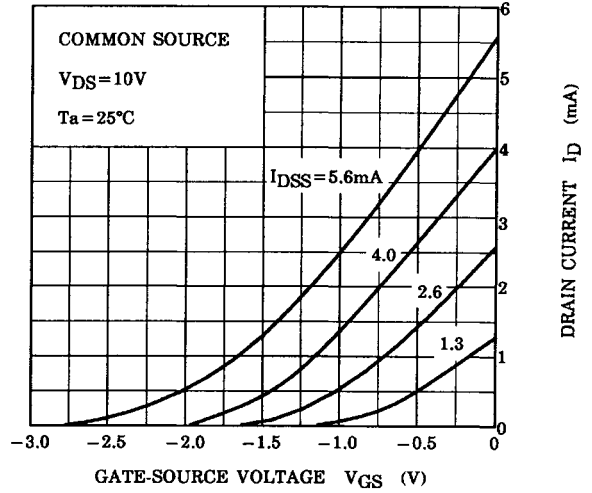
| Characteristics              | Symbol              | Test Condition  | Min  | Typ. | Max  | Unit |
|------------------------------|---------------------|---|------|------|------|------|
| Gate cut-off current         | $I_{GSS}$           | $V_{GS} = -30$ V, $V_{DS} = 0$  | —    | —    | -1.0 | nA   |
| Gate-drain breakdown voltage | $V_{(BR)GDS}$       | $V_{DS} = 0$ , $I_G = -100$ $\mu\text{A}$                             | -50  | —    | —    | V    |
| Drain current                | $I_{DSS}$<br>(Note) | $V_{DS} = 10$ V, $V_{GS} = 0$   | 0.3  | —    | 6.5  | mA   |
| Gate-source cut-off voltage  | $V_{GS(OFF)}$       | $V_{DS} = 10$ V, $I_D = 0.1$ $\mu\text{A}$                            | -0.4 | —    | -5.0 | V    |
| Forward transfer admittance  | $ Y_{fs} $          | $V_{DS} = 10$ V, $V_{GS} = 0$ , $f = 1$ kHz                           | 1.2  | —    | —    | mS   |
| Input capacitance            | $C_{iss}$           | $V_{DS} = 10$ V, $V_{GS} = 0$ , $f = 1$ MHz                           | —    | 8.2  | —    | pF   |
| Reverse transfer capacitance | $C_{rss}$           | $V_{GD} = -10$ V, $I_D = 0$ , $f = 1$ MHz                             | —    | 2.6  | —    | pF   |
| Noise figure                 | NF                  | $V_{DS} = 15$ V, $V_{GS} = 0$ , $R_G = 100$ k $\Omega$ , $f = 120$ Hz | —    | 0.5  | 5.0  | dB   |

Note:  $I_{DSS}$  classification R: 0.3~0.75 mA, O: 0.6~1.4 mA, Y: 1.2~3.0 mA, GR: 2.6~6.5 mA

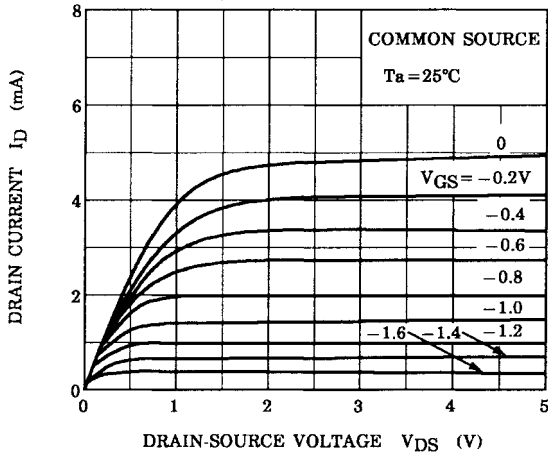
**STATIC CHARACTERISTICS**



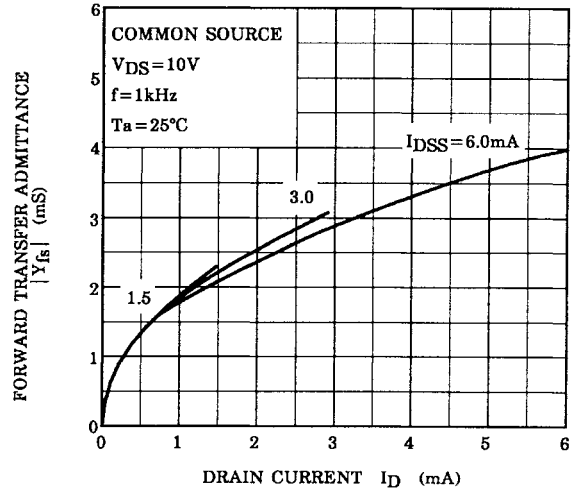
**ID - VGS**



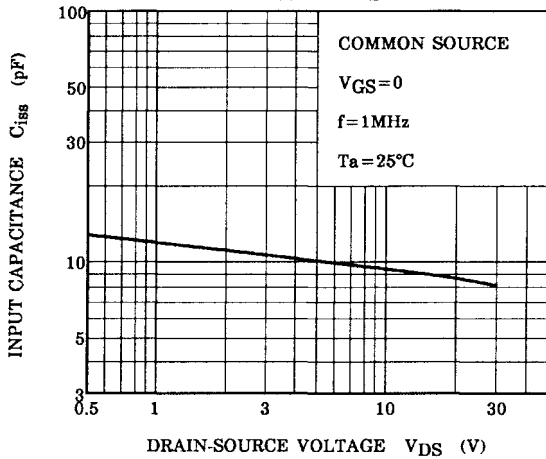
**ID - VDS (LOW VOLTAGE REGION)**



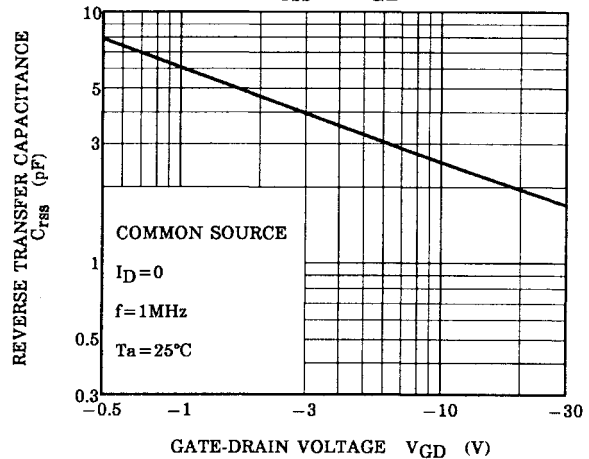
**|Yfs| - ID**

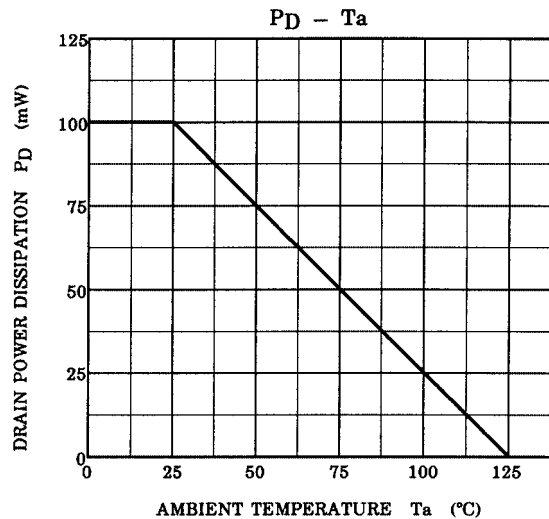
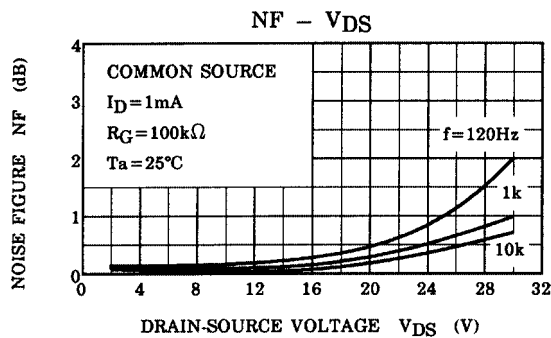
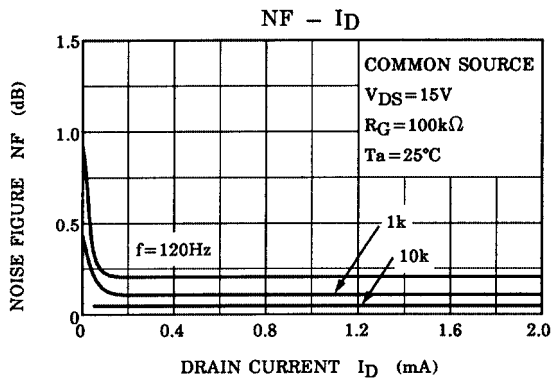
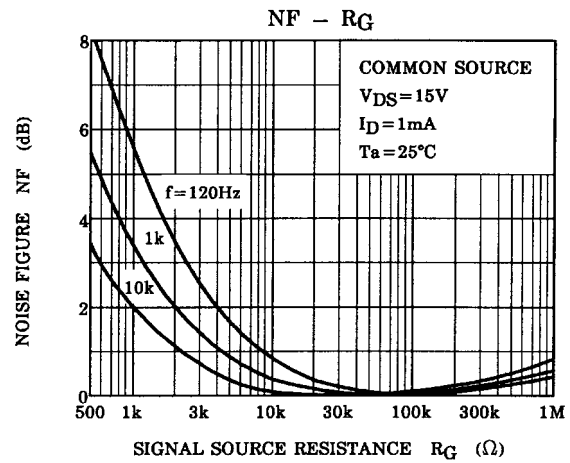
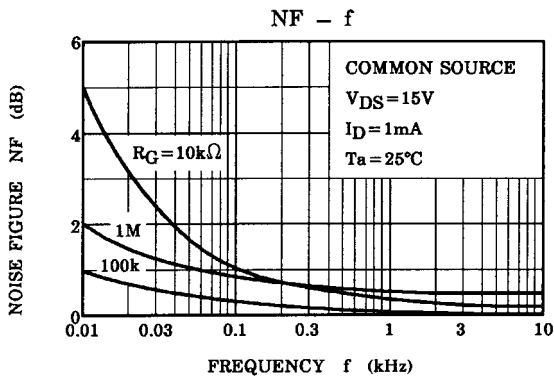
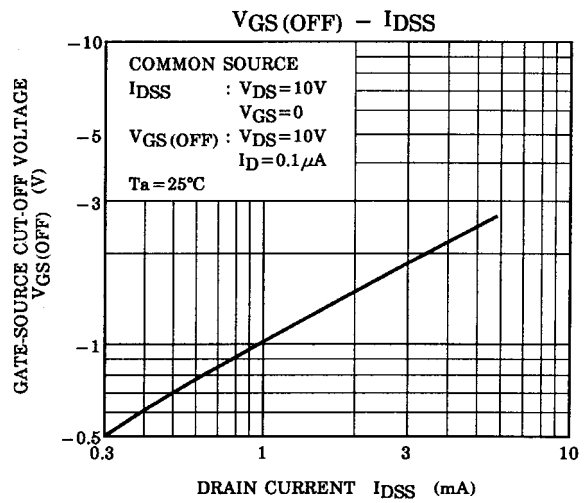
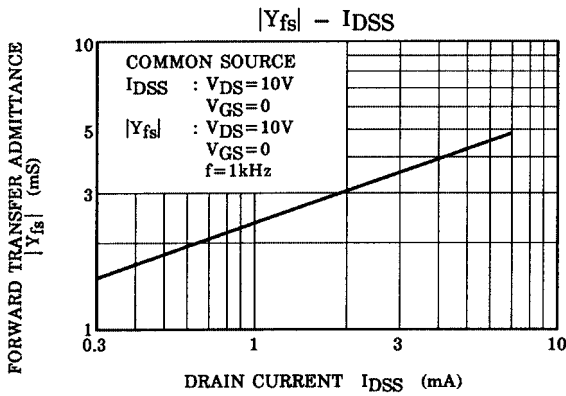


**Ciss - VDS**



**Crss - VGD**





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