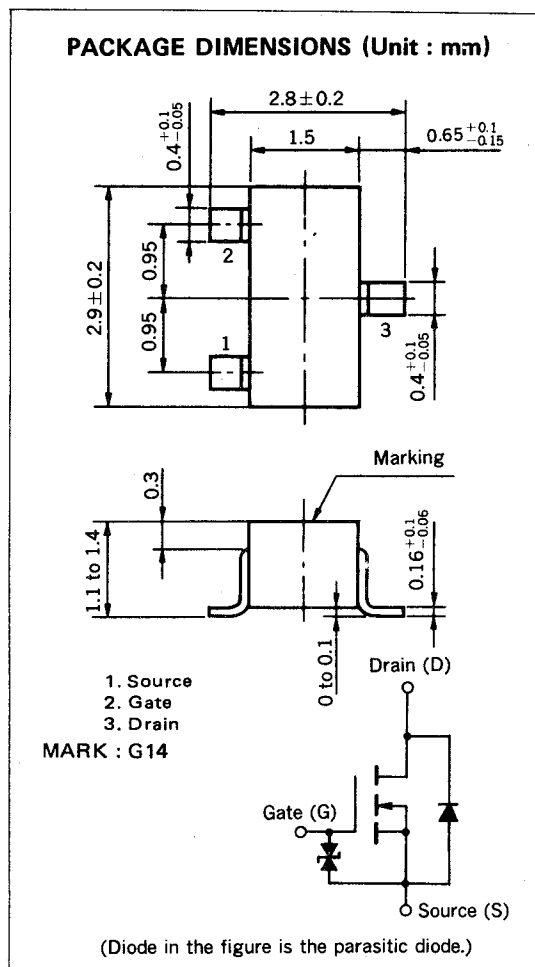


# MOS FIELD EFFECT TRANSISTOR

# 2SK1581

## N-CHANNEL MOS FET

## FOR SWITCHING



The 2SK1581, N-channel vertical type MOS FET, can be driven by 2.5 V power supply.

As the MOS FET is driven by low voltage and does not require consideration of driving current, it is suitable for appliances including VCR cameras and headphone stereos which need power saving.

### FEATURES

- Directly driven by ICs having a 3 V power supply.
- Not necessary to consider driving current because of its high input impedance.
- Possible to reduce the number of parts by omitting the bias resistor.

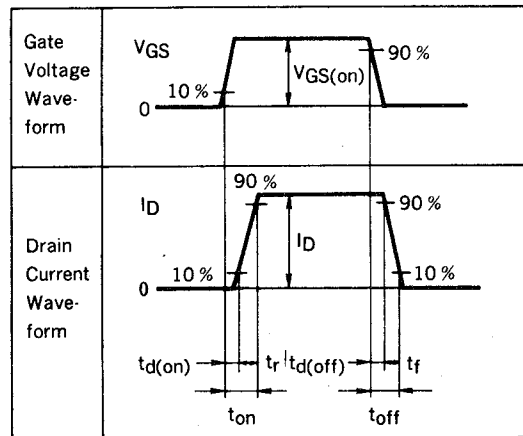
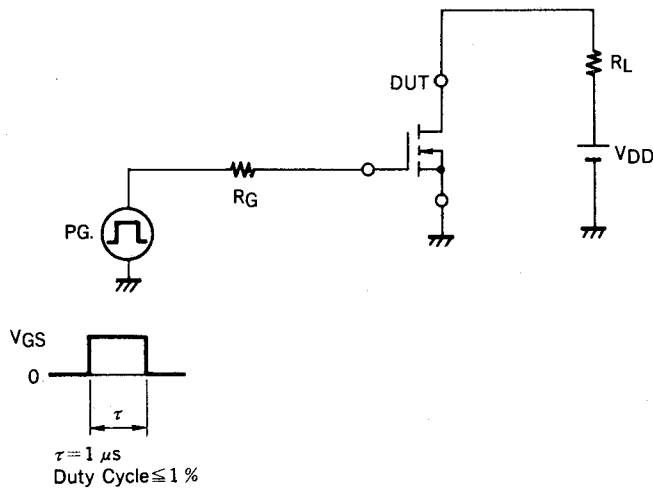
### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	RATINGS	UNIT	TEST CONDITIONS
Drain to Source Voltage	$V_{DSS}$	16	V	$V_{GS} = 0$
Gate to Source Voltage	$V_{GSS}$	$\pm 16$	V	$V_{DS} = 0$
Drain Current	$I_D(\text{DC})$	$\pm 200$	mA	
Drain Current	$I_D(\text{pulse})$	$\pm 400$	mA	$PW \leq 10 \text{ ms}$ , Duty Cycle $\leq 50 \%$
Total Power Dissipation	$P_T$	200	mW	
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$	
Operating Temperature	$T_{opt}$	$-55$ to $+80$	$^\circ\text{C}$	
Storage Temperature	$T_{stg}$	$-55$ to $+150$	$^\circ\text{C}$	

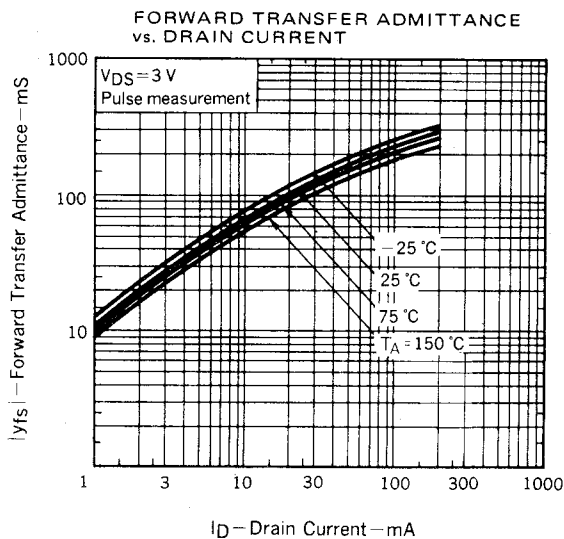
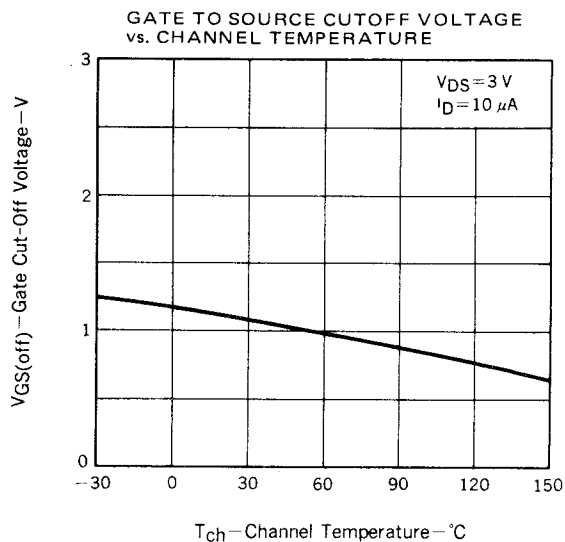
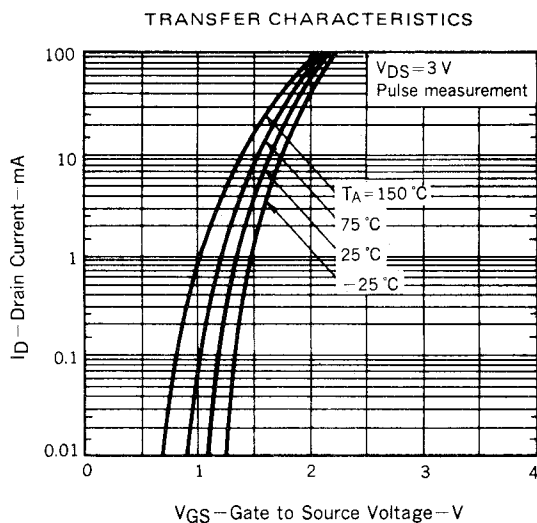
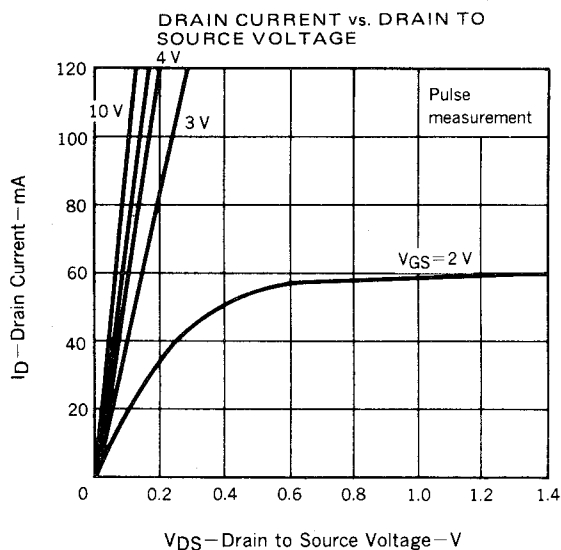
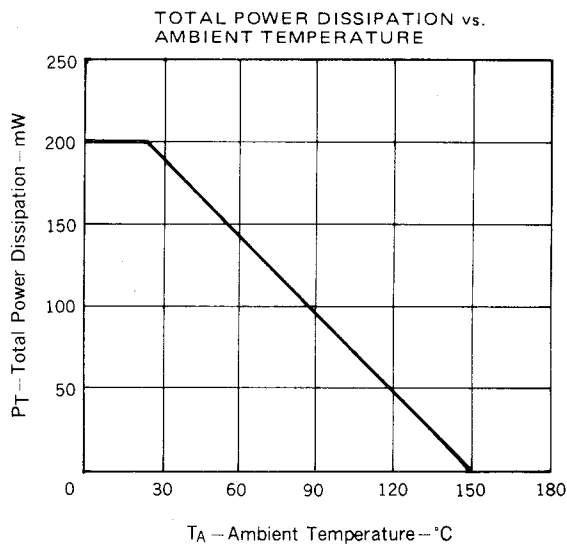
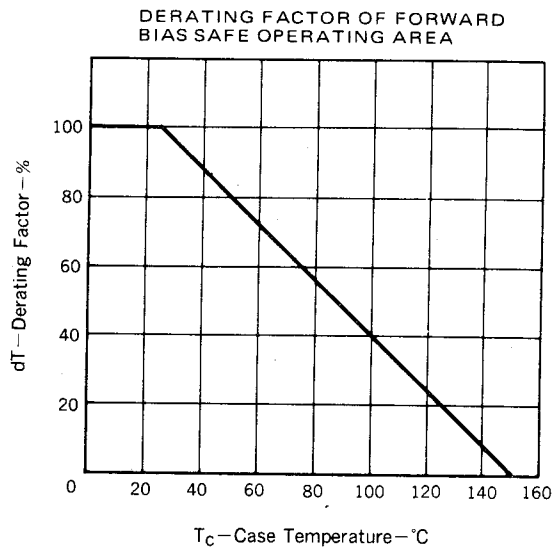
ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C)

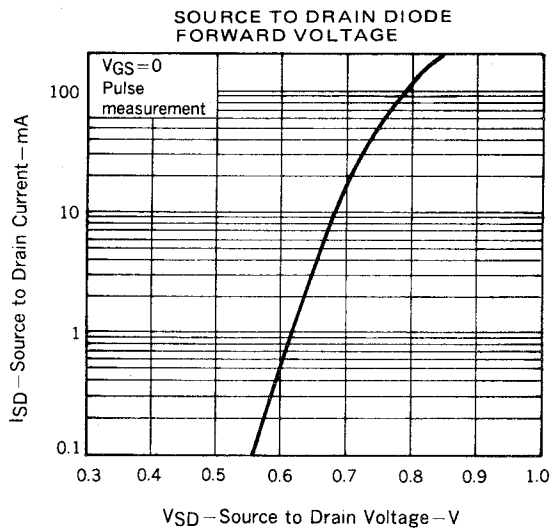
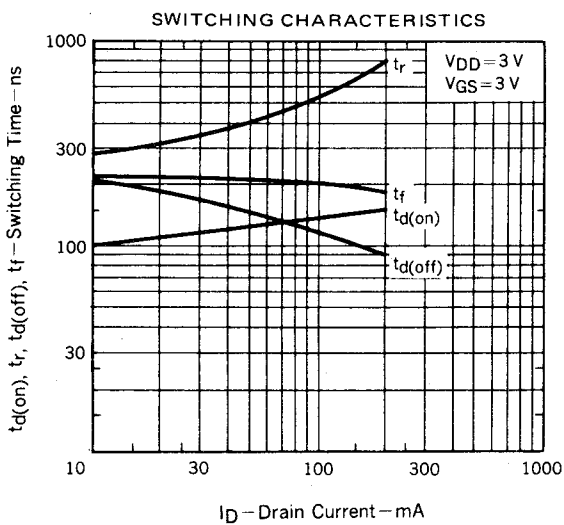
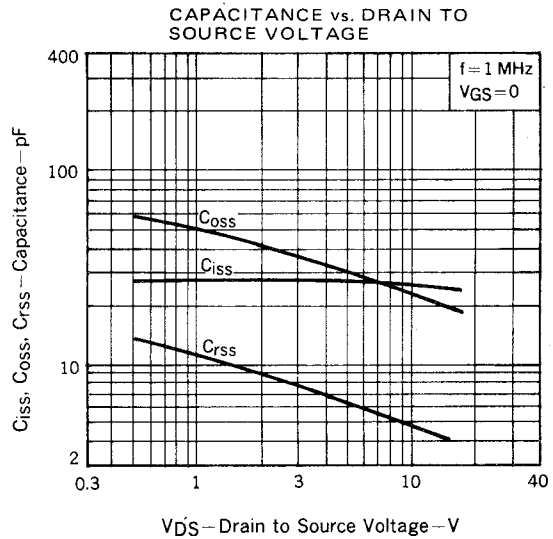
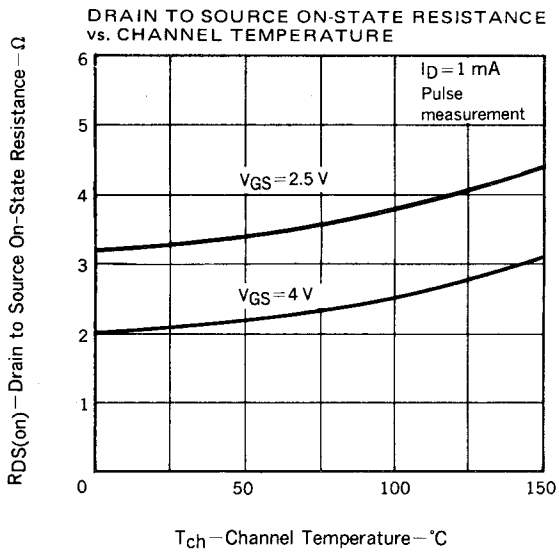
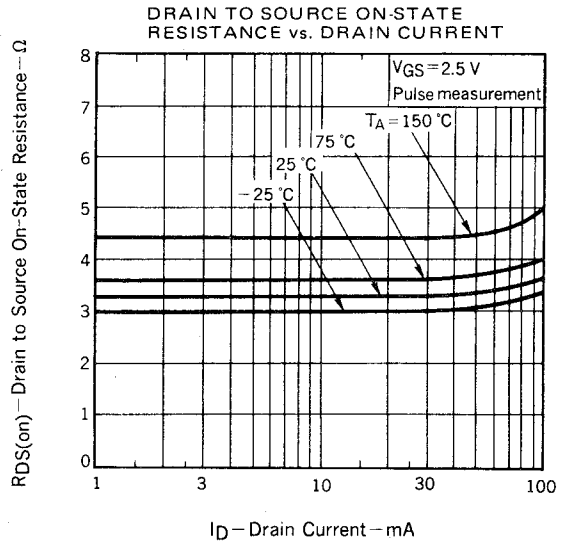
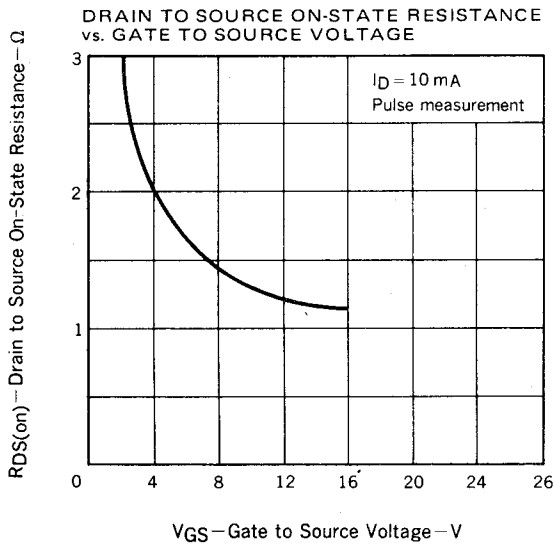
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Cut-off Current	I <sub>DSS</sub>			1.0	μA	V <sub>DS</sub> = 16 V, V <sub>GS</sub> = 0
Gate Leakage Current	I <sub>GSS</sub>			±5.0	μA	V <sub>GS</sub> = ±3 V, V <sub>DS</sub> = 0
Gate Cut-off Voltage	V <sub>GS(off)</sub>	0.8	1.1	1.6	V	V <sub>DS</sub> = 3.0 V, I <sub>D</sub> = 10 μA
Forward Transfer Admittance	Y <sub>fs</sub>	20	70		mS	V <sub>DS</sub> = 3.0 V, I <sub>D</sub> = 10 mA
Drain to Source On-State Resistance	R <sub>DS(on)1</sub>		3.2	5.0	Ω	V <sub>GS</sub> = 2.5 V, I <sub>D</sub> = 1 mA
Drain to Source On-State Resistance	R <sub>DS(on)2</sub>		2.2	3.0	Ω	V <sub>GS</sub> = 4.0 V, I <sub>D</sub> = 1 mA
Input Capacitance	C <sub>iss</sub>		27		pF	V <sub>DS</sub> = 3.0 V, V <sub>GS</sub> = 0, f = 1 MHz
Output Capacitance	C <sub>oss</sub>		37		pF	
Feedback Capacitance	C <sub>rss</sub>		8		pF	
Turn-On Delay Time	t <sub>d(on)</sub>		100		ns	V <sub>GS(on)</sub> = 3.0 V, R <sub>G</sub> = 10 Ω V <sub>DD</sub> = 3.0 V, I <sub>D</sub> = 10 mA R <sub>L</sub> = 300 Ω
Rise Time	t <sub>r</sub>		300		ns	
Turn-Off Delay Time	t <sub>d(off)</sub>		210		ns	
Fall Time	t <sub>f</sub>		240		ns	

SWITCHING TIME MEASUREMENT CIRCUIT AND CONDITIONS



TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )





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**Specific:** Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

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Anti-radioactive design is not implemented in this product.