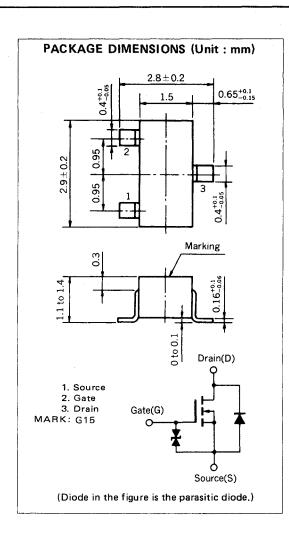


# MOS FIELD EFFECT TRANSISTOR 2SK1582

# N-CHANNEL MOS FET FOR SWITCHING



The 2SK1582, N-channel vertical type MOS FET, is a switching device which can be driven directly by the output of ICs having a 5 V power source.

The MOS FET has excellent switching characteristics and is suitable for use as a high-speed switching device in digital circuits.

#### **FEATURES**

- Directly driven by ICs having a 5 V power source.
- 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 (TA = 25 °C)

PARAMETER SYMBOL		RATINGS	UNIT	TEST CONDITIONS	
Drain to Source Voltage	V <sub>DSS</sub>	30	V	V <sub>GS</sub> = 0	
Gate to Source Voltage	V <sub>GSS</sub>	±20	V	V <sub>DS</sub> = 0	
Drain Current	I <sub>D(DC)</sub>	±200	mA		
Drain Current	I <sub>D</sub> (pulse)	±400	mA	PW ≦ 10 ms, Duty Cycle ≦ 50 %	
Total Power Dissipation	PT	200	mW		
Channel Temperature	T <sub>ch</sub>	150	°C		
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C		

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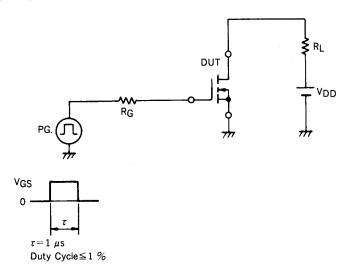
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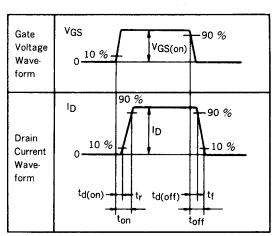


## ELECTRICAL CHARACTERISTICS (TA = 25 °C)

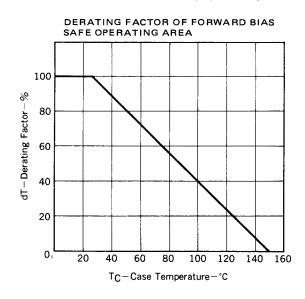
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Cut-off Current	IDSS			1.0	μА	V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 0
Gate Leakage Current	IGSS			±1.0	μΑ	V <sub>GS</sub> = ±20 V, V <sub>DS</sub> = 0
Gate Cut-off Voltage	V <sub>GS(off)</sub>	0.8	1.3	1.8	V	$V_{DS} = 5.0 \text{ V, I}_{D} = 1.0 \mu\text{A}$
Forward Transfer Admittance	yfs	20	60		mS	V <sub>DS</sub> = 5.0 V, I <sub>D</sub> = 10 mA
Drain to Source On-State Resistance	R <sub>DS(on)1</sub>		2.2	5.0	Ω	V <sub>GS</sub> = 4.0 V, I <sub>D</sub> = 10 mA
Drain to Source On-State Resistance	R <sub>DS(on)2</sub>		1.4	3.0	Ω	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 10 mA
Input Capacitance	C <sub>iss</sub>		28		рF	V <sub>DS</sub> = 5.0 V, V <sub>GS</sub> = 0, f = 1 MHz
Output Capacitance	Coss		30		рF	
Feedback Capacitance	C <sub>rss</sub>		7		рF	
Turn-On Delay Time	<sup>t</sup> d(on)		55		ns	$V_{GS(on)}$ = 5.0 V, $R_{G}$ = 10 $\Omega$ $V_{DD}$ = 5.0 V, $I_{D}$ = 10 mA $R_{L}$ = 500 $\Omega$
Rise Time	t <sub>r</sub>		200		ns	
Turn-Off Delay Time	<sup>t</sup> d(off)	-	180		ns	
Fall Time	t <sub>f</sub>		250		ns	

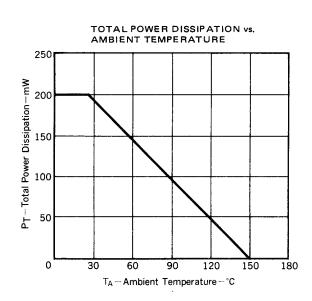
#### SWITCHING TIME MEASUREMENT CIRCUIT AND CONDITIONS

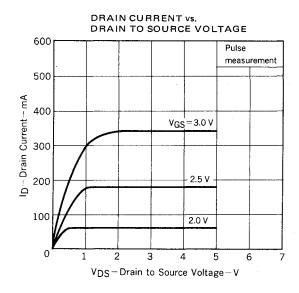


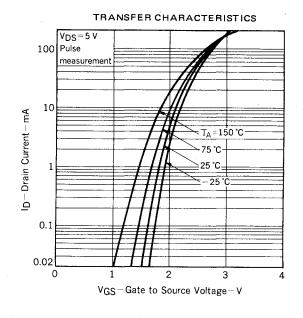


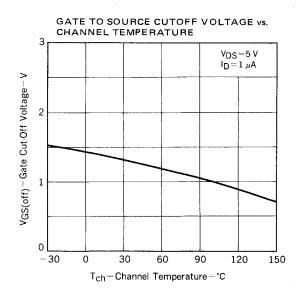
## TYPICAL CHARACTERISTICS (TA = 25 °C)

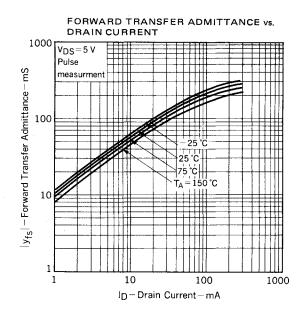


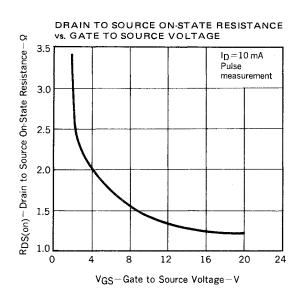


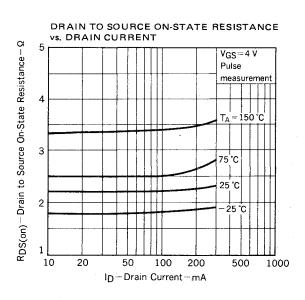


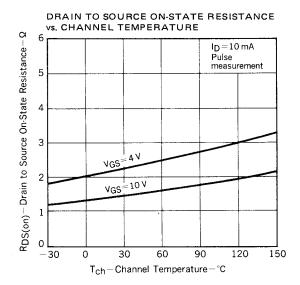


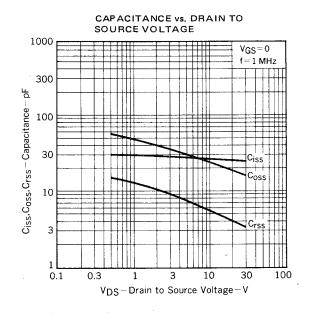


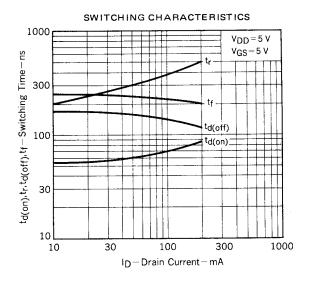


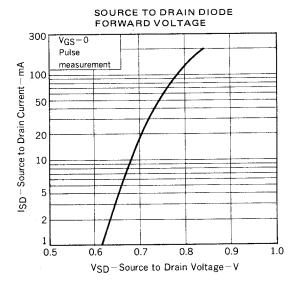












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Anti-radioactive design is not implemented in this product.

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