

TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

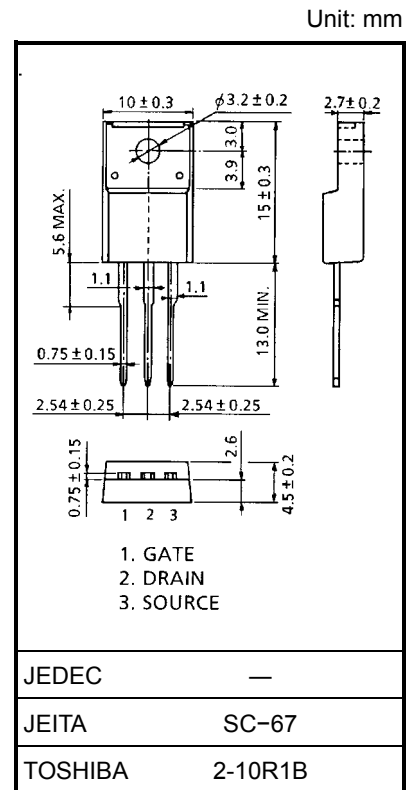
# 2SK2013

## Audio Frequency Power Amplifier Application

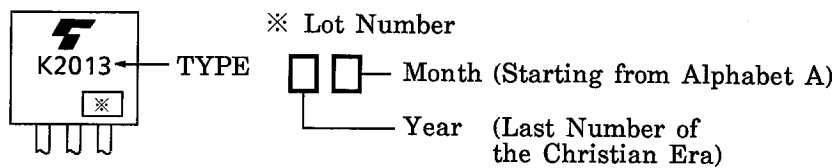
- High breakdown voltage :  $V_{DSS} = 180V$
- High forward transfer admittance :  $|Y_{fs}| = 0.7 S$  (typ.)
- Complementary to 2SJ313

### Maximum Ratings (Ta = 25°C)

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



### Marking



Weight: 1.9 g (typ.)

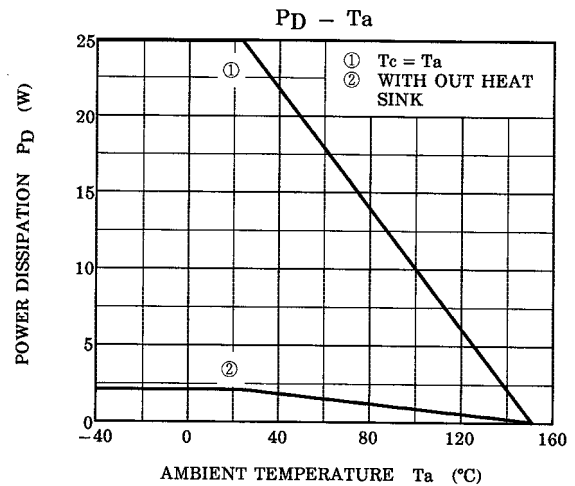
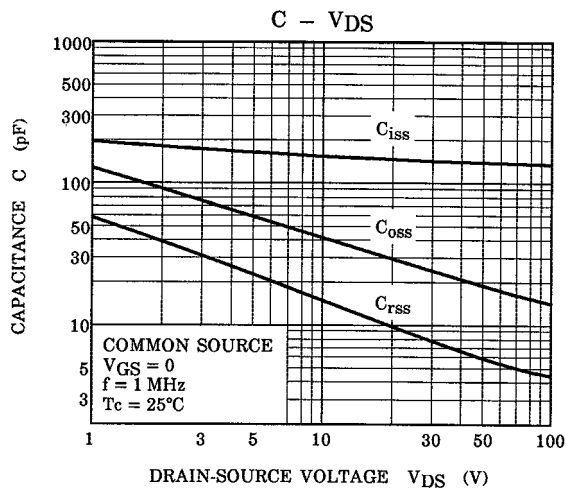
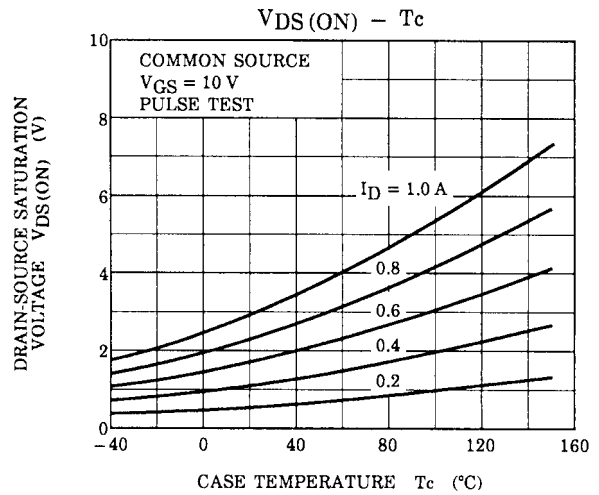
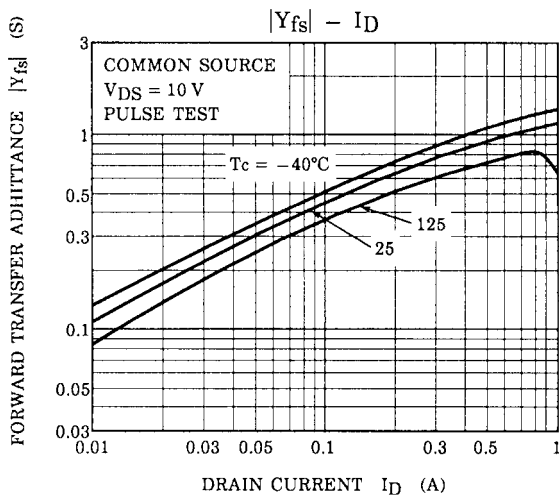
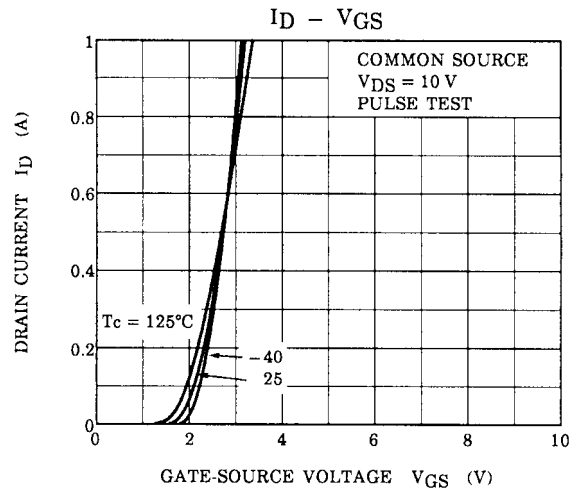
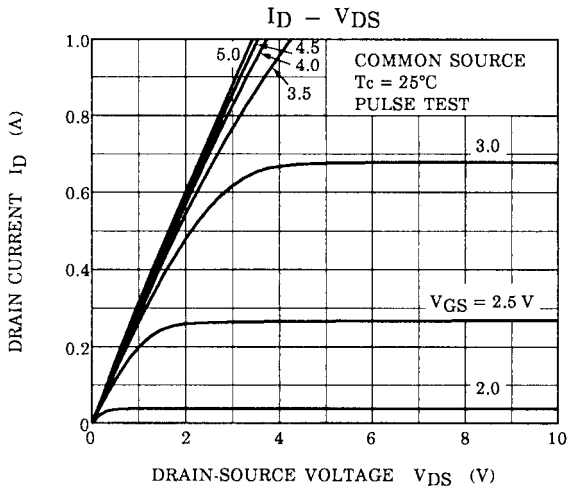
### Electrical Characteristics (Ta = 25°C)

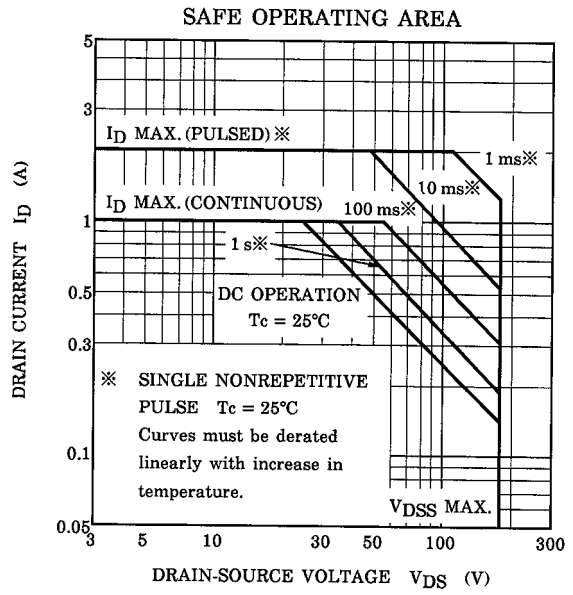
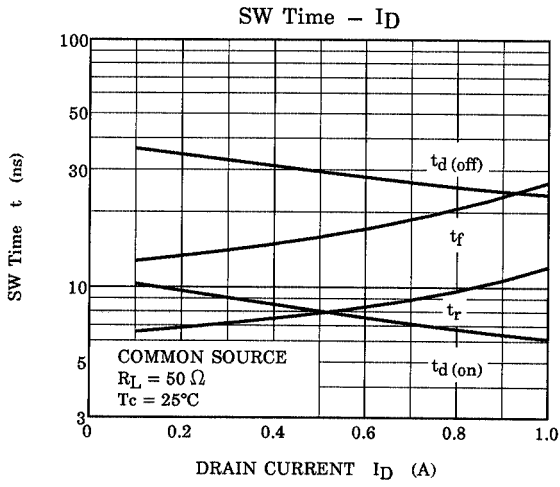
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	$I_{GSS}$	$V_{DS} = 0, V_{GS} = \pm 20 V$	—	—	$\pm 100$	nA
Drain-source breakdown voltage	$V_{(BR) DSS}$	$I_D = 10 mA, V_{GS} = 0$	180	—	—	V
Gate-source cut-off voltage (Note 2)	$V_{GS (OFF)}$	$V_{DS} = 10 V, I_D = 10 mA$	1.8	—	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: Please use devices on condition that the channel temperature is below 150°C.

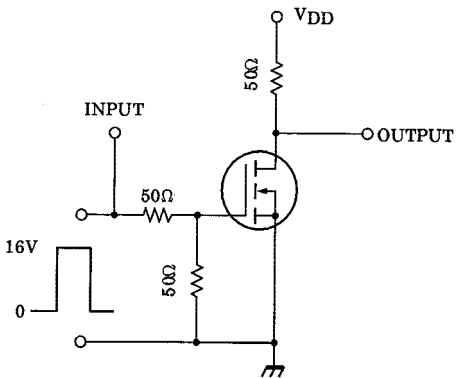
Note 2:  $V_{GS (OFF)}$  Classification O: 0.8~1.6, Y: 1.4~2.8

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

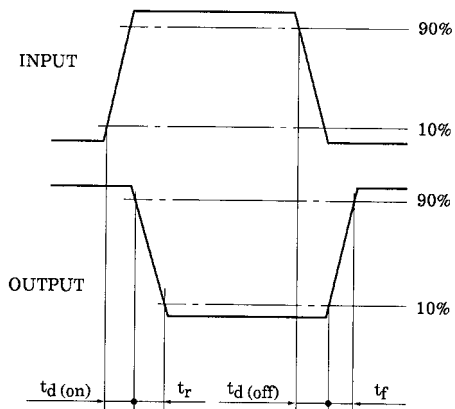




**Switching Time Test Circuit**



**Waveforms**



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