

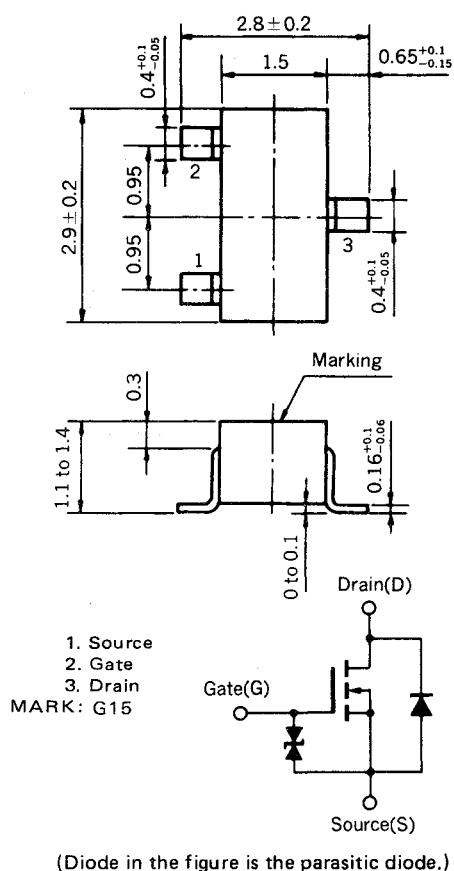
MOS FIELD EFFECT TRANSISTOR

2SK1582

N-CHANNEL MOS FET

FOR SWITCHING

PACKAGE DIMENSIONS (Unit : mm)



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.

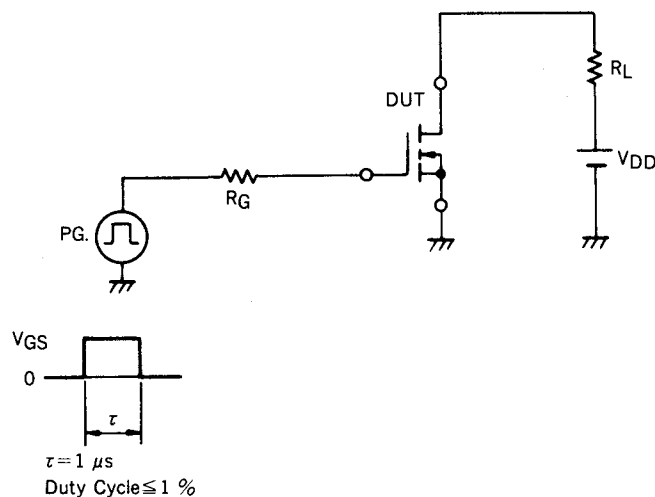
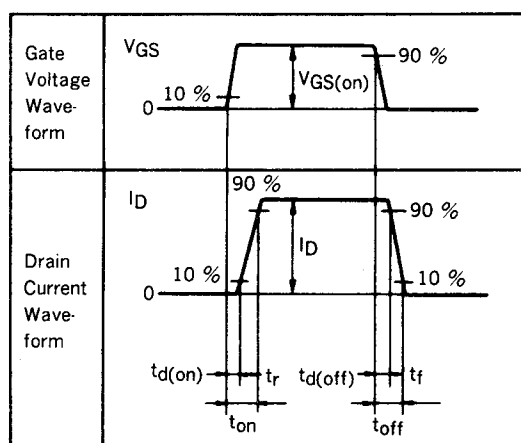
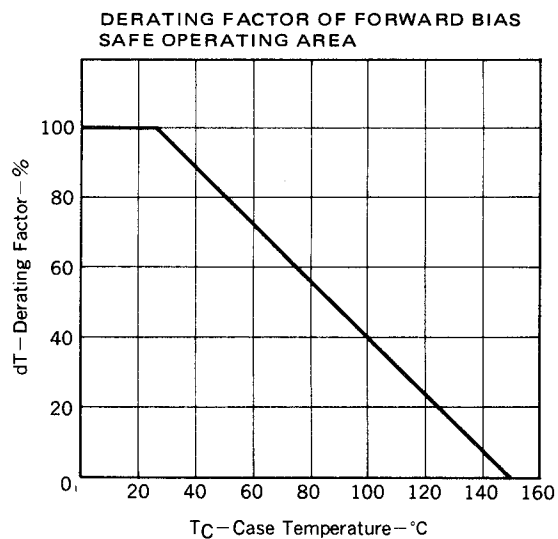
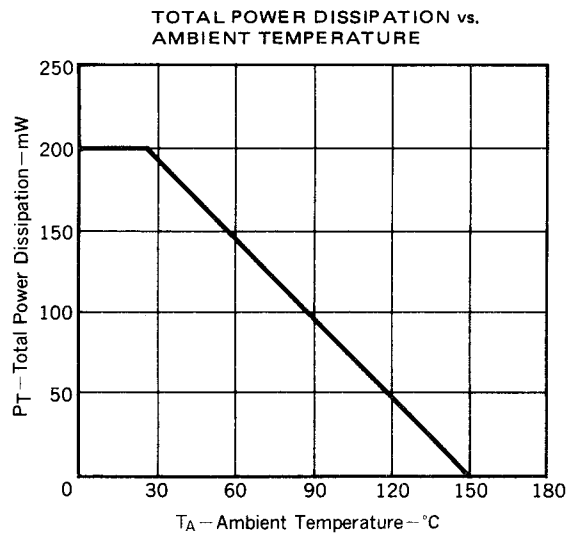
ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

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 $+150$	$^\circ\text{C}$	

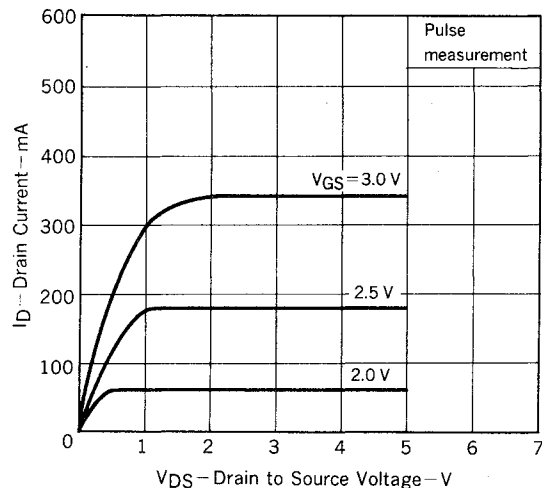
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Cut-off Current	I_{DSS}			1.0	μA	$V_{DS} = 30\text{ V}, V_{GS} = 0$
Gate Leakage Current	I_{GSS}			± 1.0	μA	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0$
Gate Cut-off Voltage	$V_{GS(off)}$	0.8	1.3	1.8	V	$V_{DS} = 5.0\text{ V}, I_D = 1.0\text{ }\mu\text{A}$
Forward Transfer Admittance	$ Y_{fs} $	20	60		mS	$V_{DS} = 5.0\text{ V}, I_D = 10\text{ mA}$
Drain to Source On-State Resistance	$R_{DS(on)1}$		2.2	5.0	Ω	$V_{GS} = 4.0\text{ V}, I_D = 10\text{ mA}$
Drain to Source On-State Resistance	$R_{DS(on)2}$		1.4	3.0	Ω	$V_{GS} = 10\text{ V}, I_D = 10\text{ mA}$
Input Capacitance	C_{iss}		28		pF	$V_{DS} = 5.0\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$
Output Capacitance	C_{oss}		30		pF	
Feedback Capacitance	C_{rss}		7		pF	
Turn-On Delay Time	$t_{d(on)}$		55		ns	$V_{GS(on)} = 5.0\text{ V}, R_G = 10\text{ }\Omega$ $V_{DD} = 5.0\text{ V}, I_D = 10\text{ mA}$ $R_L = 500\text{ }\Omega$
Rise Time	t_r		200		ns	
Turn-Off Delay Time	$t_{d(off)}$		180		ns	
Fall Time	t_f		250		ns	

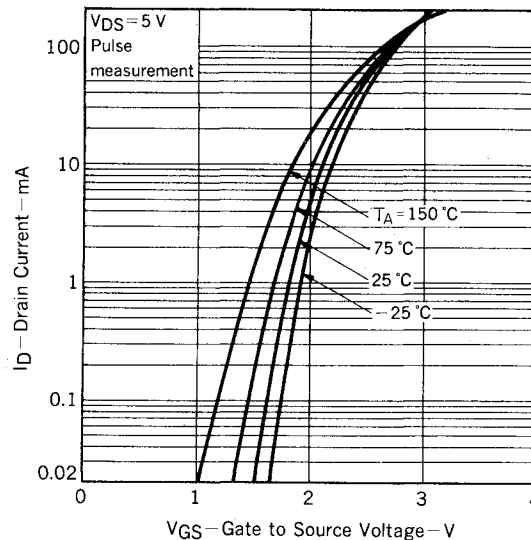
SWITCHING TIME MEASUREMENT CIRCUIT AND CONDITIONS

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

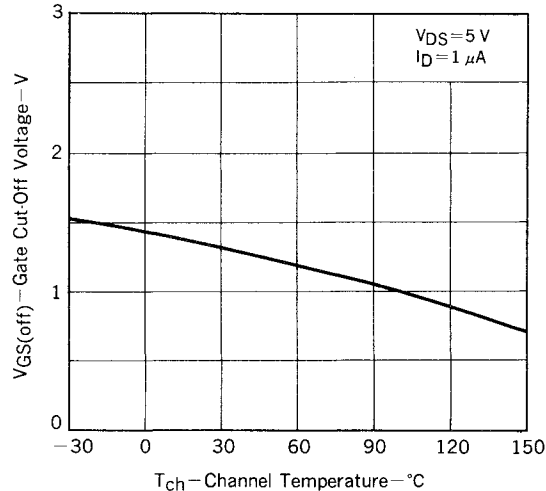
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



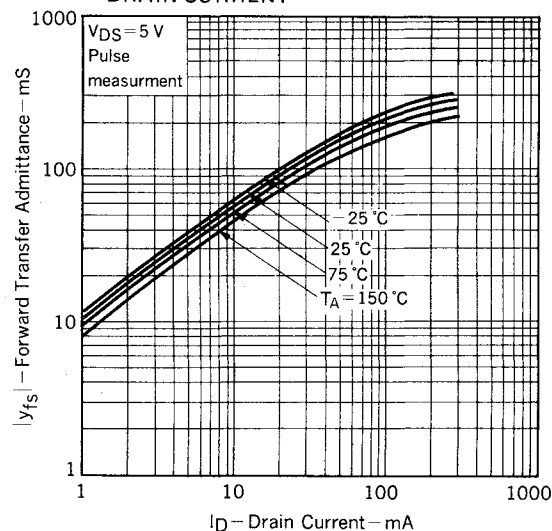
TRANSFER CHARACTERISTICS



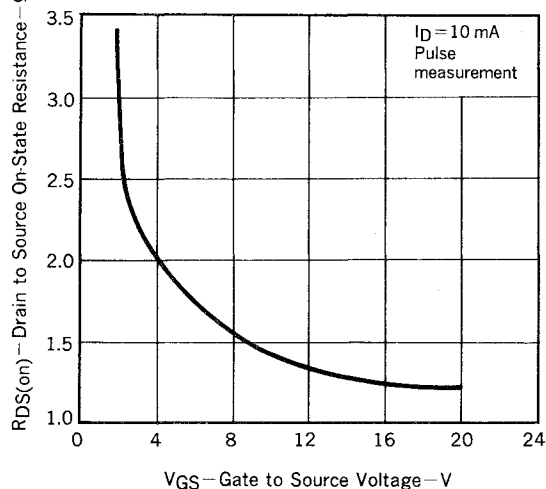
GATE TO SOURCE CUTOFF VOLTAGE vs.
CHANNEL TEMPERATURE



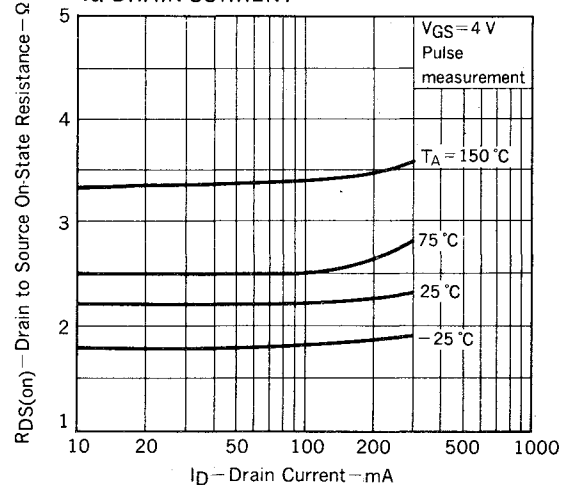
FORWARD TRANSFER ADMITTANCE vs.
DRAIN CURRENT



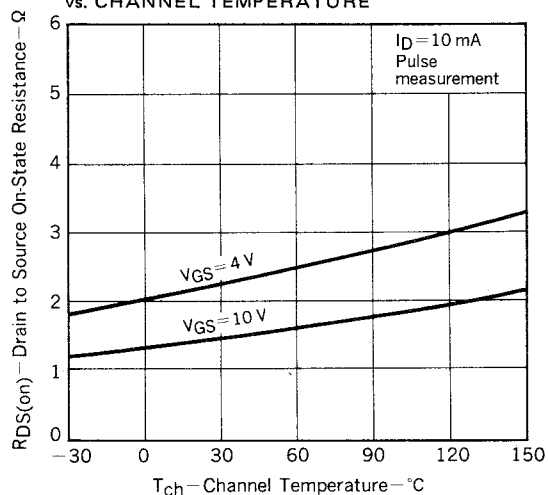
DRAIN TO SOURCE ON-STATE RESISTANCE
vs. GATE TO SOURCE VOLTAGE



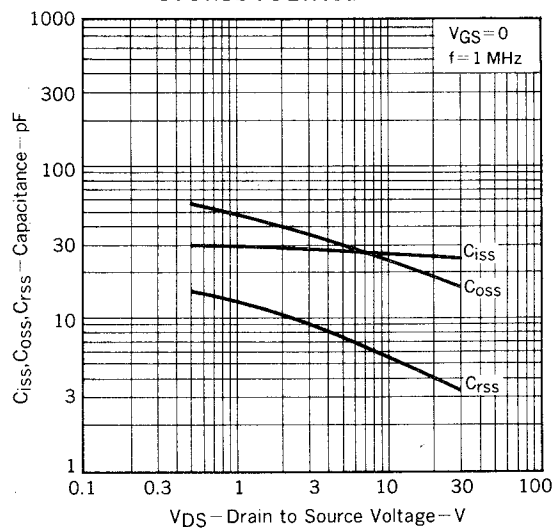
DRAIN TO SOURCE ON-STATE RESISTANCE
vs. DRAIN CURRENT



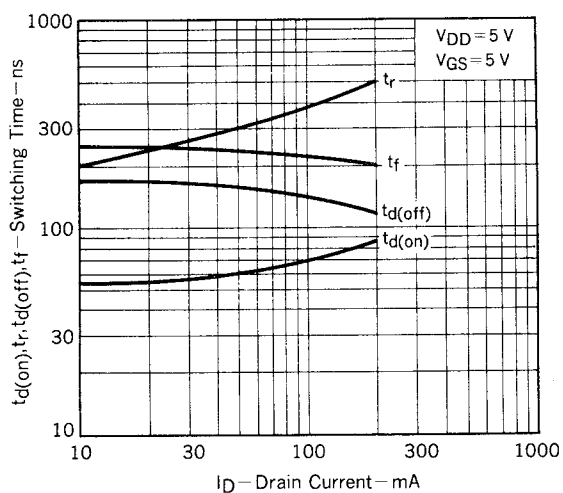
DRAIN TO SOURCE ON-STATE RESISTANCE
vs. CHANNEL TEMPERATURE



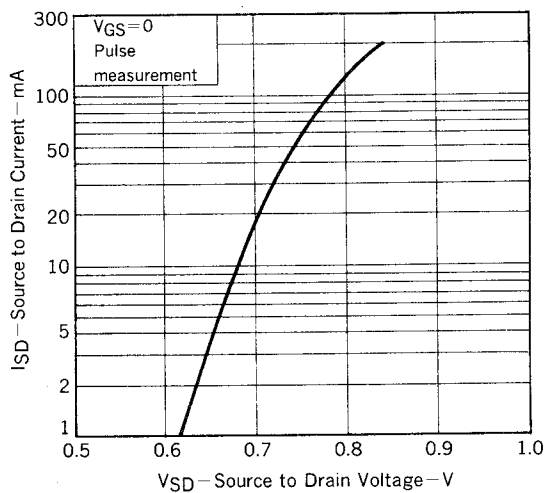
CAPACITANCE vs. DRAIN TO
SOURCE VOLTAGE



SWITCHING CHARACTERISTICS



SOURCE TO DRAIN DIODE
FORWARD VOLTAGE



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Anti-radioactive design is not implemented in this product.