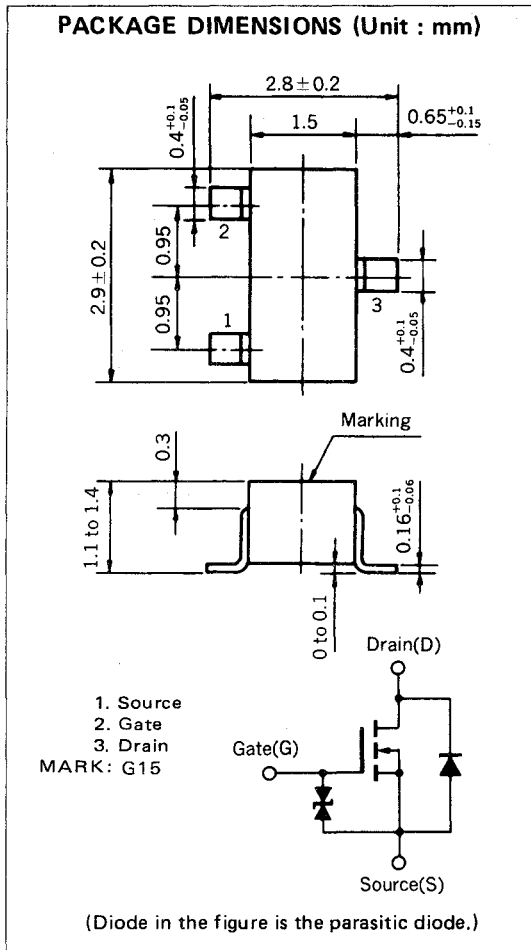


MOS FIELD EFFECT TRANSISTOR 2SK1582

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.

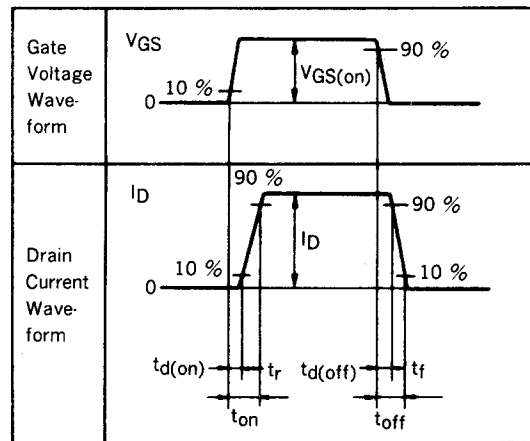
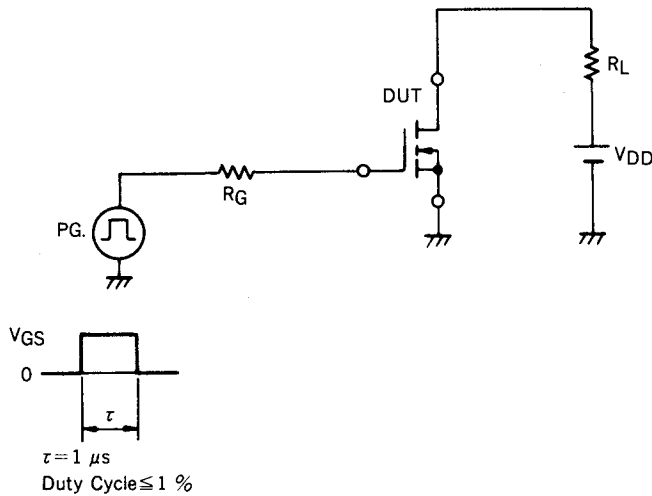
ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

PARAMETER	SYMBOL	RATINGS	UNIT	TEST CONDITIONS
Drain to Source Voltage	V_{DSS}	30	V	$V_{GS} = 0$
Gate to Source Voltage	V_{GSS}	± 20	V	$V_{DS} = 0$
Drain Current	$I_D(\text{DC})$	± 200	mA	
Drain Current	$I_D(\text{pulse})$	± 400	mA	$PW \leq 10 \text{ ms}$, Duty Cycle $\leq 50 \%$
Total Power Dissipation	P_T	200	mW	
Channel Temperature	T_{ch}	150	$^\circ\text{C}$	
Storage Temperature	T_{stg}	-55 to $+150$	$^\circ\text{C}$	

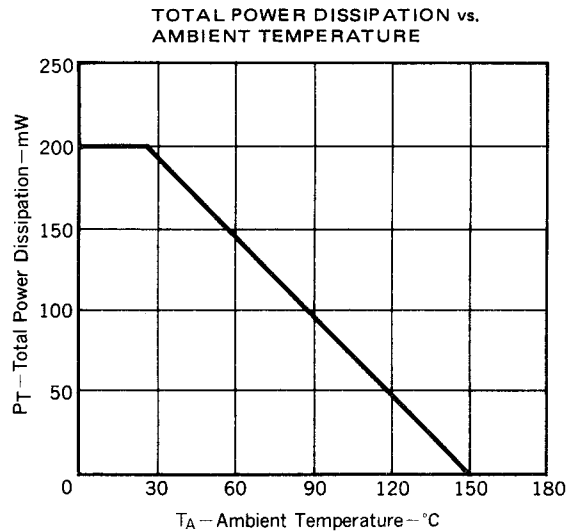
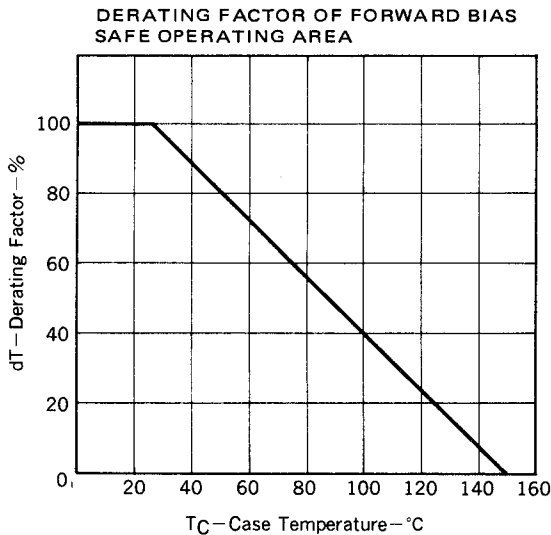
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Cut-off Current	I _{DSS}			1.0	μA	V _{DS} = 30 V, V _{GS} = 0
Gate Leakage Current	I _{GSS}			±1.0	μA	V _{GS} = ±20 V, V _{DS} = 0
Gate Cut-off Voltage	V _{GS(off)}	0.8	1.3	1.8	V	V _{DS} = 5.0 V, I _D = 1.0 μA
Forward Transfer Admittance	y _{fs}	20	60		mS	V _{DS} = 5.0 V, I _D = 10 mA
Drain to Source On-State Resistance	R _{DS(on)1}		2.2	5.0	Ω	V _{GS} = 4.0 V, I _D = 10 mA
Drain to Source On-State Resistance	R _{DS(on)2}		1.4	3.0	Ω	V _{GS} = 10 V, I _D = 10 mA
Input Capacitance	C _{iss}		28		pF	V _{DS} = 5.0 V, V _{GS} = 0, f = 1 MHz
Output Capacitance	C _{oss}		30		pF	
Feedback Capacitance	C _{rss}		7		pF	
Turn-On Delay Time	t _{d(on)}		55		ns	V _{GS(on)} = 5.0 V, R _G = 10 Ω V _{DD} = 5.0 V, I _D = 10 mA R _L = 500 Ω
Rise Time	t _r		200		ns	
Turn-Off Delay Time	t _{d(off)}		180		ns	
Fall Time	t _f		250		ns	

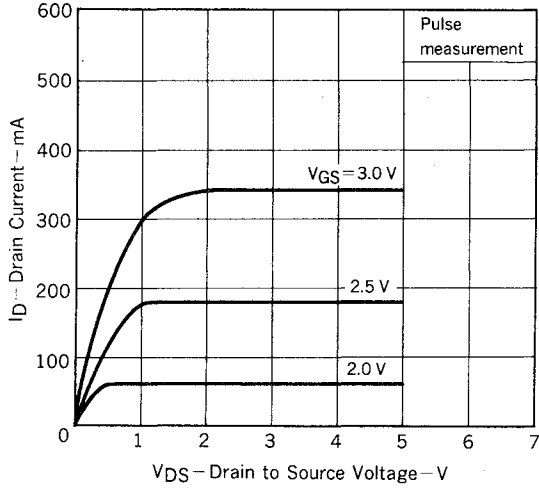
SWITCHING TIME MEASUREMENT CIRCUIT AND CONDITIONS



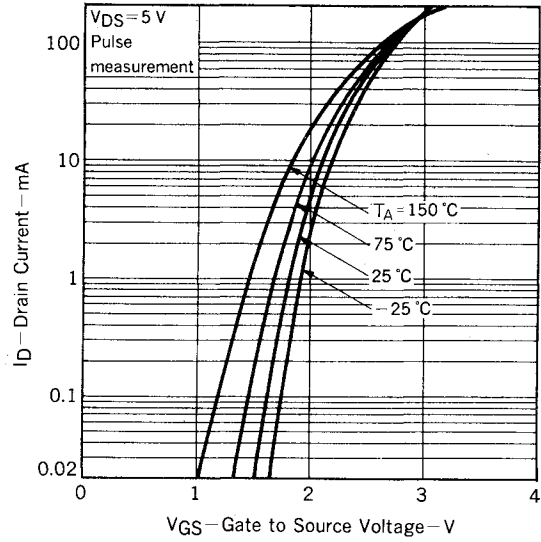
TYPICAL CHARACTERISTICS (T_A = 25 °C)



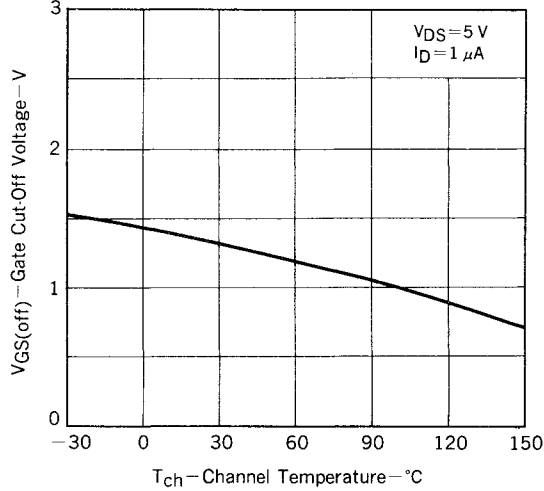
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



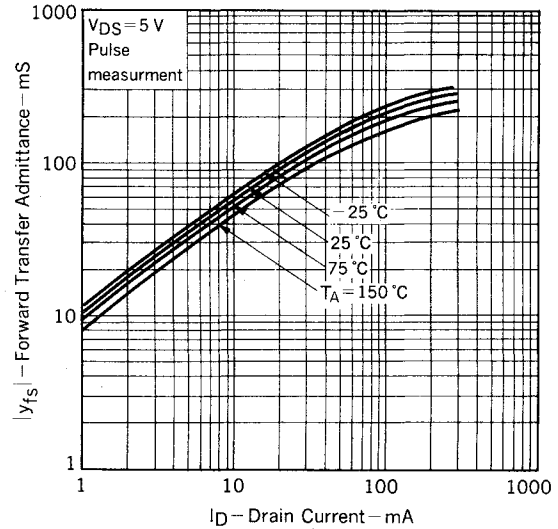
TRANSFER CHARACTERISTICS



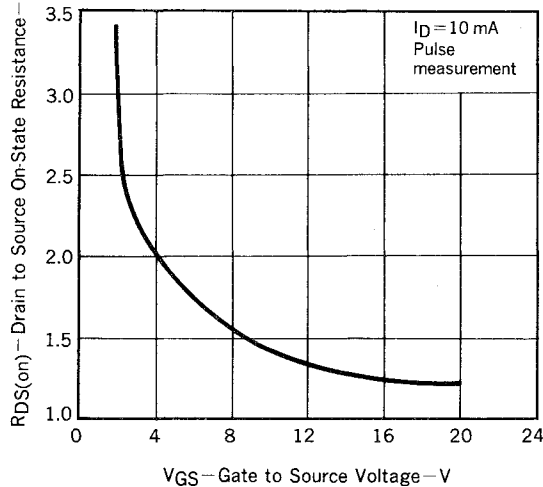
GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



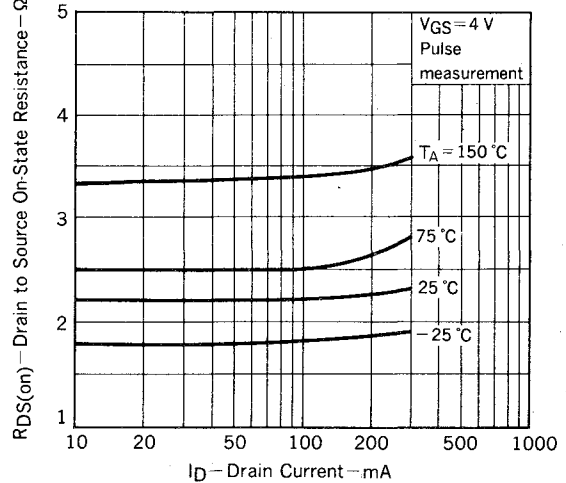
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



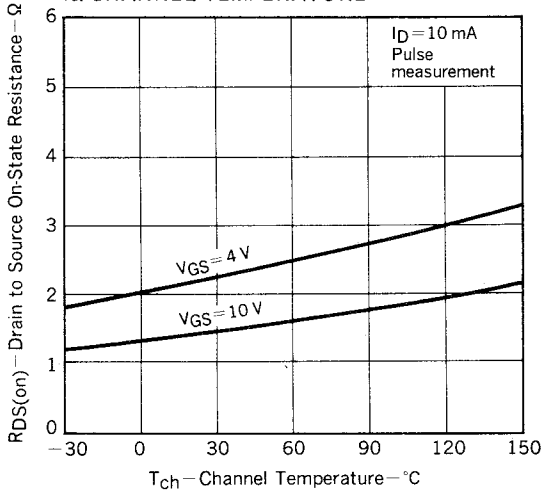
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



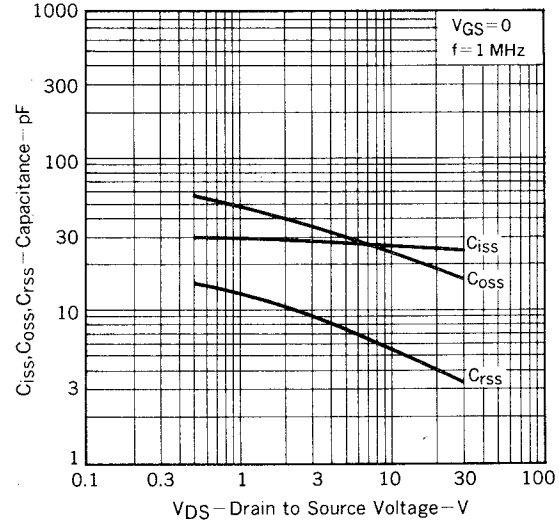
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



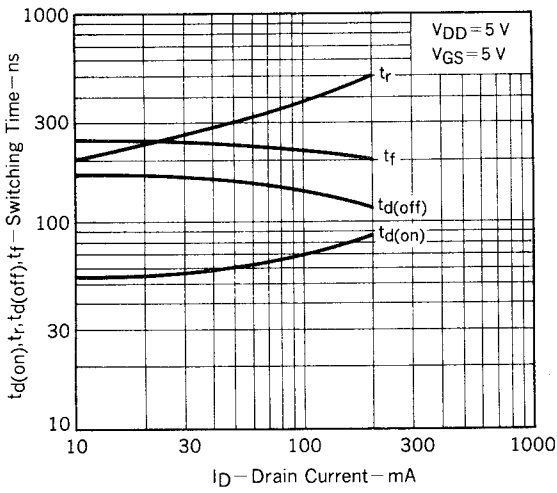
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



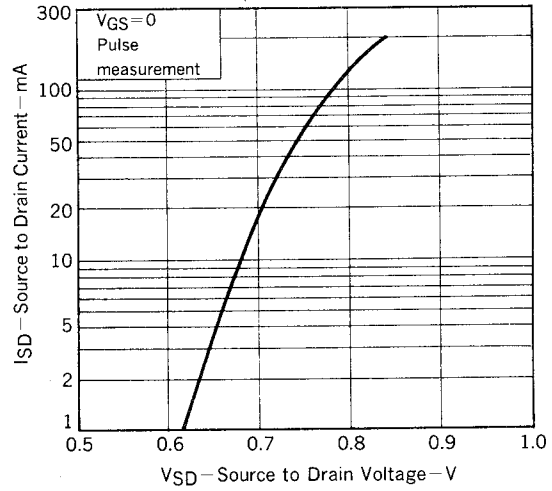
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



SWITCHING CHARACTERISTICS



SOURCE TO DRAIN DIODE FORWARD VOLTAGE



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Anti-radioactive design is not implemented in this product.



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