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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MOS FIELD EFFECT TRANSISTOR **2SK2858**

N-CHANNEL MOS FIELD EFFECT TRANSISTOR FOR SWITCHING

DESCRIPTION

The 2SK2858 is a switching device which can be driven directly by a 2.5 V power source.

The 2SK2858 has excellent switching characteristics, and is suitable for use as a high-speed switching device in digital circuits.

FEATURES

- Can be driven by a 2.5 V power source
- · Low gate cut-off voltage

ORDERING INFORMATION

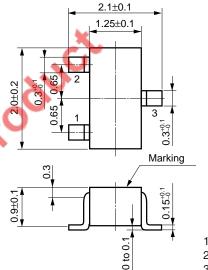
ORDERING INFORMA	TION	6
PART NUMBER	PACKAGE	
2SK2858	SC-70 (SSP)	100
Marking: G24	Ċ	n,

ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

Drain to Source Voltage	VDSS	30	V
Gate to Source Voltage	Vgss	±20	V
Drain Current (DC)	I _{D(DC)}	±0.1	Α
Drain Current (pulse) Note	I _{D(pulse)}	±0.4	Α
Total Power Dissipation	Рт	150	mW
Channel Temperature	Tch	150	°C
Storage Temperature	Tstg	-55 to +150	°C

Note PW \leq 10 μ s, Duty Cycle \leq 1%

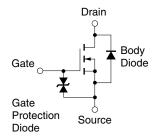
PACKAGE DRAWING (Unit: mm) <R>



1. Source

2. Gate 3. Drain

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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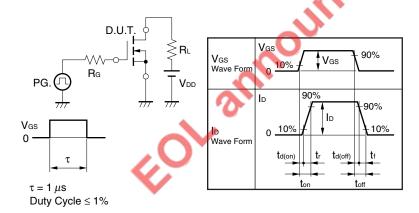


ELECTRICAL CHARACTERISTICS (TA = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	IDSS	V _{DS} = 30 V, V _{GS} = 0 V			1	μА
Gate Leakage Current	Igss	V _{GS} = ±20 V, V _{DS} = 0 V			±10	μΑ
Gate Cut-off Voltage	V _{GS(off)}	$V_{DS} = 3 \text{ V}, I_{D} = 10 \mu\text{A}$	1.0	1.4	1.8	V
Forward Transfer Admittance Note	y _{fs}	V _{DS} = 3 V, I _D = 10 m A	20			mS
Drain to Source On-state Resistance Note	RDS(on)1	V _{GS} = 2.5 V, I _D = 1 m A		8	15	Ω
	RDS(on)2	V _{GS} = 4 V, I _D = 10 mA		4	8	Ω
	RDS(on)3	V _{GS} = 10 V, I _D = 10 mA		3	5	Ω
Input Capacitance	Ciss	V _{DS} = 3 V		9		pF
Output Capacitance	Coss	V _{GS} = 0 V	C	12		pF
Reverse Transfer Capacitance	Crss	f = 1 MHz	7	2.1		pF
Turn-on Delay Time	td(on)	V _{DD} = 3 V, I _D = 10 mA		40		ns
Rise Time	tr	V _{GS} = 4 V		55		ns
Turn-off Delay Time	td(off)	R _G = 10 Ω		68		ns
Fall Time	tf			64		ns

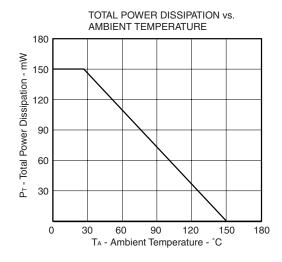
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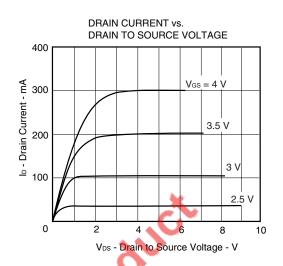
TEST CIRCUIT SWITCHING TIME

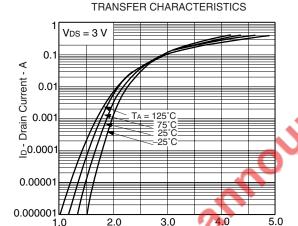




TYPICAL CHARACTERISTICS (TA = 25°C)

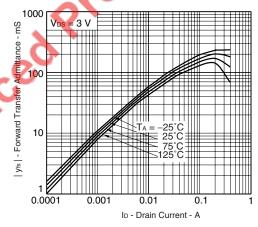


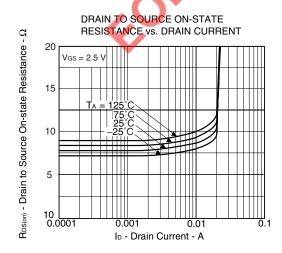


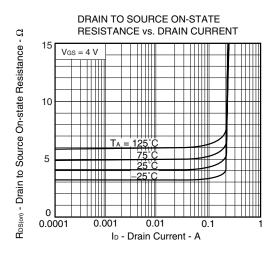


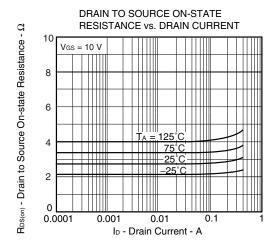
Vgs - Gate to Sorce Voltage - V

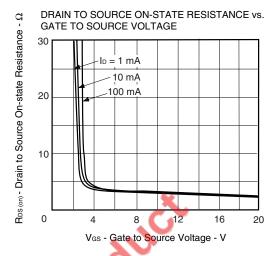


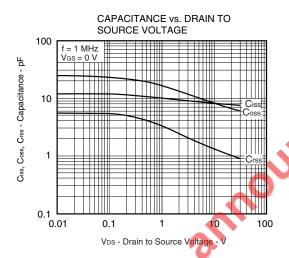


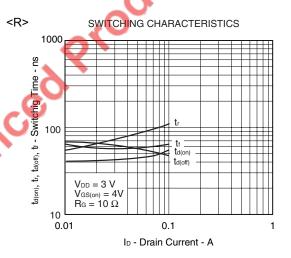


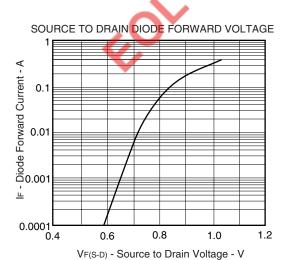












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