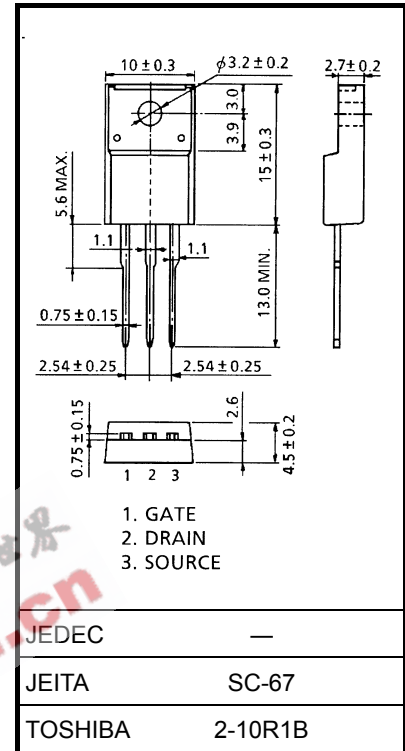


# 2SJ313

## Audio Frequency Power Amplifier Application

- High breakdown voltage:  $V_{DSS} = -180\text{ V}$
- High forward transfer admittance:  $|Y_{fs}| = 0.7\text{ S (typ.)}$
- Complementary to 2SK2013

Unit: mm



Weight: 1.9 g (typ.)

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

Characteristics	Symbol	Rating	Unit
Drain-source voltage	$V_{DSS}$	-180	V
Gate-source voltage	$V_{GSS}$	±20	V
Drain current (Note 1)	$I_D$	-1	A
Power dissipation (Tc = 25°C)	$P_D$	25	W
Channel temperature	$T_{ch}$	150	°C
Storage temperature range	$T_{stg}$	-55~150	°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)

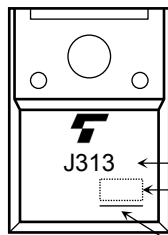
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	$I_{GSS}$	$V_{DS} = 0, V_{GS} = \pm 20 \text{ V}$	—	—	$\pm 100$	nA
Drain-source breakdown voltage	$V_{(BR) DSS}$	$I_D = -10 \text{ mA}, V_{GS} = 0$	-180	—	—	V
Gate-source cut-off voltage (Note 2)	$V_{GS (OFF)}$	$V_{DS} = -10 \text{ V}, I_D = -10 \text{ mA}$	-0.8	—	-2.8	V
Drain-source saturation voltage	$V_{DS (ON)}$	$I_D = -0.6 \text{ A}, V_{GS} = -10 \text{ V}$	—	-1.2	-3.0	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = -10 \text{ V}, I_D = -0.3 \text{ A}$	—	0.7	—	S
Input capacitance	$C_{iss}$	$V_{DS} = -10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$	—	210	—	pF
Output capacitance	$C_{oss}$		—	90	—	
Reverse transfer capacitance	$C_{rss}$		—	45	—	

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

Note 2:  $V_{GS (OFF)}$  Classification    O: -0.8~-1.6,    Y: -1.4~-2.8

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

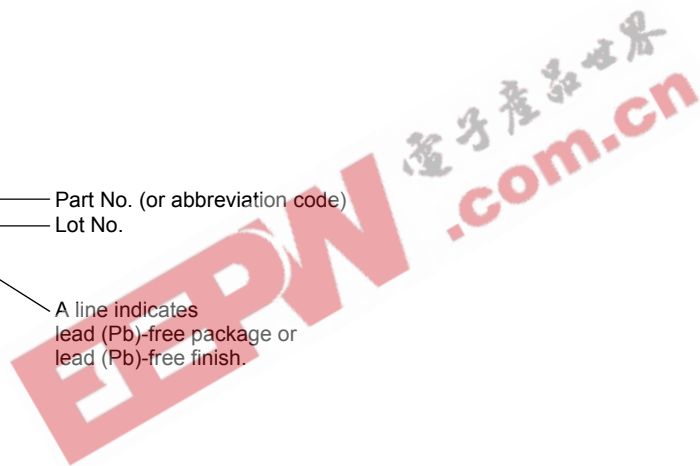
## Marking

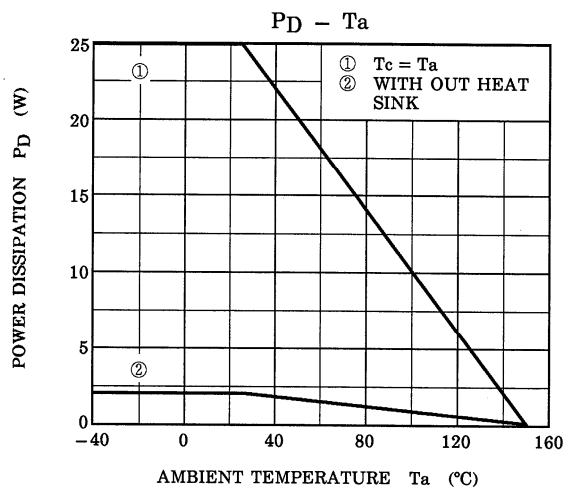
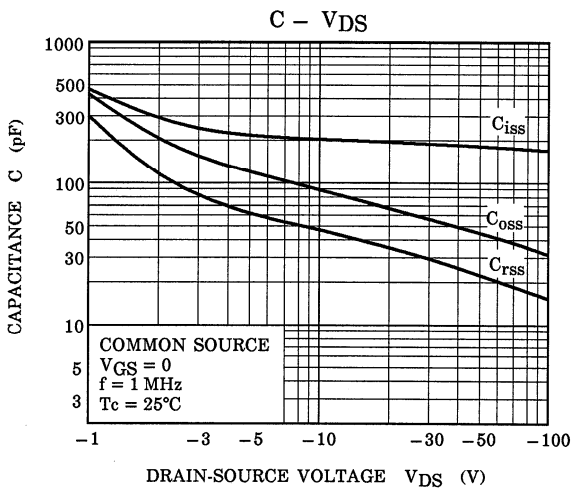
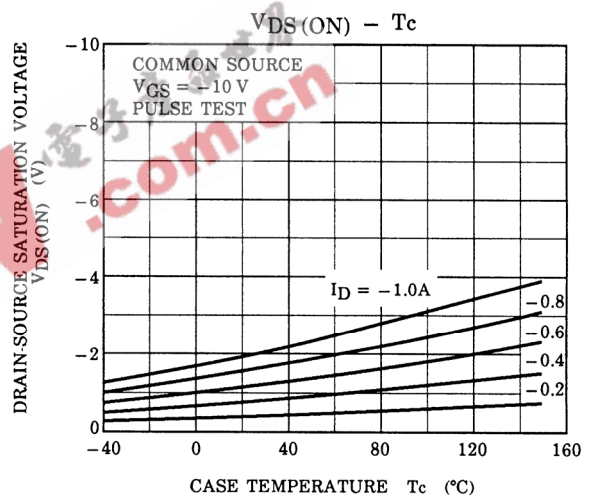
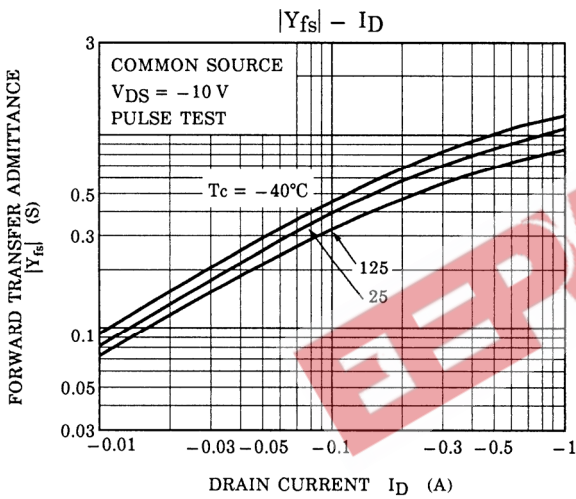
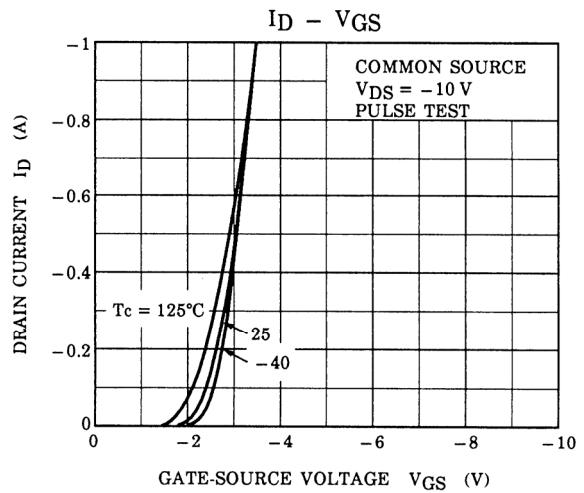
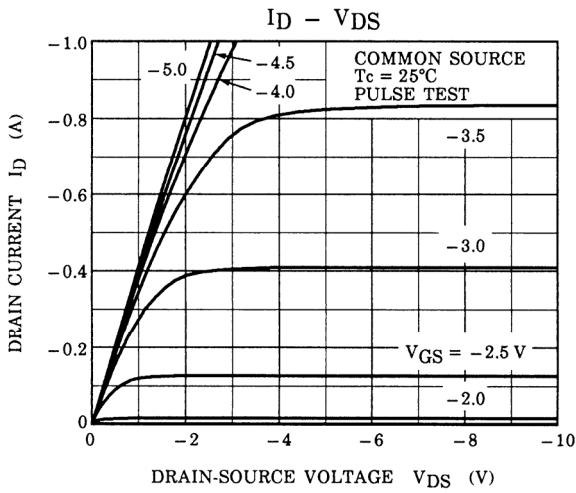


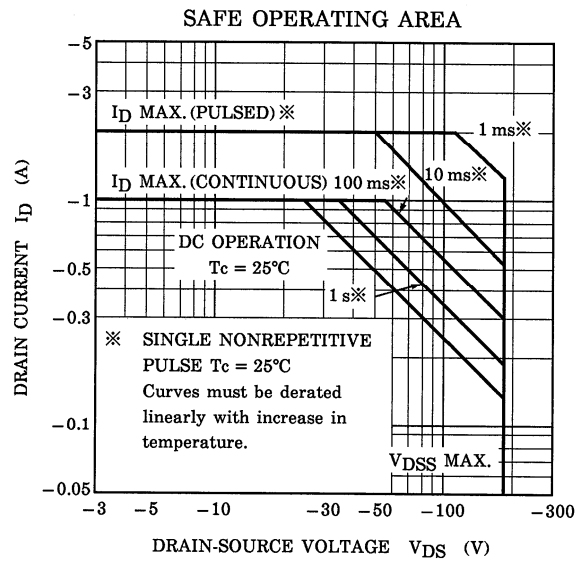
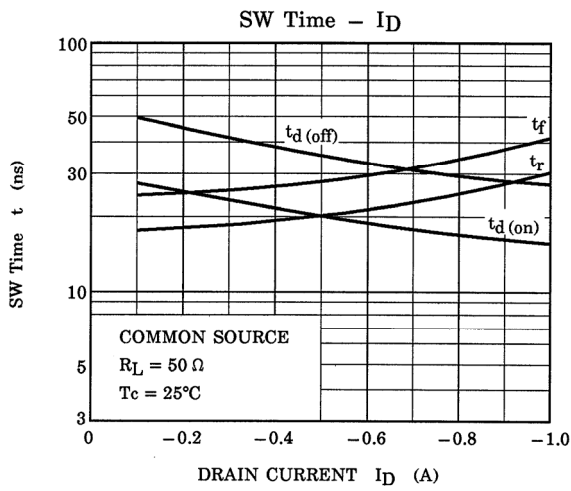
J313 ← Part No. (or abbreviation code)

← Lot No.

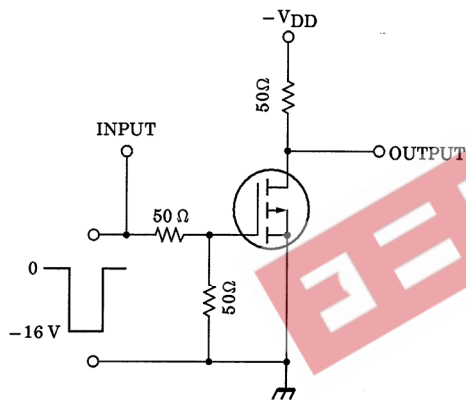
A line indicates lead (Pb)-free package or lead (Pb)-free finish.



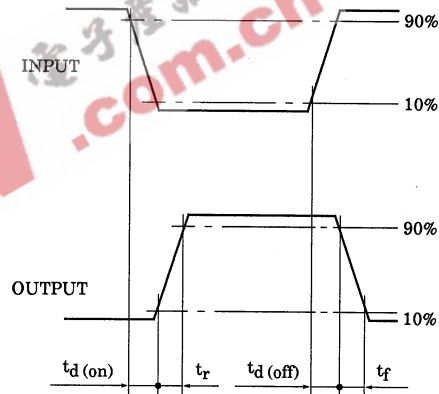




Test Circuit



Waveforms



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