

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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**N-CHANNEL MOS FIELD EFFECT TRANSISTOR
 FOR SWITCHING**

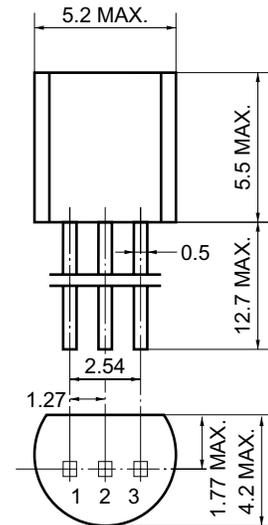
DESCRIPTION

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.

PACKAGE DRAWING (Unit : mm)

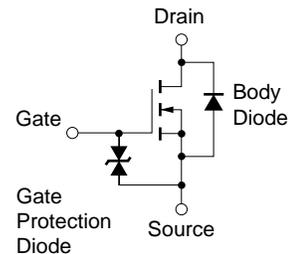


ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

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

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

EQUIVALENT CIRCUIT



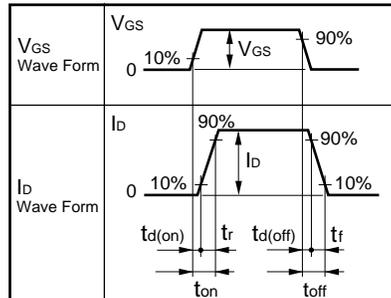
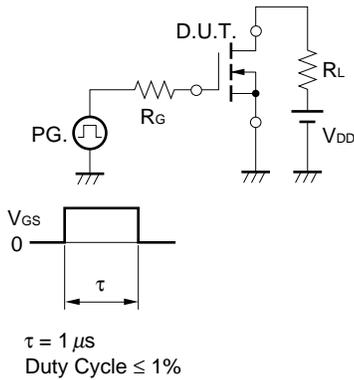
Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

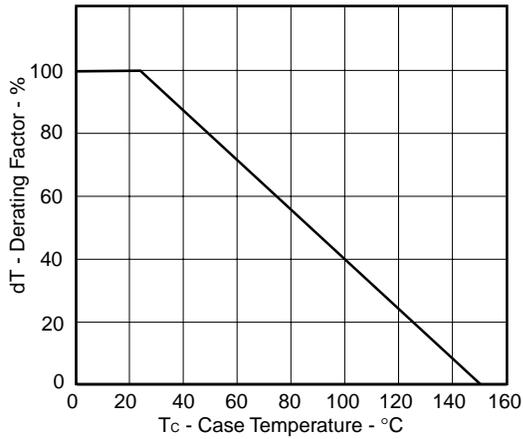
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			10	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20 V, V _{DS} = 0 V			±10	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 10 V, I _D = 1 mA	1.3	1.8	2.5	V
Forward Transfer 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		0.19	0.8	Ω
	R _{DS(on)2}	V _{GS} = 10 V, I _D = 0.5 A		0.15	0.4	Ω
Input Capacitance	C _{iss}	V _{DS} = 10 V		230		pF
Output Capacitance	C _{oss}	V _{GS} = 0 V		170		pF
Reverse Transfer Capacitance	C _{rss}	f = 1 MHz		45		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = 25 V, I _D = 0.5 A		15		ns
Rise Time	t _r	V _{GS} = 10 V		50		ns
Turn-off Delay Time	t _{d(off)}	R _G = 10 Ω		420		ns
Fall Time	t _f			240		ns

SWITCHING TIME

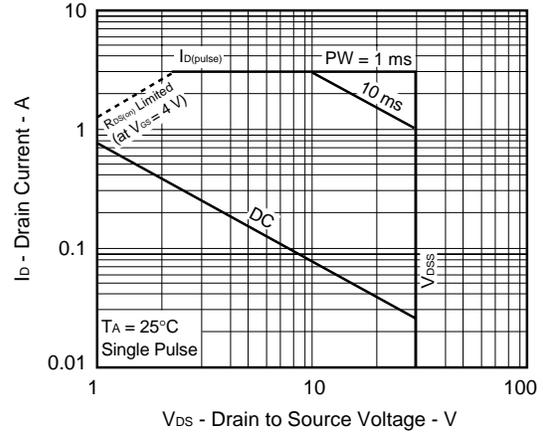


TYPICAL CHARACTERISTICS (T_A = 25°C)

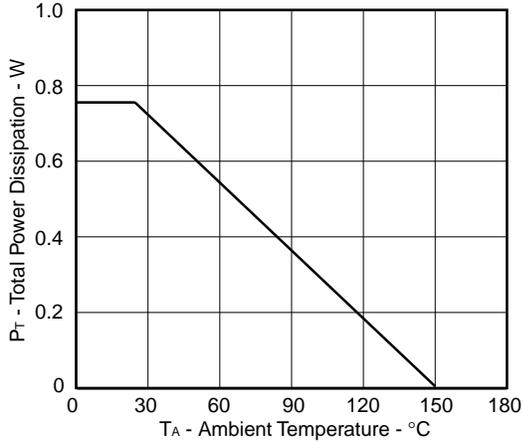
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



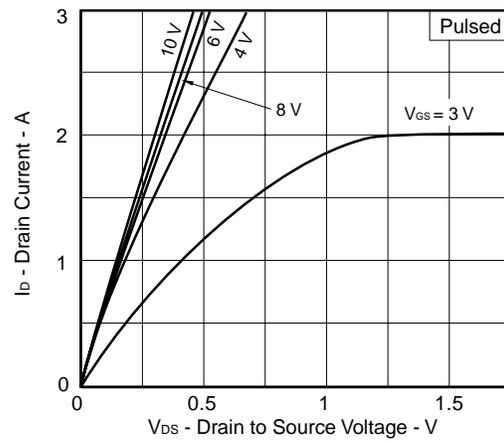
FORWARD BIAS SAFE OPERATING AREA



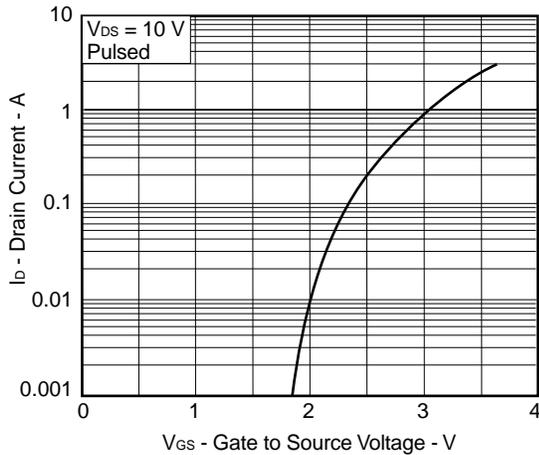
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



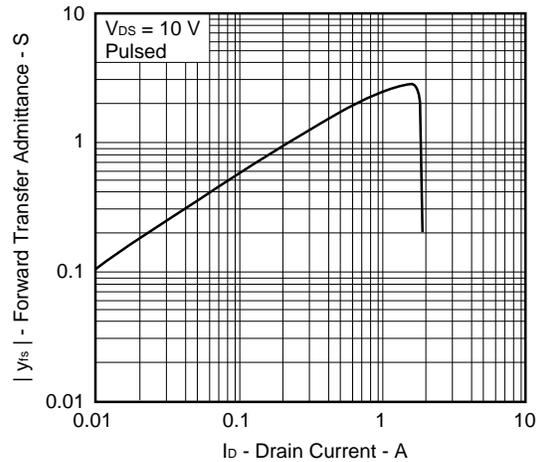
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

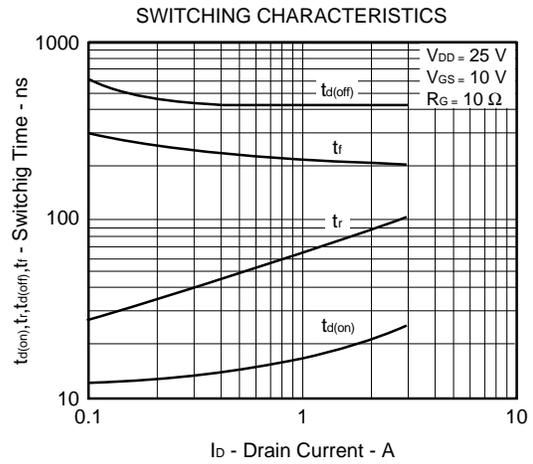
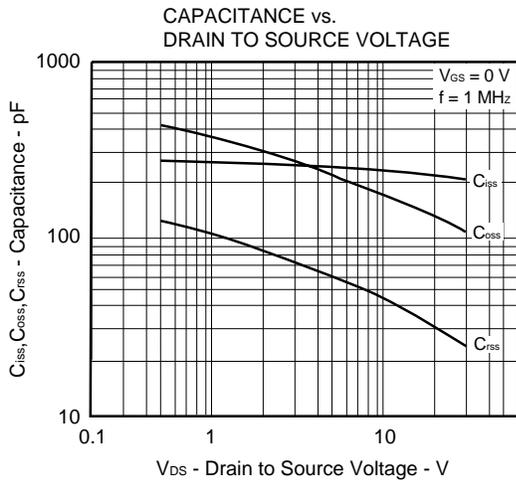
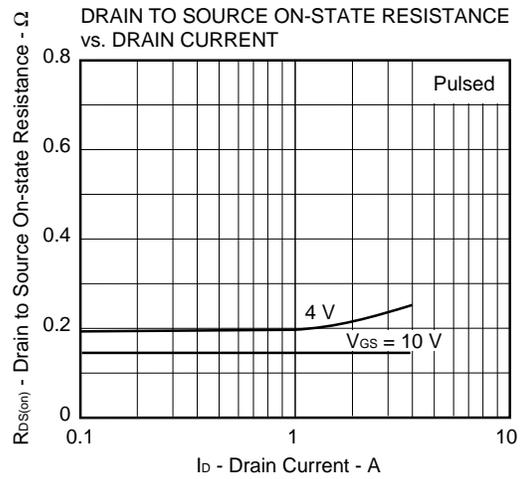
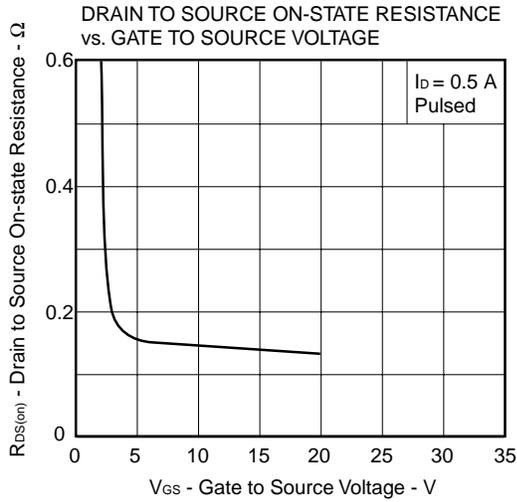


TRANSFER CHARACTERISTICS

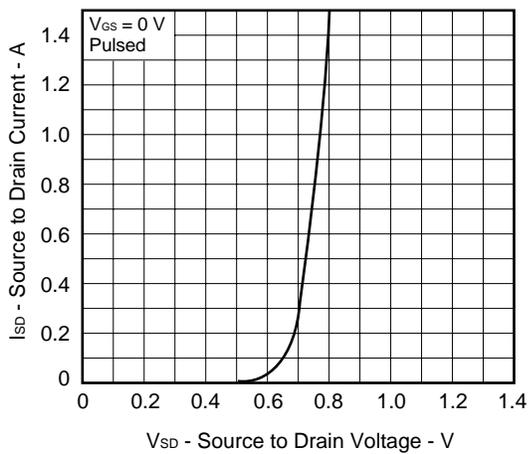


FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT





SOURCE TO DRAIN DIODE FORWARD VOLTAGE



[MEMO]

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