

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 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

PART NUMBER	PACKAGE
2SK2858	SC-70 (SSP)

Marking: G24

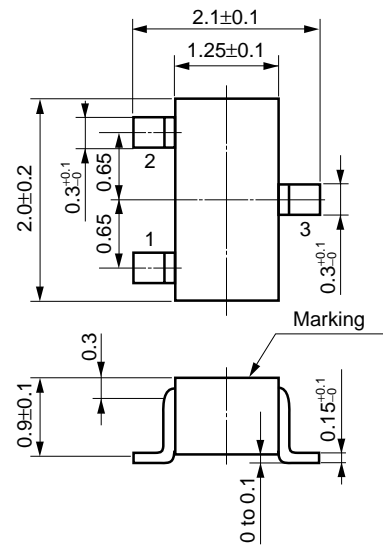
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Drain to Source Voltage	V _{DSS}	30	V
Gate to Source Voltage	V _{GSS}	±20	V
Drain Current (DC)	I _{D(DC)}	±0.1	A
Drain Current (pulse) ^{Note}	I _{D(pulse)}	±0.4	A
Total Power Dissipation	P _T	150	mW
Channel Temperature	T _{ch}	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

Note PW ≤ 10 μs, Duty Cycle ≤ 1%

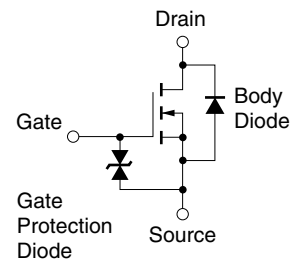
Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

<R> PACKAGE DRAWING (Unit : mm)



1. Source
2. Gate
3. Drain

<R> EQUIVALENT CIRCUIT



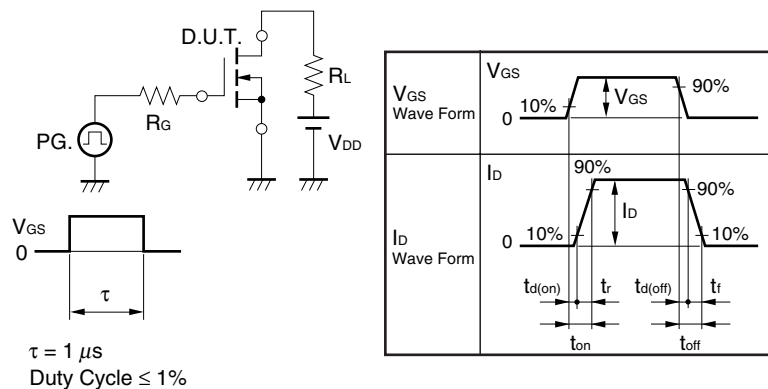
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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

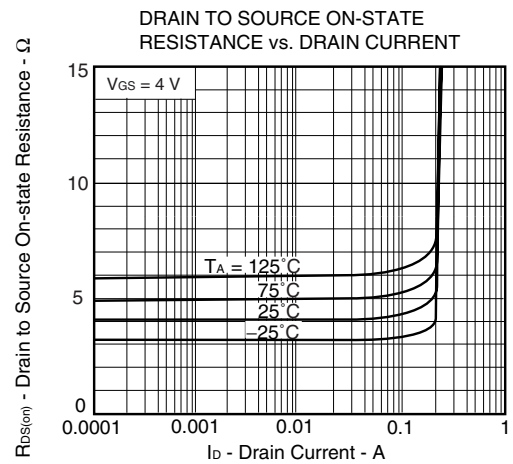
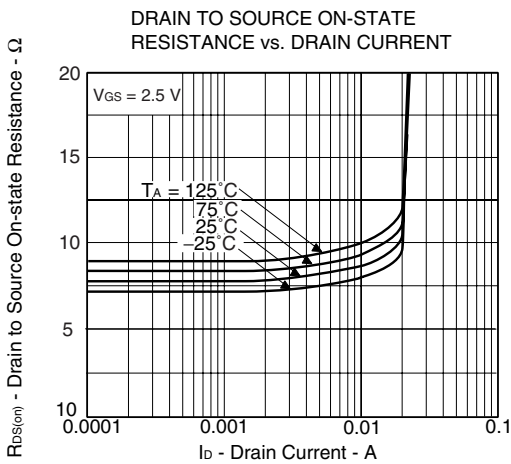
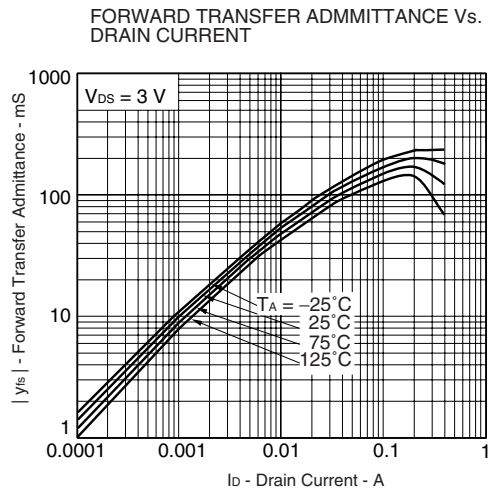
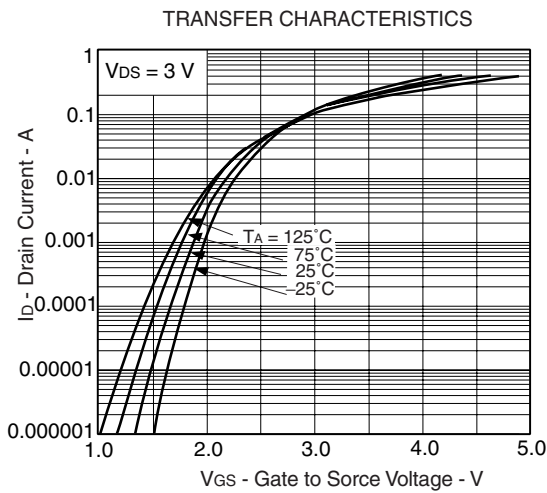
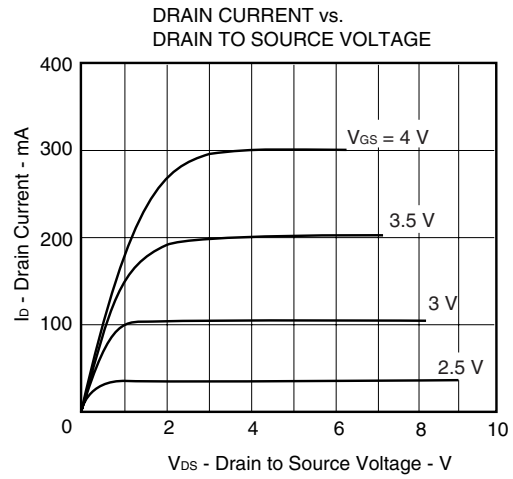
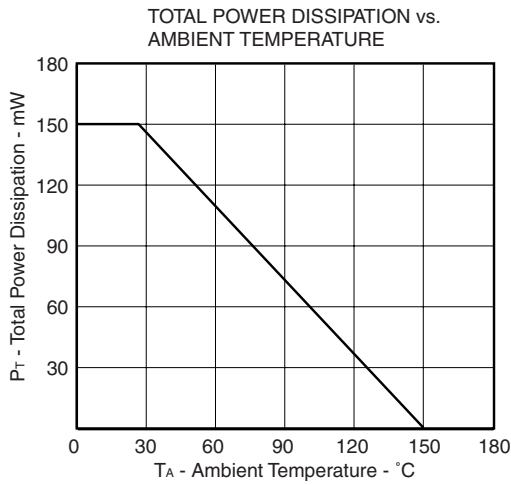
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20 V, V _{DS} = 0 V			±10	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 3 V, I _D = 10 μA	1.0	1.4	1.8	V
Forward Transfer Admittance ^{Note}	y _{fs}	V _{DS} = 3 V, I _D = 10 mA	20			mS
Drain to Source On-state Resistance ^{Note}	R _{DS(on)1}	V _{GS} = 2.5 V, I _D = 1 mA		8	15	Ω
	R _{DS(on)2}	V _{GS} = 4 V, I _D = 10 mA		4	8	Ω
	R _{DS(on)3}	V _{GS} = 10 V, I _D = 10 mA		3	5	Ω
Input Capacitance	C _{iss}	V _{DS} = 3 V		9		pF
Output Capacitance	C _{oss}	V _{GS} = 0 V		12		pF
Reverse Transfer Capacitance	C _{rss}	f = 1 MHz		2.1		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = 3 V, I _D = 10 mA		40		ns
Rise Time	t _r	V _{GS} = 4 V		55		ns
Turn-off Delay Time	t _{d(off)}	R _G = 10 Ω		68		ns
Fall Time	t _f			64		ns

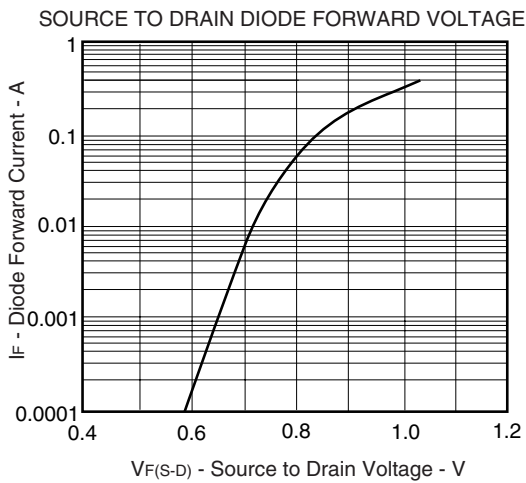
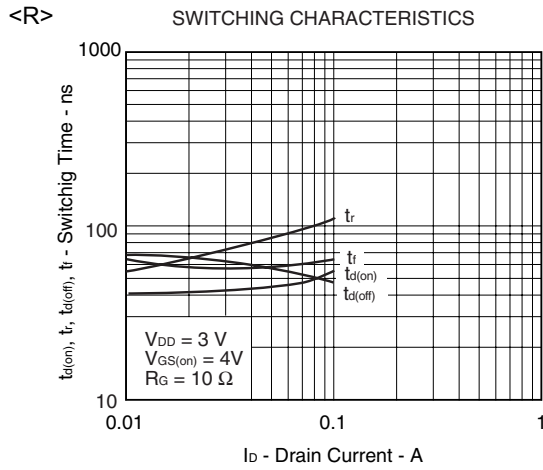
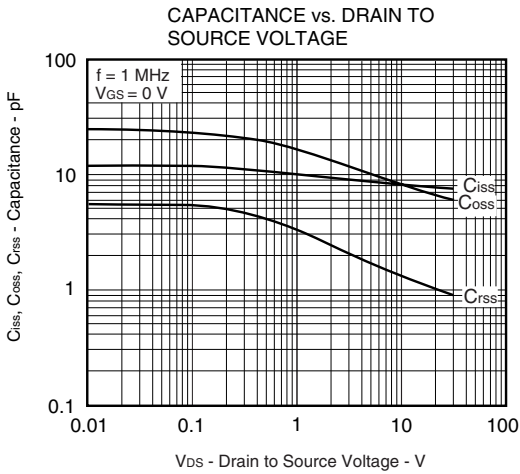
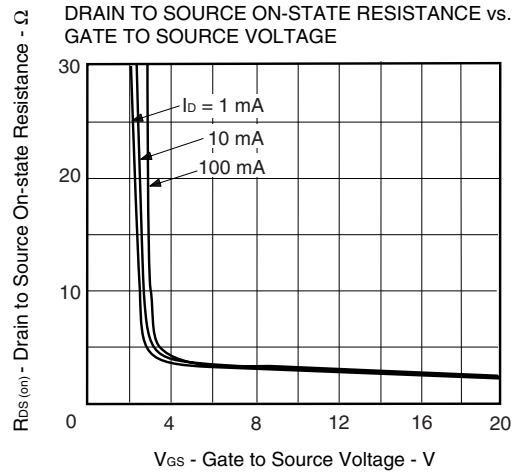
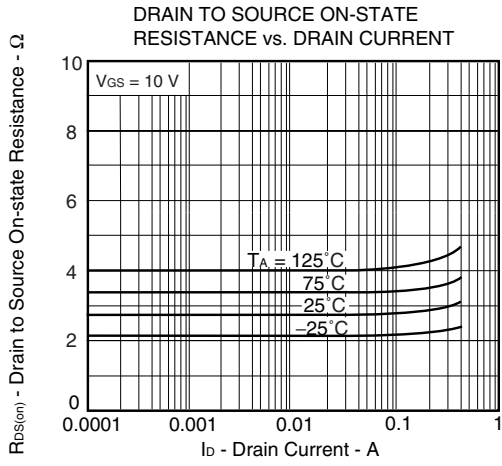
<R> **Note** Pulsed

TEST CIRCUIT SWITCHING TIME



TYPICAL CHARACTERISTICS (T_A = 25°C)





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