

TOSHIBA FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

**2SK30ATM**

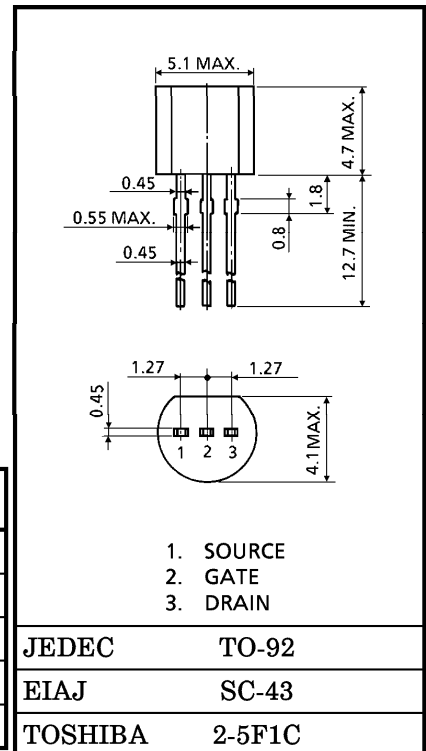
LOW NOISE PRE-AMPLIFIER, TONE CONTROL AMPLIFIER AND DC-AC  
HIGH INPUT IMPEDANCE AMPLIFIER CIRCUIT APPLICATIONS

Unit in mm

- High Breakdown Voltage :  $V_{GDS} = -50V$
- High Input Impedance :  $I_{GSS} = -1nA$  (Max.) ( $V_{GS} = -30V$ )
- Low Noise :  $NF = 0.5dB$  (Typ.)  
( $V_{DS} = 15V$ ,  $V_{GS} = 0$ ,  $R_G = 100k\Omega$ ,  
 $f = 120Hz$ )

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

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



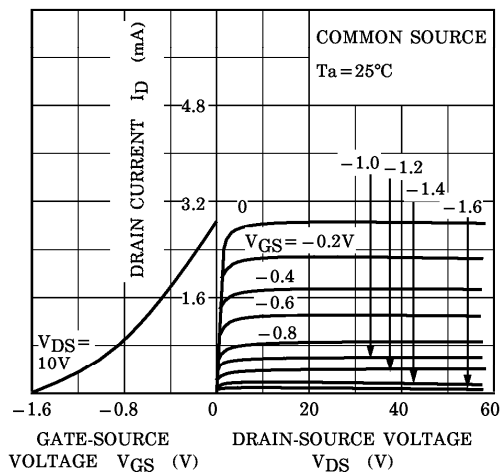
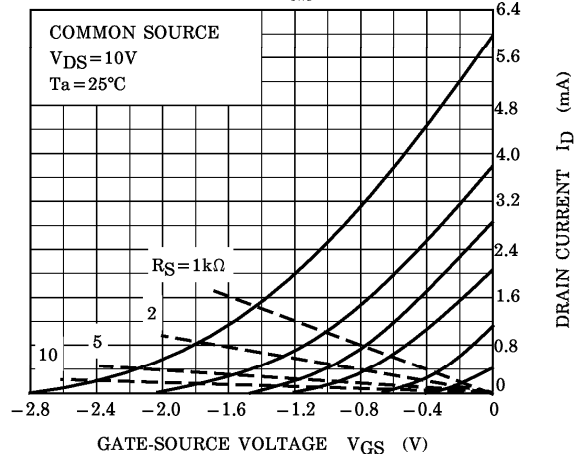
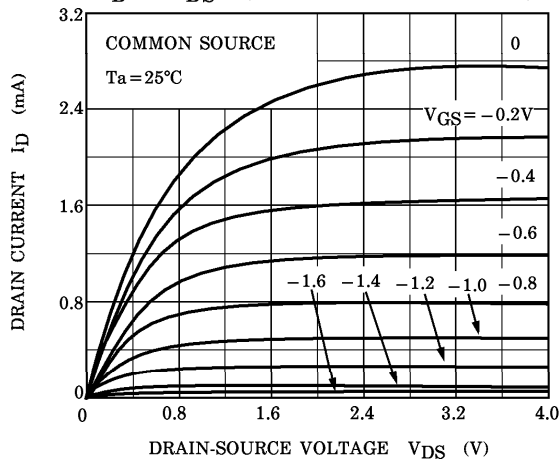
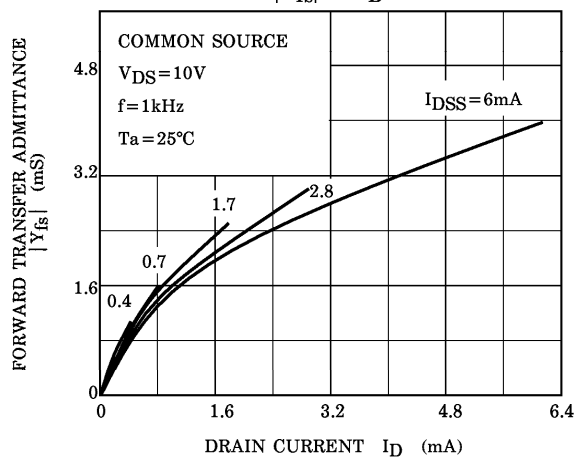
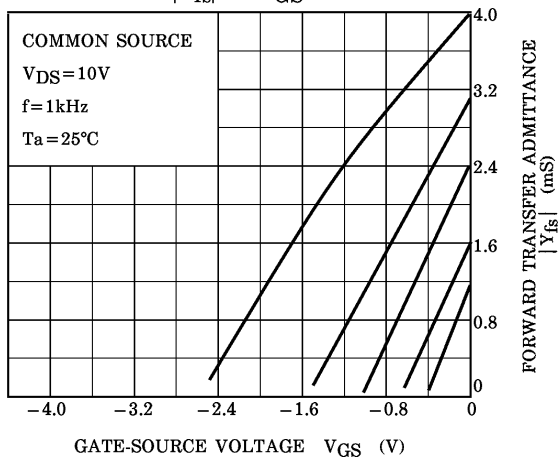
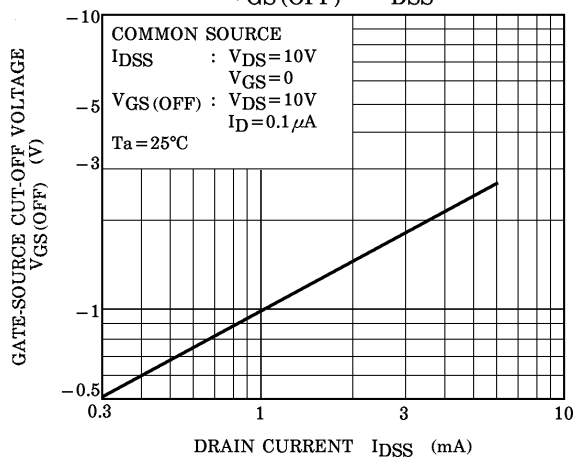
Weight : 0.21g (Typ.)

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

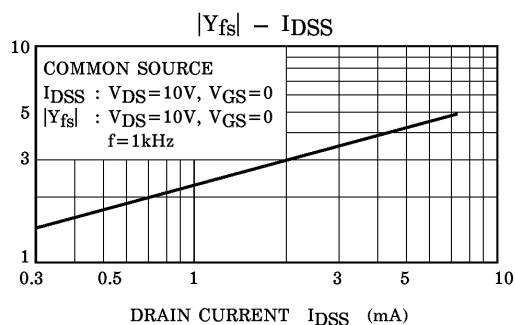
| CHARACTERISTIC               | SYMBOL              | TEST CONDITION                                                    | MIN. | TYP. | MAX. | UNIT |
|------------------------------|---------------------|-------------------------------------------------------------------|------|------|------|------|
| Gate Cut-off Current         | $I_{GSS}$           | $V_{GS} = -30V$ , $V_{DS} = 0$                                    | —    | —    | -1.0 | nA   |
| Gate-Drain Breakdown Voltage | $V_{(BR)GDS}$       | $V_{DS} = 0$ , $I_G = -100\mu A$                                  | -50  | —    | —    | V    |
| Drain Current                | $I_{DSS}$<br>(Note) | $V_{DS} = 10V$ , $V_{GS} = 0$                                     | 0.3  | —    | 6.5  | mA   |
| Gate-Source Cut-off Voltage  | $V_{GS(OFF)}$       | $V_{DS} = 10V$ , $I_D = 0.1\mu A$                                 | -0.4 | —    | -5.0 | V    |
| Forward Transfer Admittance  | $ Y_{fs} $          | $V_{DS} = 10V$ , $V_{GS} = 0$ , $f = 1kHz$                        | 1.2  | —    | —    | mS   |
| Input Capacitance            | $C_{iss}$           | $V_{GS} = 0$ , $V_{DS} = 0$ , $f = 1MHz$                          | —    | 8.2  | —    | pF   |
| Reverse Transfer Capacitance | $C_{rss}$           | $V_{GD} = -10V$ , $V_{DS} = 0$ , $f = 1MHz$                       | —    | 2.6  | —    | pF   |
| Noise Figure                 | NF                  | $V_{DS} = 15V$ , $V_{GS} = 0$<br>$R_G = 100k\Omega$ , $f = 120Hz$ | —    | 0.5  | 5.0  | dB   |

Note :  $I_{DSS}$  Classification    R: 0.30~0.75,    0: 0.60~1.40,    Y: 1.20~3.00,    GR: 2.60~6.50

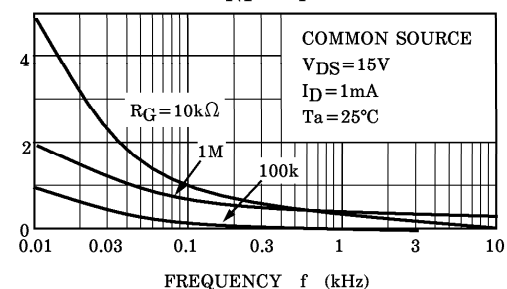
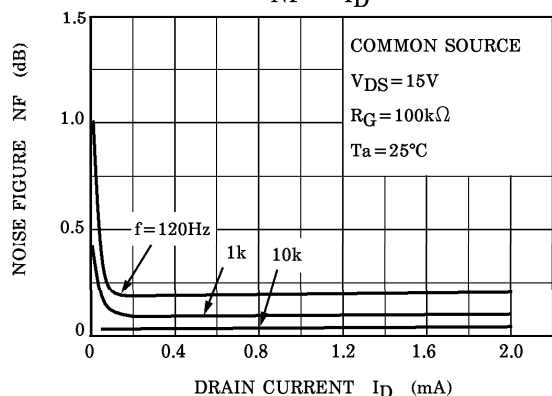
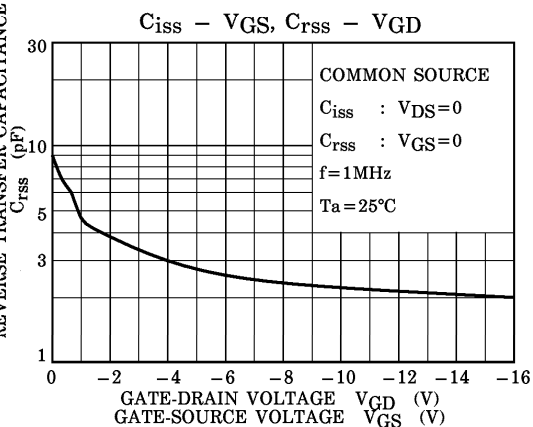
## STATIC CHARACTERISTICS

 $I_D - V_{GS}$  $I_D - V_{DS}$  (LOW VOLTAGE REGION) $|Y_{fs}| - I_D$  $|Y_{fs}| - V_{GS}$  $V_{GS}(\text{OFF}) - I_{DSS}$ 

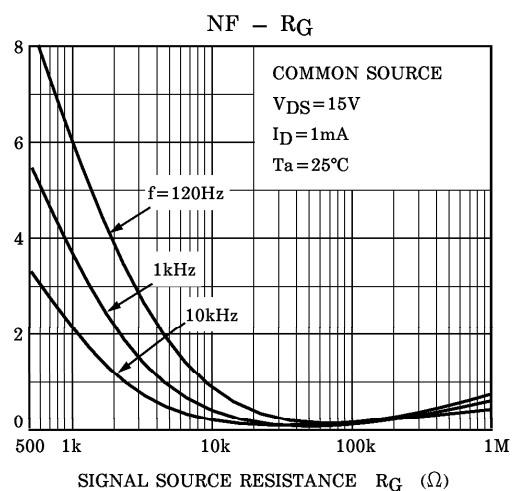
FORWARD TRANSFER ADMITTANCE



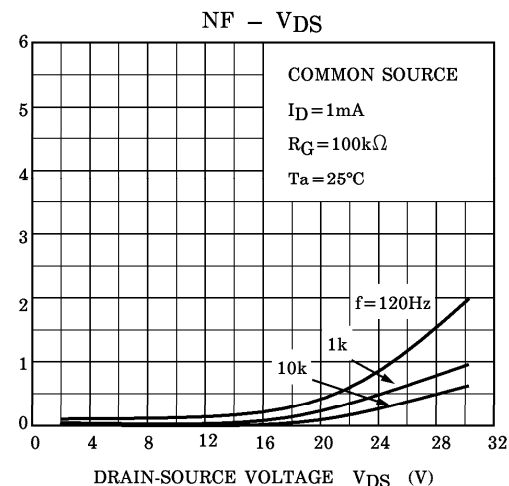
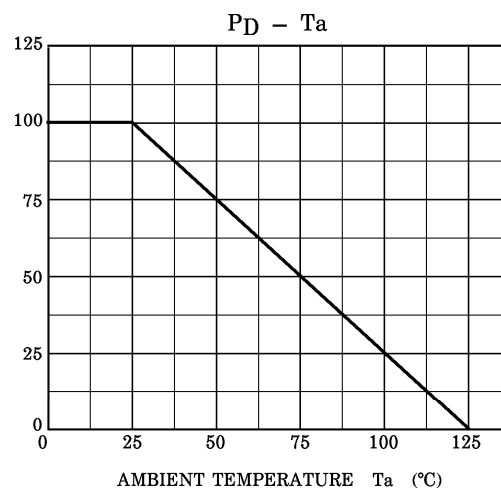
NOISE FIGURE NF (dB)

NF -  $I_D$ INPUT CAPACITANCE  $C_{iss}$  (pF)  
REVERSE TRANSFER CAPACITANCE  $C_{rss}$  (pF)

NOISE FIGURE NF (dB)



NOISE FIGURE NF (dB)

DRAIN POWER DISSIPATION  $P_D$  (mW)

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000707EAA

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