

# MOS FIELD EFFECT TRANSISTOR 2SK1482

## N-CHANNEL MOS FIELD EFFECT TRANSISTOR FOR SWITCHING

### DESCRIPTION

The 2SK1482 is N-channel vertical type MOS FET switching device which can be directly driven from an IC operating with a 5 V single power supply. The device featuring low on-state resistance is of the voltage drive type and thus is ideal for driving actuators such as motors, solenoids, and relays.

### FEATURES

- Low on-state resistance  
 $R_{DS(on)1} = 0.8 \Omega \text{ MAX. (} V_{GS} = 4 \text{ V, } I_D = 0.5 \text{ A)}$   
 $R_{DS(on)2} = 0.4 \Omega \text{ MAX. (} V_{GS} = 10 \text{ V, } I_D = 0.5 \text{ A)}$
- Voltage drive at logic level ( $V_{GS} = 4 \text{ V}$ ) is possible.
- Bidirectional zener diode for protection is incorporated in between the gate and the source.
- Inductive loads can be driven without protective circuit thanks to the improved breakdown voltage between the drain and source.
- Can be used complementary with the 2SJ196.

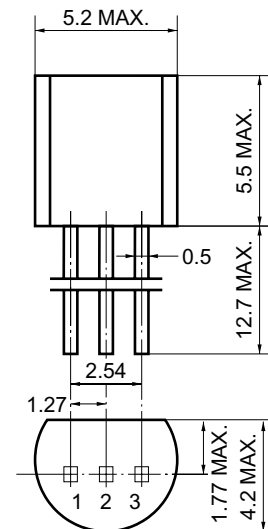
### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

Drain to Source Voltage ( $V_{GS} = 0 \text{ V}$ )	$V_{DSS}$	30	V
Gate to Source Voltage ( $V_{DS} = 0 \text{ V}$ )	$V_{GSS}$	$\pm 20$	V
Drain Current (DC) ( $T_C = 25^\circ\text{C}$ )	$I_{D(DC)}$	$\pm 1.5$	A
Drain Current (pulse) <sup>Note</sup>	$I_{D(pulse)}$	$\pm 3.0$	A
Total Power Dissipation ( $T_A = 25^\circ\text{C}$ )	$P_T$	750	W
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

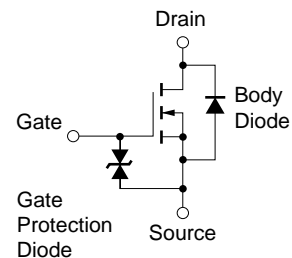
**Note**  $PW \leq 10 \text{ ms}$ , Duty Cycle  $\leq 50\%$

**Remark** The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

### PACKAGE DRAWING (Unit : mm)



### EQUIVALENT CIRCUIT

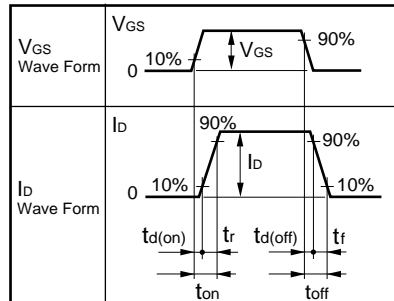
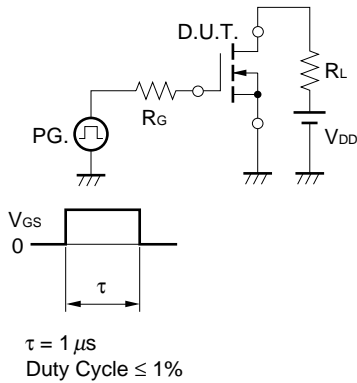


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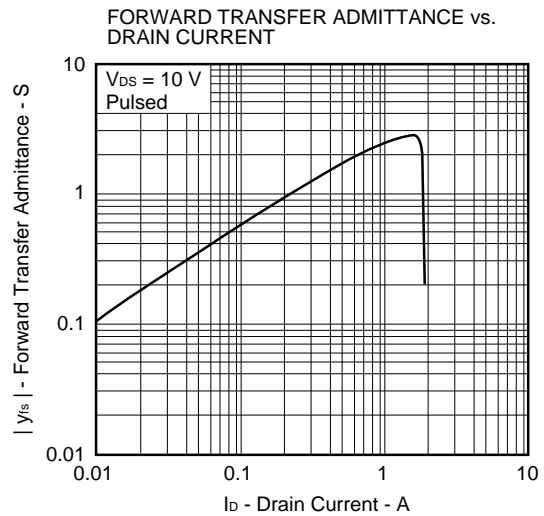
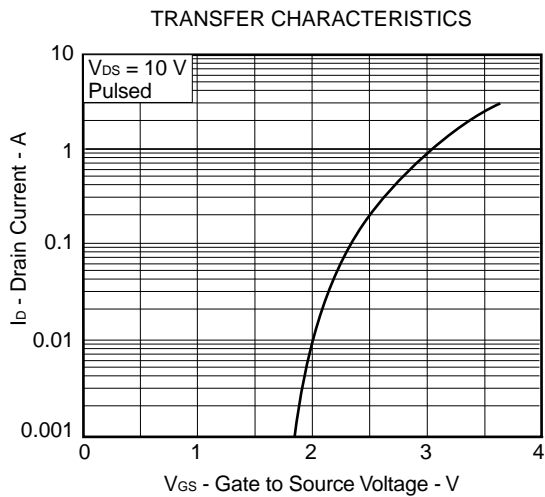
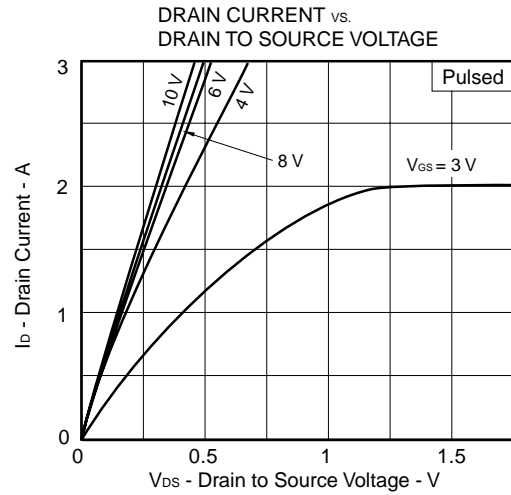
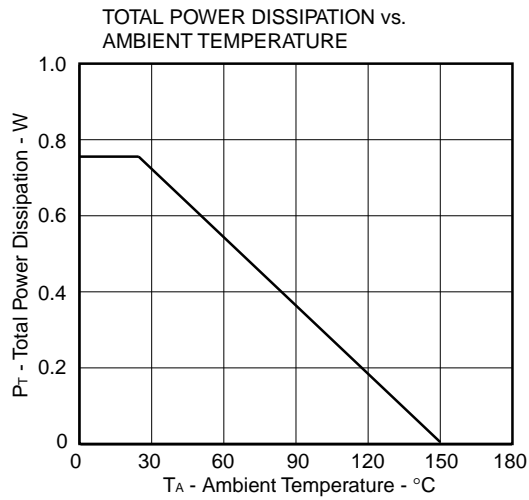
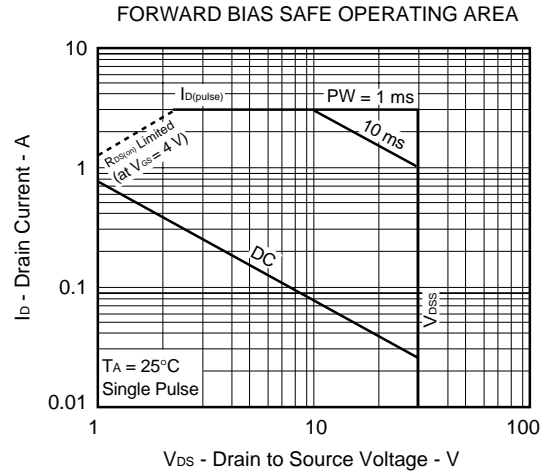
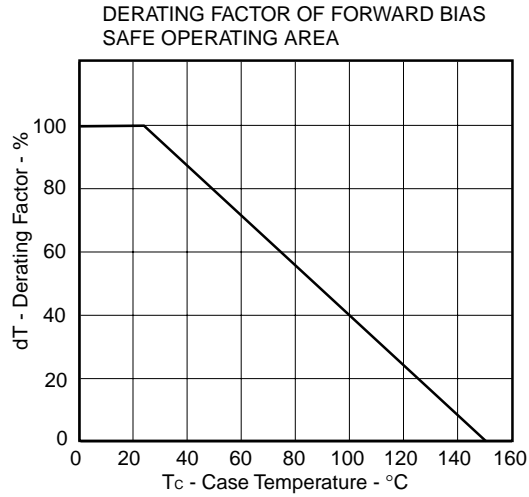
**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)**

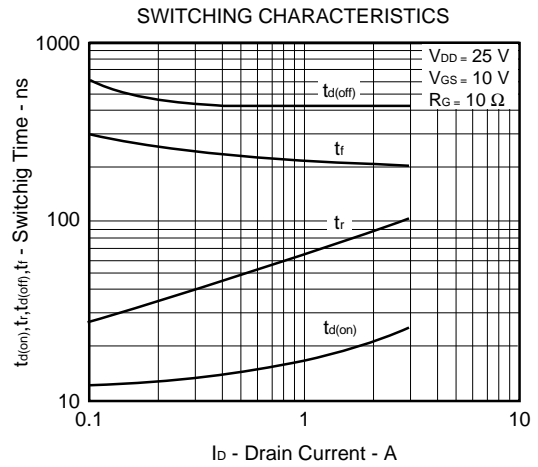
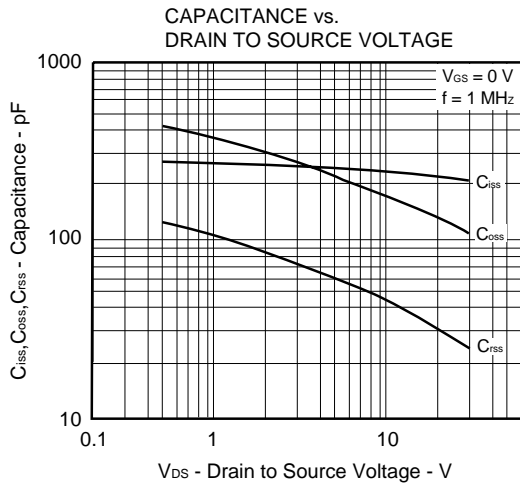
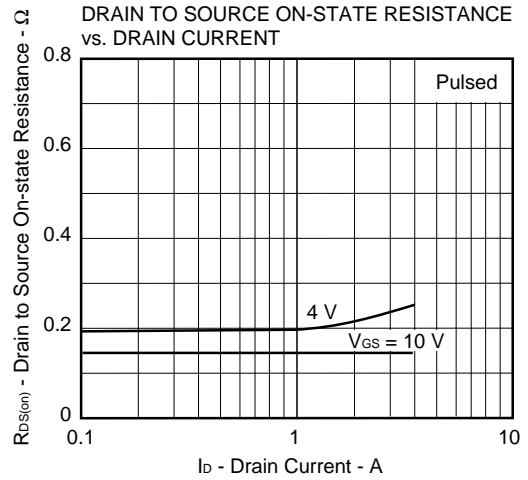
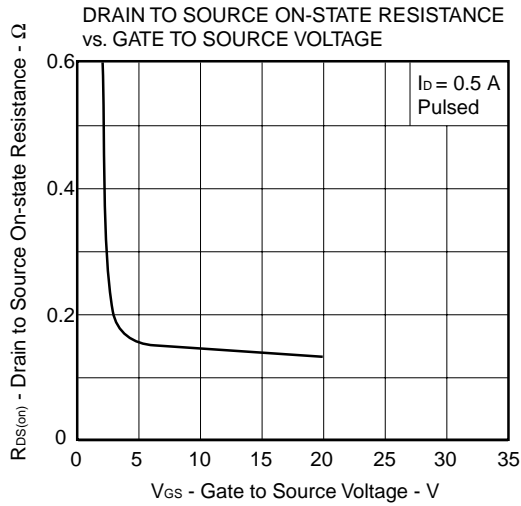
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 0 V			10	μA
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20 V, V <sub>DS</sub> = 0 V			±10	μA
Gate Cut-off Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 1 mA	1.3	1.8	2.5	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 0.5 A	0.4			S
★ Drain to Source On-state Resistance	R <sub>DS(on)1</sub>	V <sub>GS</sub> = 4.0 V, I <sub>D</sub> = 0.5 A		0.19	0.8	Ω
	R <sub>DS(on)2</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 0.5 A		0.15	0.4	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10 V		230		pF
Output Capacitance	C <sub>oss</sub>	V <sub>GS</sub> = 0 V		170		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	f = 1 MHz		45		pF
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 25 V, I <sub>D</sub> = 0.5 A		15		ns
Rise Time	t <sub>r</sub>	V <sub>GS</sub> = 10 V		50		ns
Turn-off Delay Time	t <sub>d(off)</sub>	R <sub>G</sub> = 10 Ω		420		ns
Fall Time	t <sub>f</sub>			240		ns

**SWITCHING TIME**

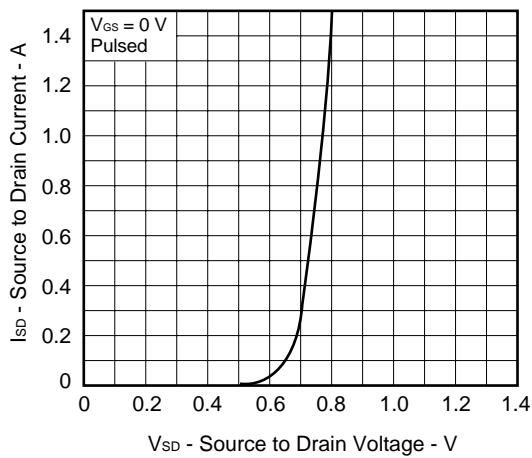


TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)





**SOURCE TO DRAIN DIODE FORWARD VOLTAGE**



[MEMO]

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