

MOS FIELD EFFECT TRANSISTOR

2SK1485

N-CHANNEL MOS FIELD EFFECT TRANSISTOR FOR SWITCHING

DESCRIPTION

The 2SK1485, 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.

As the MOS FET has low on-state resistance and excellent switching characteristics, it is suitable for driving actuators such as motors, relays, and solenoids.

FEATURES

- Directly driven by ICs having a 5 V power source.
- Low on-state resistance
 $R_{DS(on)1} = 1.2 \Omega \text{ MAX. (} V_{GS} = 4.0 \text{ V, } I_D = 0.5 \text{ A)}$
 $R_{DS(on)2} = 0.8 \Omega \text{ MAX. (} V_{GS} = 10 \text{ V, } I_D = 0.5 \text{ A)}$
- Complementary to 2SJ199.

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

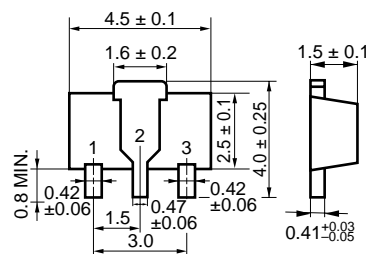
Drain to Source Voltage ($V_{GS} = 0 \text{ V}$)	V_{DSS}	100	V
Gate to Source Voltage ($V_{DS} = 0 \text{ V}$)	V_{GSS}	± 20	V
★ Drain Current (DC) ($T_C = 25^\circ\text{C}$)	$I_{D(DC)}$	± 1.0	A
Drain Current (pulse) ^{Note1}	$I_{D(pulse)}$	± 2.0	A
Total Power Dissipation ($T_A = 25^\circ\text{C}$) ^{Note2}	P_T	2.0	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes1. $PW \leq 10 \text{ ms}$, Duty Cycle $\leq 50\%$

2. Mounted on ceramic board of $16 \text{ cm}^2 \times 0.7 \text{ mm}$

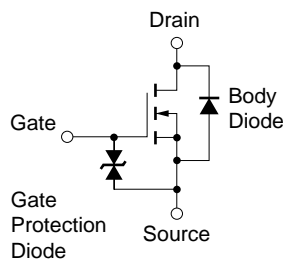
Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

PACKAGE DRAWING (Unit : mm)



1.Source
2.Drain
3.Gate
MARK : NC

EQUIVALENT CIRCUIT

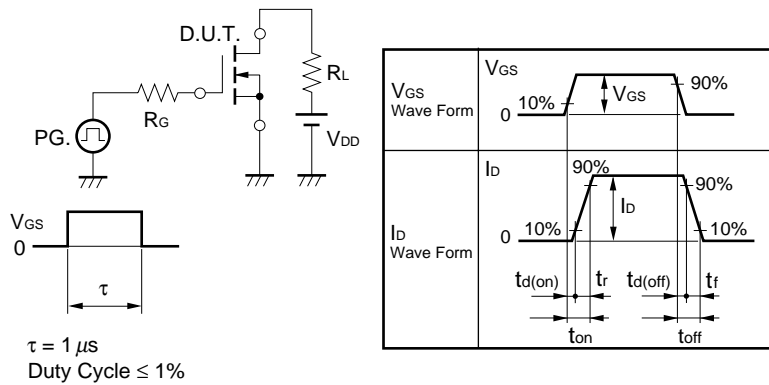


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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

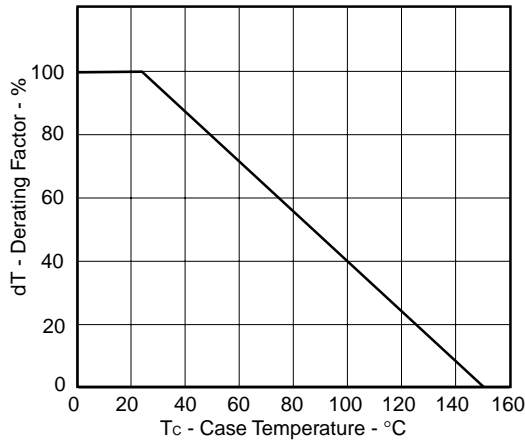
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100 V, V _{GS} = 0 V			10	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20 V, V _{DS} = 0 V			±10	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 10 V, I _D = 1 mA	0.8	1.2	2.0	V
Forward Transfer Admittance	y _{fs}	V _{DS} = 10 V, I _D = 0.5 A	0.4			S
Drain to Source On-state Resistance	R _{DS(on)1}	V _{GS} = 4.0 V, I _D = 0.5 A		0.6	1.2	Ω
	R _{DS(on)2}	V _{GS} = 10 V, I _D = 0.5 A		0.5	0.8	Ω
Input Capacitance	C _{iss}	V _{DS} = 10 V		230		pF
Output Capacitance	C _{OSS}	V _{GS} = 0 V		80		pF
Reverse Transfer Capacitance	C _{rss}	f = 1 MHz		12		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = 25 V, I _D = 0.5 A		14		ns
Rise Time	t _r	V _{GS} = 10 V		14		ns
Turn-off Delay Time	t _{d(off)}	R _G = 10 Ω		370		ns
Fall Time	t _f			65		ns

SWITCHING TIME

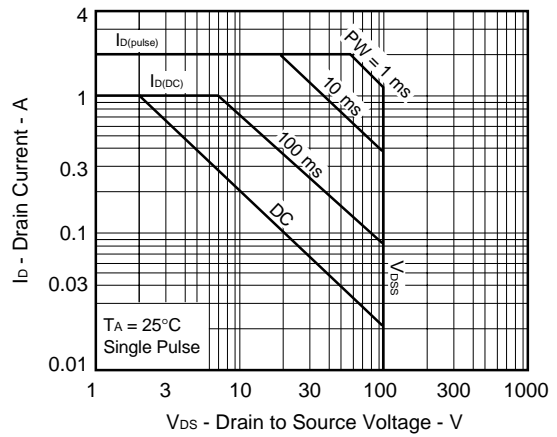


TYPICAL CHARACTERISTICS (T_A = 25°C)

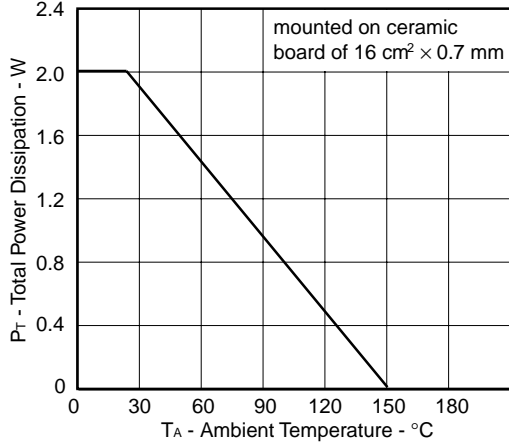
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



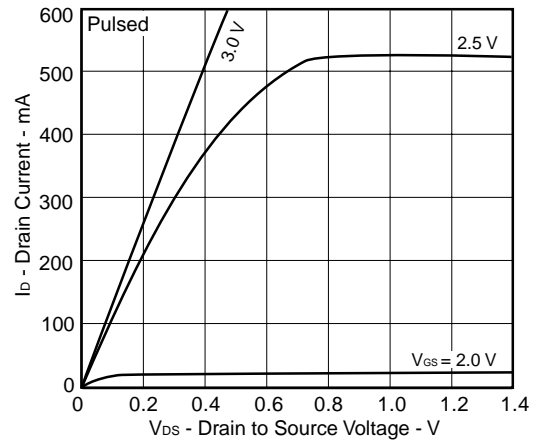
FORWARD BIAS SAFE OPERATING AREA



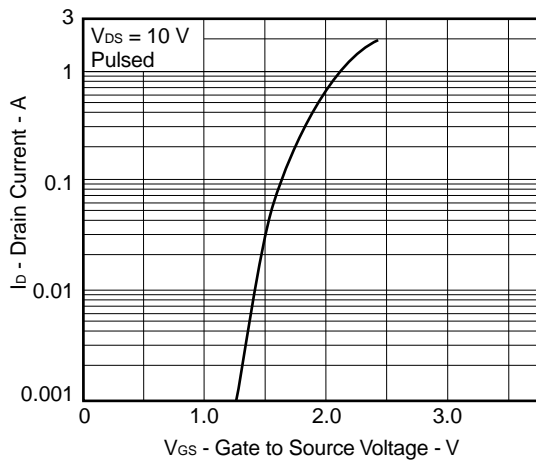
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



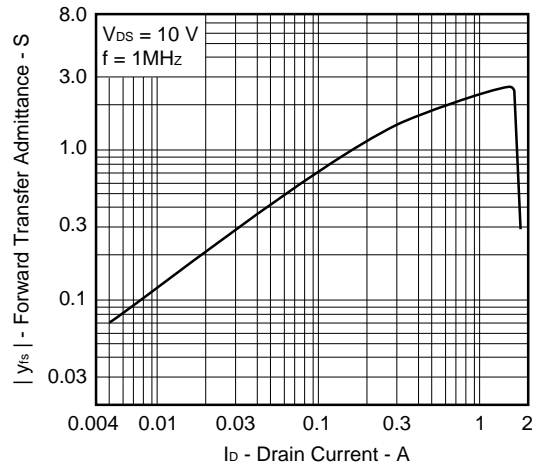
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

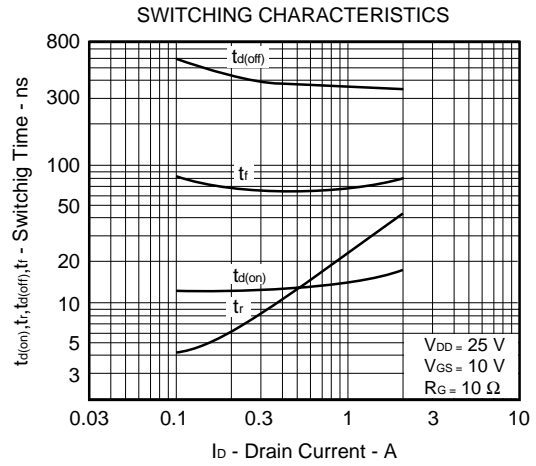
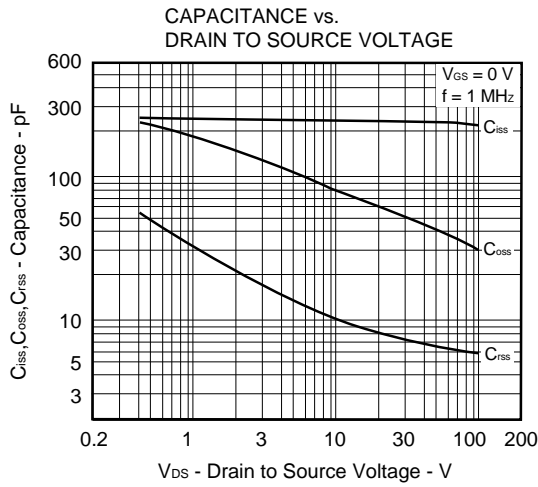
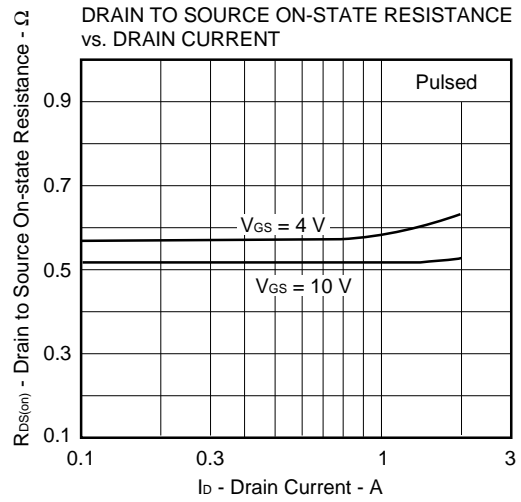
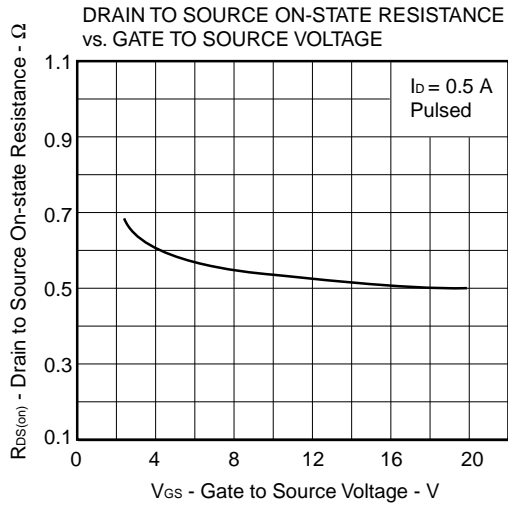


TRANSFER CHARACTERISTICS

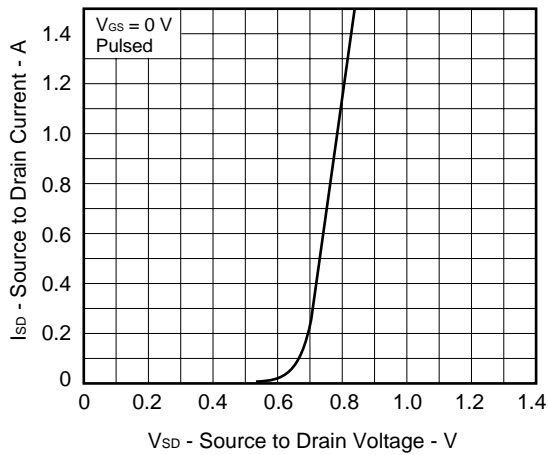


FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT





SOURCE TO DRAIN DIODE FORWARD VOLTAGE



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