

TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

2SK2013

Audio Frequency Power Amplifier Application

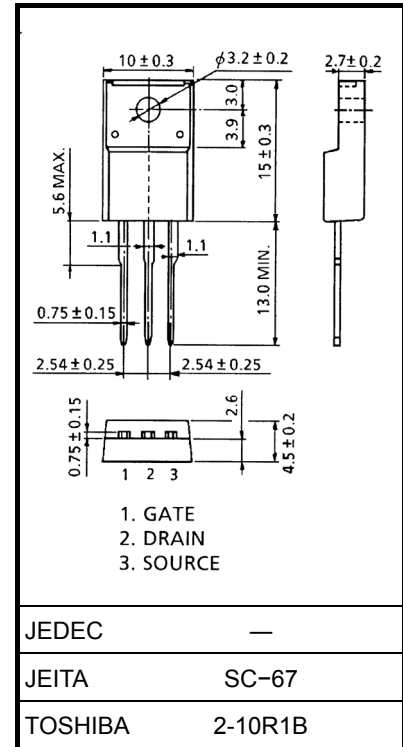
- High breakdown voltage : $V_{DSS} = 180V$
- High forward transfer admittance : $|Y_{fs}| = 0.7 S$ (typ.)
- Complementary to 2SJ313

Absolute Maximum Ratings ($T_a = 25^\circ C$)

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
Drain power dissipation ($T_c = 25^\circ C$)	P_D	25	W
Channel temperature	T_{ch}	150	$^\circ C$
Storage temperature range	T_{stg}	-55~150	$^\circ C$

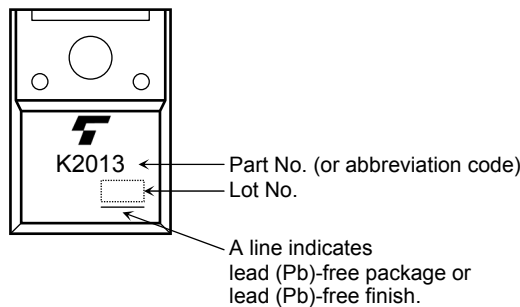
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

Unit: mm



Weight: 1.9 g (typ.)

Marking



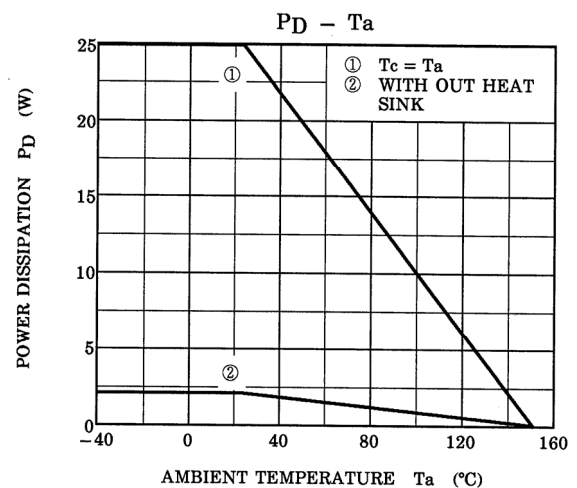
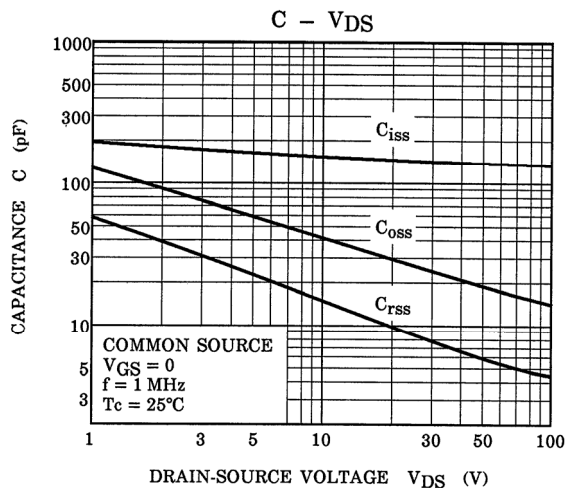
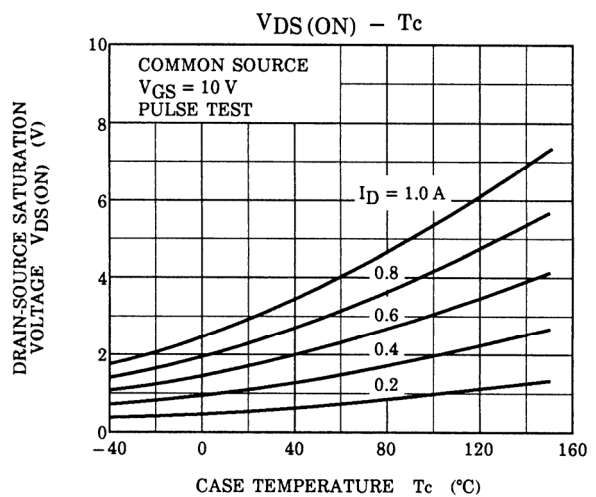
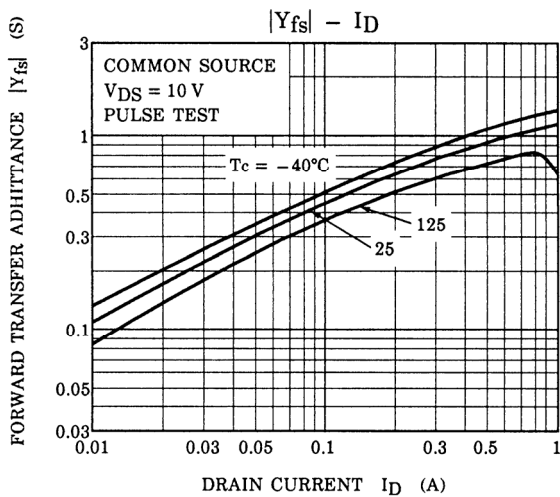
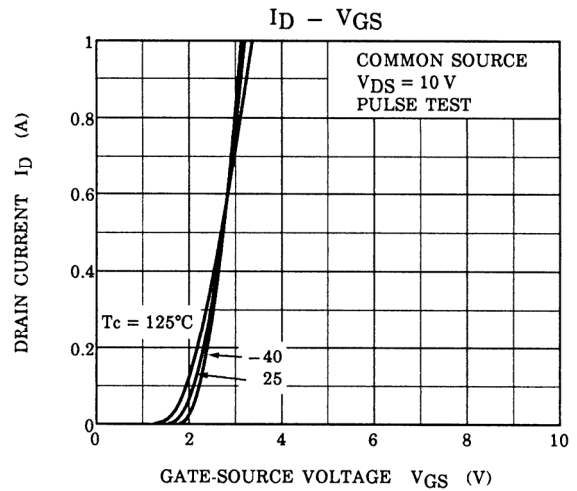
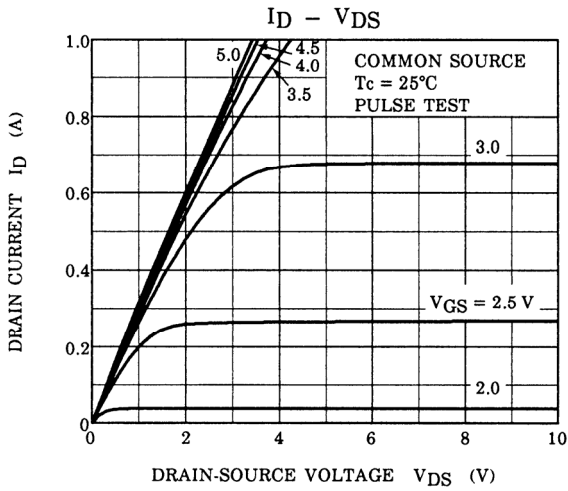
Electrical Characteristics ($T_a = 25^\circ C$)

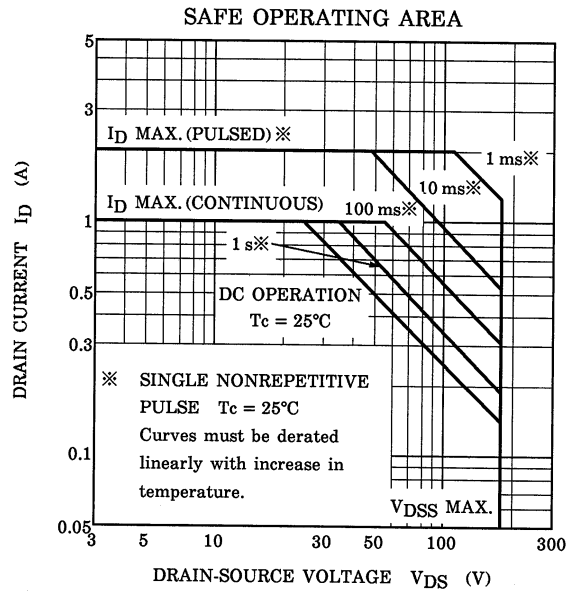
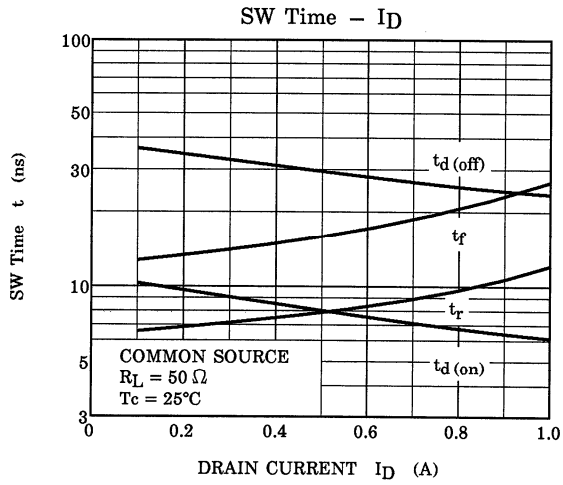
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	I_{GSS}	$V_{DS} = 0, V_{GS} = \pm 20 V$	—	—	± 100	nA
Drain-source breakdown voltage	$V_{(BR) DSS}$	$I_D = 10 mA, V_{GS} = 0$	180	—	—	V
Gate-source cut-off voltage (Note 2)	$V_{GS (OFF)}$	$V_{DS} = 10 V, I_D = 10 mA$	1.8	—	2.8	V
Drain-source saturation voltage	$V_{DS (ON)}$	$I_D = 0.6 A, V_{GS} = 10 V$	—	1.7	3.0	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 10 V, I_D = 0.3 A$	—	0.7	—	S
Input capacitance	C_{iss}	$V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz$	—	170	—	pF
Output capacitance	C_{oss}	$V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz$	—	45	—	
Reverse transfer capacitance	C_{rss}	$V_{DD} \approx 10 V, V_{GS} = 0, f = 1 MHz$	—	17	—	

Note 1: Ensure that the channel temperature does not exceed $150^\circ C$.

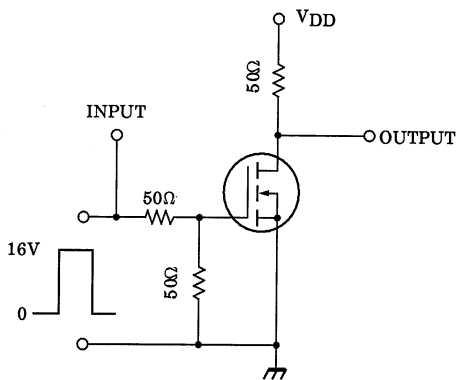
Note 2: $V_{GS (OFF)}$ Classification O: 0.8~1.6, Y: 1.4~2.8

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

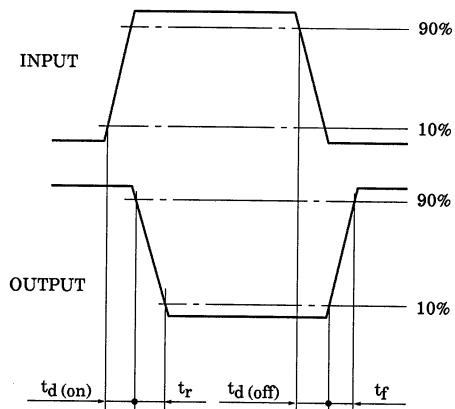




Switching Time Test Circuit



Waveforms



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20070701-EN

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