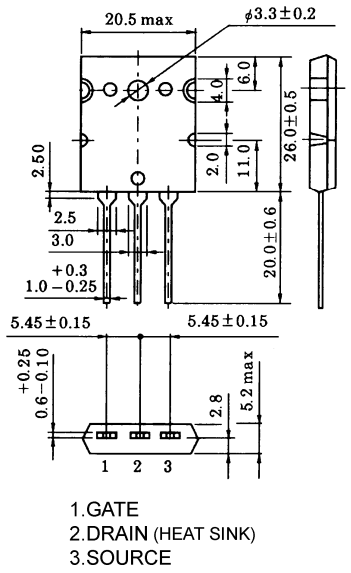
TOSHIBA Field Effect Transistor Silicon P Channel MOS Type

# 2SJ201

## High-Power Amplifier Application

- High breakdown voltage : $V_{DSS}$ = −200 V
- High forward transfer admittance : $|Y_{fs}|$ = 5.0 S (typ.)
- Complementary to 2SK1530

Unit: mm




1.GATE
2.DRAIN (HEAT SINK)
3.SOURCE

| | |
|---|---|
| JEDEC | — |
| JEITA | — |
| TOSHIBA | 2-21F1B |

Weight: 9.75 g (typ.)

## Absolute Maximum Ratings (Ta = 25°C)

| Characteristics | Symbol | Rating | Unit |
|---|---|---|---|
| Drain−source voltage | $V_{DSS}$ | −200 | V |
| Gate−source voltage | $V_{GSS}$ | ±20 | V |
| Drain current (Note 1) | $I_D$ | −12 | A |
| Drain power dissipation (Tc = 25°C) | $P_D$ | 150 | W |
| Channel temperature | $T_{ch}$ | 150 | °C |
| Storage temperature range | $T_{stg}$ | −55 to 150 | °C |

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

## Electrical Characteristics (Ta = 25°C)

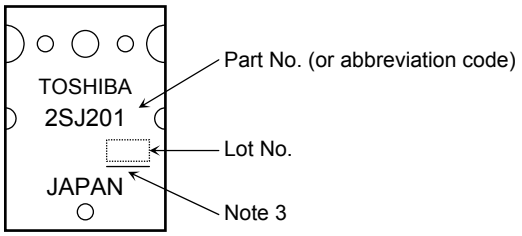
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Drain cut−off current | $I_{DSS}$ | $V_{DS}$ = −200 V, $V_{GS}$ = 0 | — | — | −1.0 | mA |
| Gate leakage current | $I_{GSS}$ | $V_{DS}$ = 0, $V_{GS}$ = ±20 V | — | — | ±0.5 | μA |
| Drain−source breakdown voltage | $V_{(BR)\ DSS}$ | $I_D$ = −10 mA, $V_{GS}$ = 0 | −200 | — | — | V |
| Gate−source cut−off voltage (Note 2) | $V_{GS\ (OFF)}$ | $V_{DS}$ = −10 V, $I_D$ = −0.1 A | −0.8 | — | −2.8 | V |
| Drain−source saturation voltage | $V_{DS\ (ON)}$ | $I_D$ = −8 A, $V_{GS}$ = −10 V | — | −2.0 | −5.0 | V |
| Forward transfer admittance | $\|Y_{fs}\|$ | $V_{DS}$ = −10 V, $I_D$ = −5 A | — | 5.0 | — | S |
| Input capacitance | $C_{iss}$ | $V_{DS}$ = −30 V, $V_{GS}$ = 0, f = 1 MHz | — | 1500 | — | pF |
| Output capacitance | $C_{oss}$ | $V_{DS}$ = −30 V, $V_{GS}$ = 0, f = 1 MHz | — | 400 | — | |
| Reverse transfer capacitance | $C_{rss}$ | $V_{DS}$ = −30 V, $V_{GS}$ = 0, f = 1 MHz | — | 230 | — | |

Note 1: Ensure that the channel temperature does not exceed 150°C.

Note 2: $V_{GS\ (OFF)}$ Classification O: −0.8 to −1.6, Y: −1.4 to −2.8

This transistor is an electrostatic-sensitive device.
Please handle with caution.

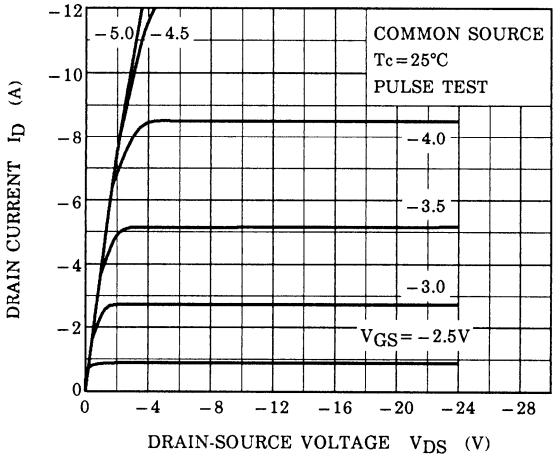
## Marking



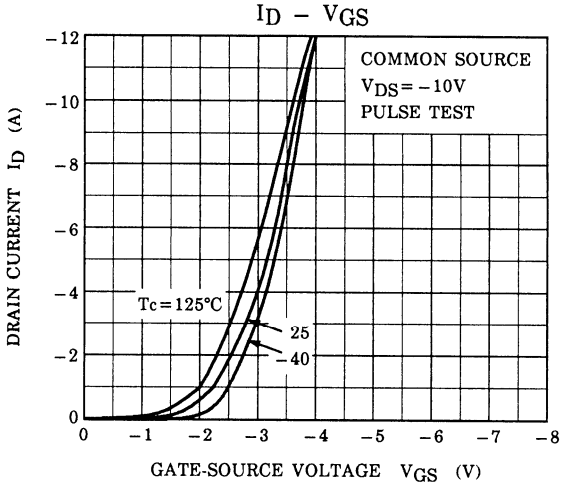

Note 3: A line under a Lot No. identifies the indication of product Labels.
Not underlined: [[Pb]]/INCLUDES > MCV
Underlined: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

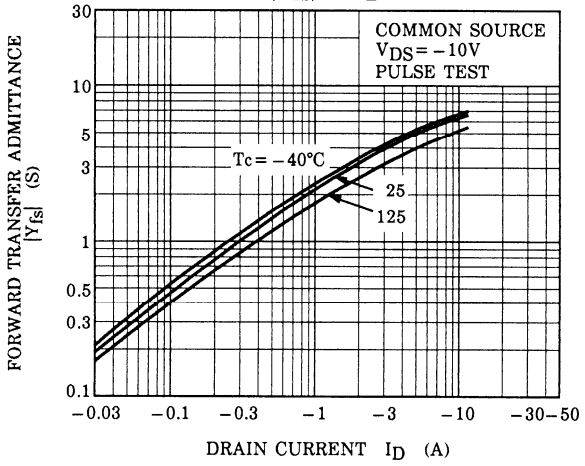
$I_D - V_{DS}$



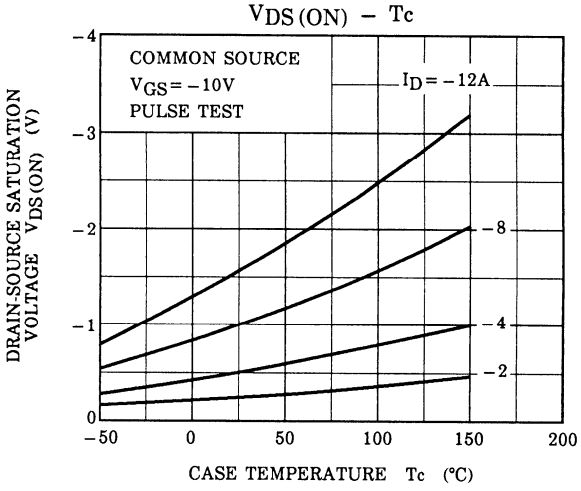

$I_D - V_{GS}$



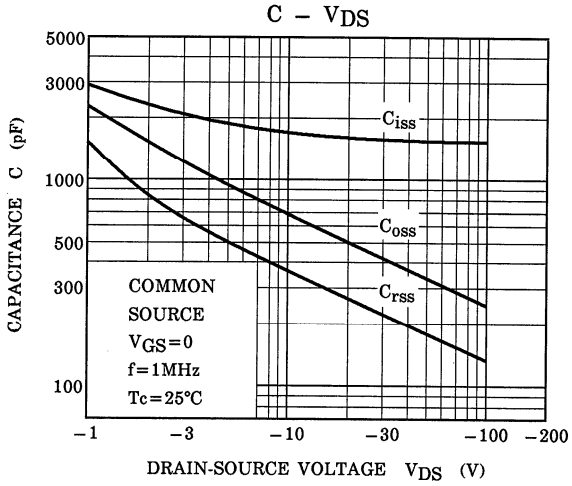

$|Y_{fs}| - I_D$



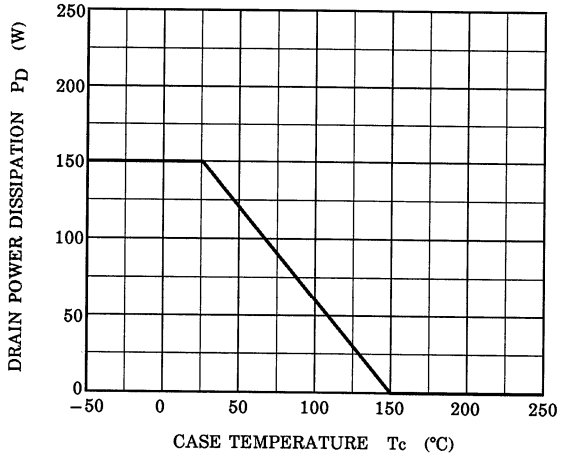

$V_{DS\,(ON)} - Tc$

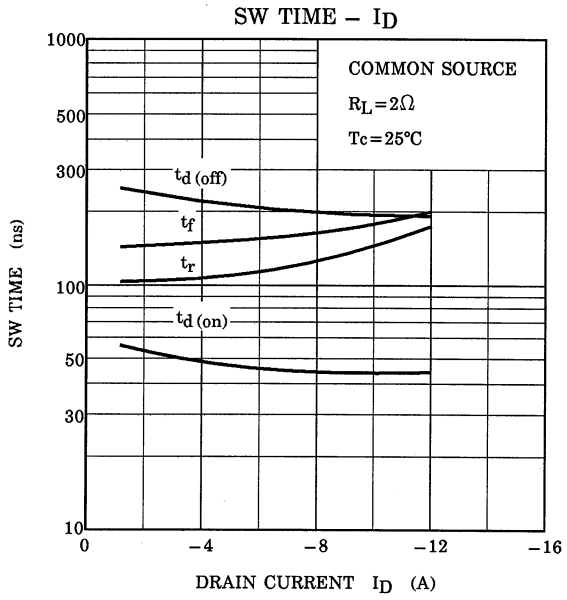


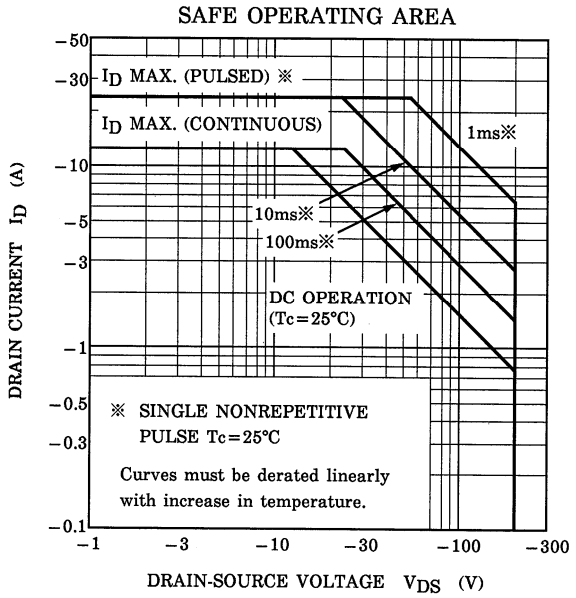

C – $V_{DS}$



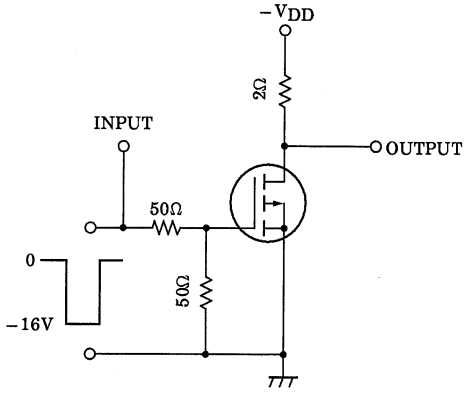

$P_D - Tc$



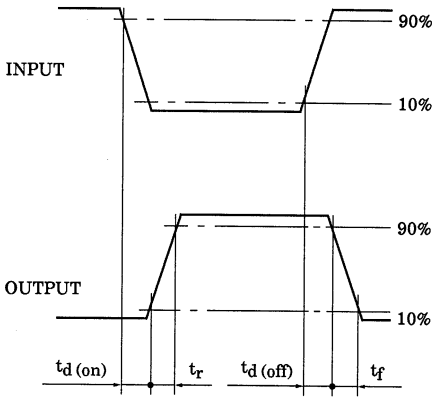



## Switching Time Test Circuit




## Waveforms



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