

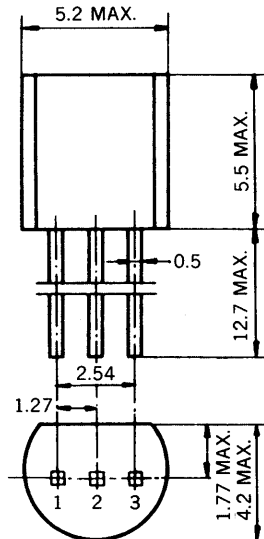
# DATA SHEET

## MOS FIELD EFFECT TRANSISTOR

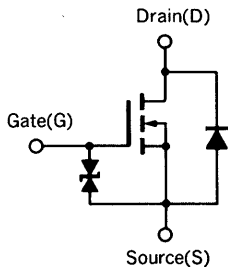
# 2SK1482

### N-CHANNEL MOS FET FOR SWITCHING

#### PACKAGE DIMENSIONS (Unit : mm)



1. Gate (G)
2. Drain (D)
3. Source (S)



(Diode in the figure is the parasitic diode.)

The 2SK1482 is an 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  
 $R_{DS(on)} = 0.8 \Omega$  MAX. at  $V_{GS} = 4 V, I_D = 0.5 A$   
 $R_{DS(on)} = 0.4 \Omega$  MAX. at  $V_{GS} = 10 V, I_D = 0.5 A$
- Voltage drive at logic level ( $V_{GS} = 4 V$ ) 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

#### QUALITY GRADE

Standard

Please refer to "Quality grade on NEC Semiconductor Devices" (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

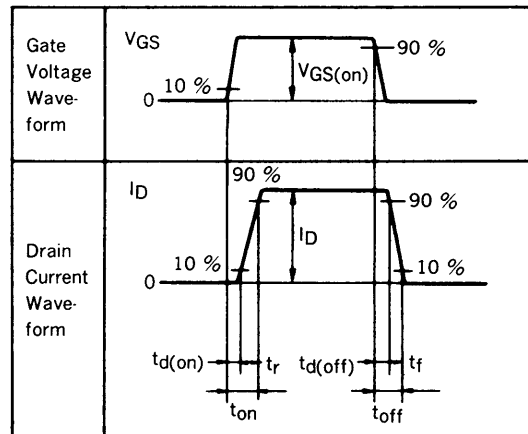
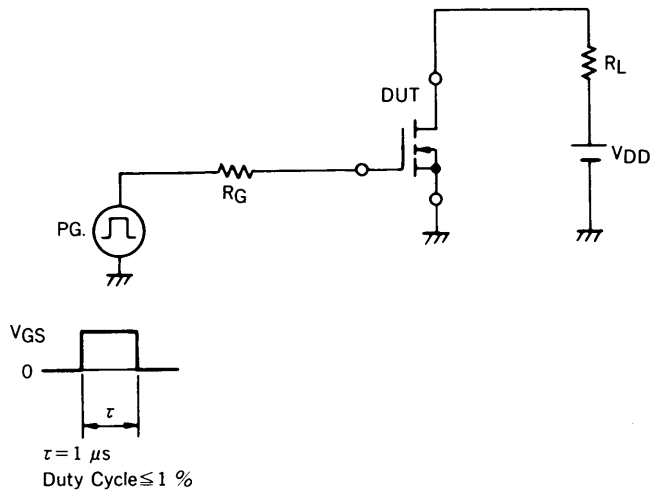
#### ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

PARAMETER	SYMBOL	RATINGS	UNIT	TEST CONDITIONS
Drain to Source Voltage	$V_{DSS}$	30	V	$V_{GS} = 0$
Gate to Source Voltage	$V_{GSS}$	$\pm 20$	V	$V_{DS} = 0$
Drain Current (DC)	$I_D(DC)$	$\pm 1.5$	A	
Drain Current (pulse)	$I_D(pulse)$	$\pm 3.0$	A	$PW \leq 10 ms, Duty Cycle \leq 50 \%$
Total Power Dissipation	$P_T$	750	mW	
Channel Temperature	$T_{ch}$	150	$^\circ C$	
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ C$	

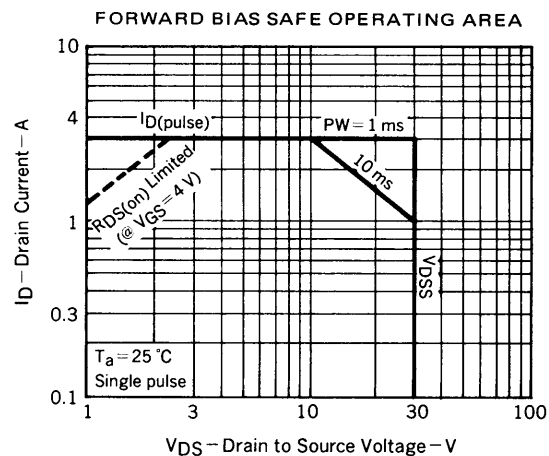
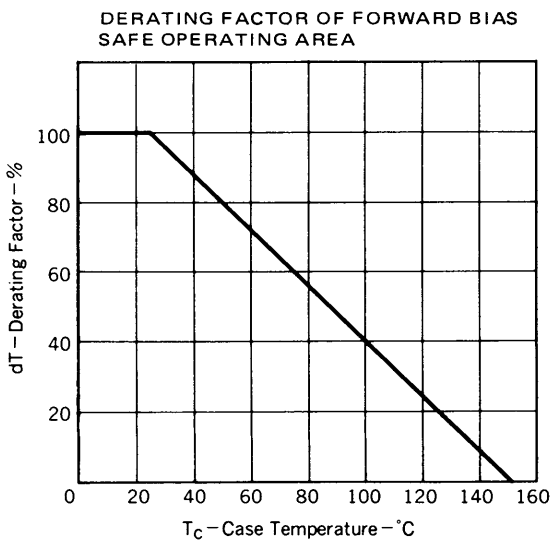
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Cut-off Current	$I_{DSS}$			10	$\mu\text{A}$	$V_{DS} = 30\text{ V}, V_{GS} = 0$
Gate Leakage Current	$I_{GSS}$			$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0$
Gate Cut-off Voltage	$V_{GS(off)}$	1.3	1.8	2.5	V	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$
Forward Transfer Admittance	$ y_{fs} $	0.4			S	$V_{DS} = 10\text{ V}, I_D = 0.5\text{ A}$
Drain to Source On-State Resistance	$R_{DS(on)1}$		0.4	0.8	$\Omega$	$V_{GS} = 4.0\text{ V}, I_D = 0.5\text{ A}$
Drain to Source On-State Resistance	$R_{DS(on)2}$		0.15	0.4	$\Omega$	$V_{GS} = 10\text{ V}, I_D = 0.5\text{ A}$
Input Capacitance	$C_{iss}$		230		pF	$V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$
Output Capacitance	$C_{oss}$		170		pF	
Feedback Capacitance	$C_{rss}$		45		pF	
Turn-On Delay Time	$t_{d(on)}$		15		ns	$V_{GS(on)} = 10\text{ V}, R_G = 10\ \Omega$ $V_{DD} = 25\text{ V}, I_D = 0.5\text{ A}$ $R_L = 50\ \Omega$
Rise Time	$t_r$		50		ns	
Turn-Off Delay Time	$t_{d(off)}$		420		ns	
Fall Time	$t_f$		240		ns	

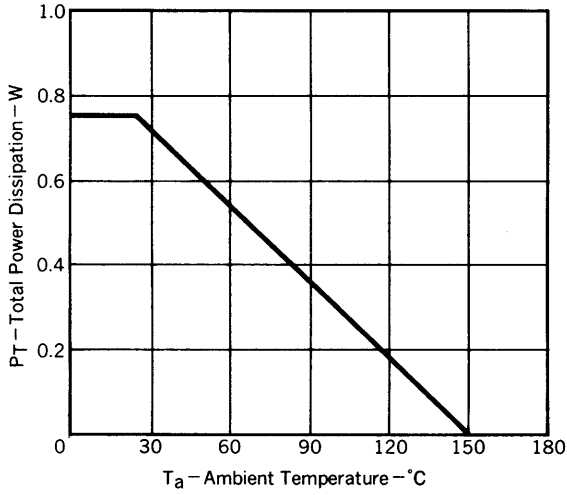
SWITCHING TIME MEASUREMENT CIRCUIT AND CONDITIONS



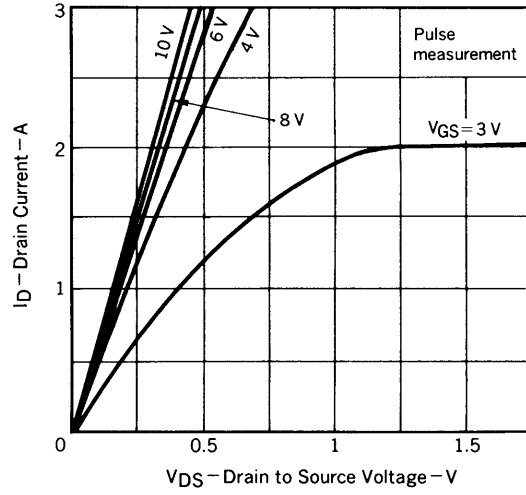
TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )



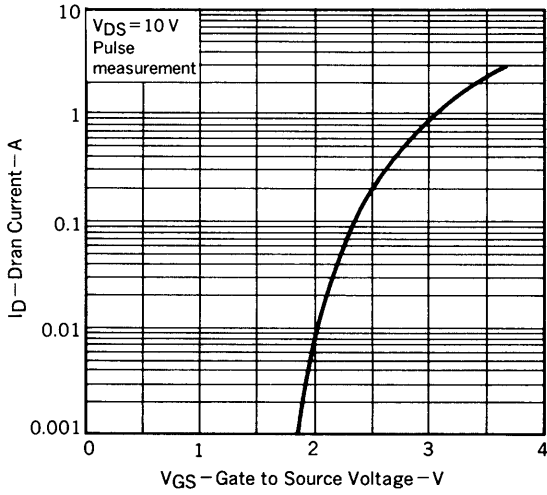
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



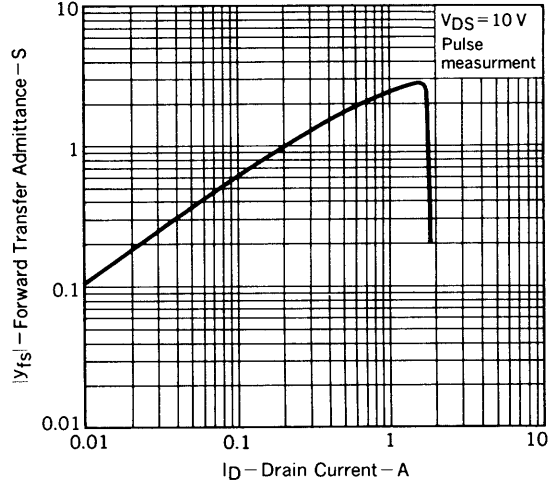
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



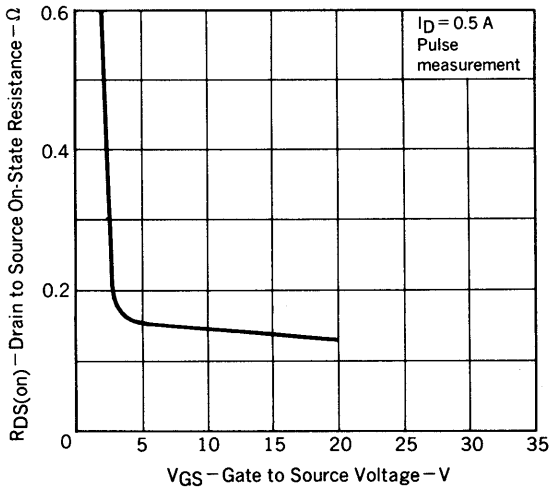
TRANSFER CHARACTERISTICS



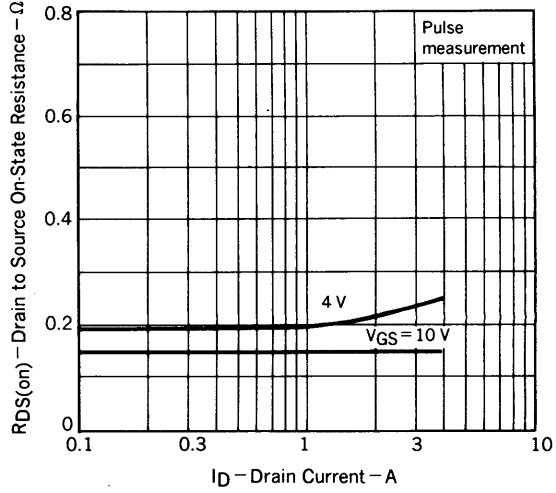
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



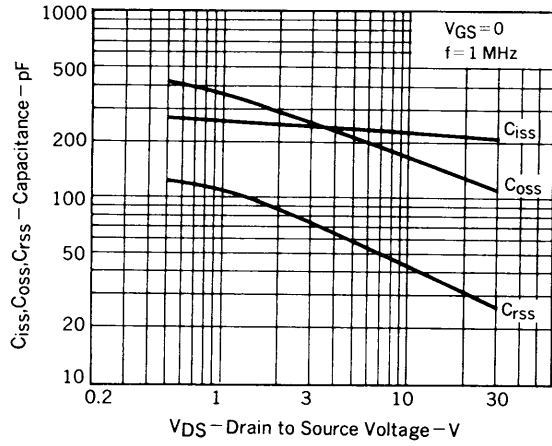
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



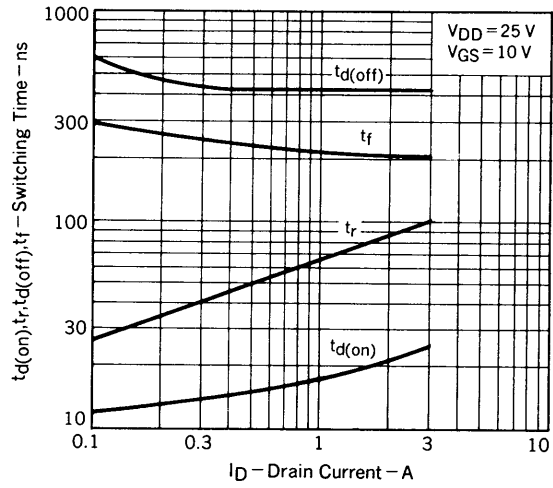
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



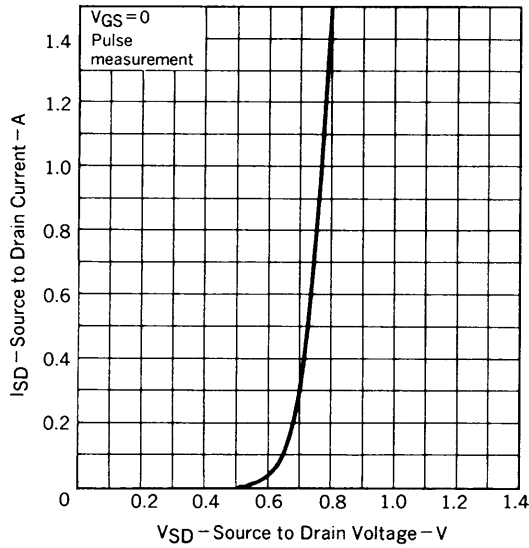
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



SWITCHING CHARACTERISTICS



SOURCE TO DRAIN DIODE FORWARD VOLTAGE



**RECOMMENDED SOLDERING CONDITIONS**

Solder this product under the following recommended conditions.

For soldering methods or soldering conditions other than those recommended in the table, please consult our NEC salespeople.

**Insert type**

Soldering method	Soldering conditions	Recommended condition code
Wave soldering	Solder bath temperature: 260 °C max. Soldering time: 10 sec max.	

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**Application examples recommended by NEC Corporation**

**Standard:** Data processing and office equipment, Communication equipment (terminal, mobile), Test and Measurement equipment, Audio and Video equipment, Other consumer products, etc.

**Special:** Automotive and Transportation equipment, Communication equipment (trunk line), Train and Traffic control devices, industrial robots, Burning control systems, antidisaster systems, anticrime systems etc.

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