

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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EOL announced Product

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SWITCHING

N-CHANNEL MOS FET

DESCRIPTION

The 2SK1583 is an N-channel vertical type MOS FET can be driven by 2.5 V power supply.

As the 2SK1583 is driven by low voltage and does not require consideration of driving current, it is suitable for appliances including VCR cameras and headphone stereos which need power saving.

FEATURES

- Directly driven by ICs having a 3 V power supply.
- Low on-state resistance
 $R_{DS(on)1} = 2.0 \Omega \text{ MAX. (} V_{GS} = 2.5 \text{ V, } I_D = 0.3 \text{ A)}$
 $R_{DS(on)2} = 1.5 \Omega \text{ MAX. (} V_{GS} = 4.0 \text{ V, } I_D = 0.3 \text{ A)}$

★ ORDERING INFORMATION

PART NUMBER	PACKAGE
2SK1583	SC-62 (Power Mini Mold)

Marking: ND

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

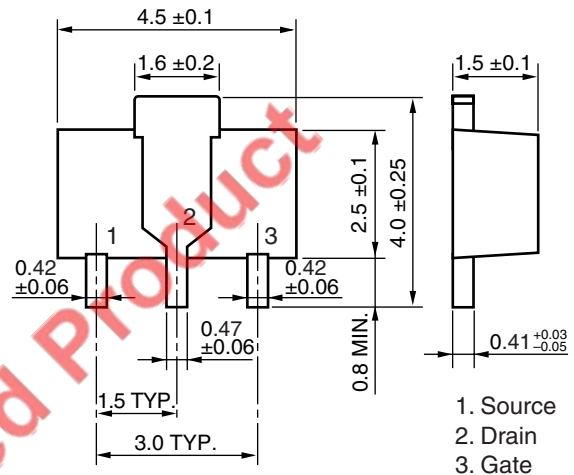
Drain to Source Voltage ($V_{GS} = 0 \text{ V}$)	V_{DSS}	16	V
Gate to Source Voltage ($V_{DS} = 0 \text{ V}$)	V_{GSS}	± 16	V
Drain Current (DC)	$I_{D(DC)}$	± 0.5	A
Drain Current (pulse) ^{Note1}	$I_{D(pulse)}$	± 1.0	A
Total Power Dissipation ^{Note2}	P_T	2.0	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes 1. $PW \leq 10 \text{ ms}$, Duty Cycle $\leq 50\%$

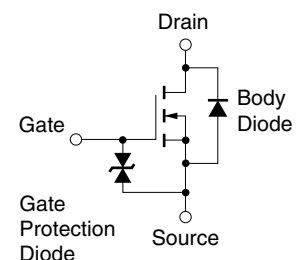
2. Mounted on ceramic substrate of $16 \text{ cm}^2 \times 0.7 \text{ mm}$

- ★ **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)



EQUIVALENT CIRCUIT



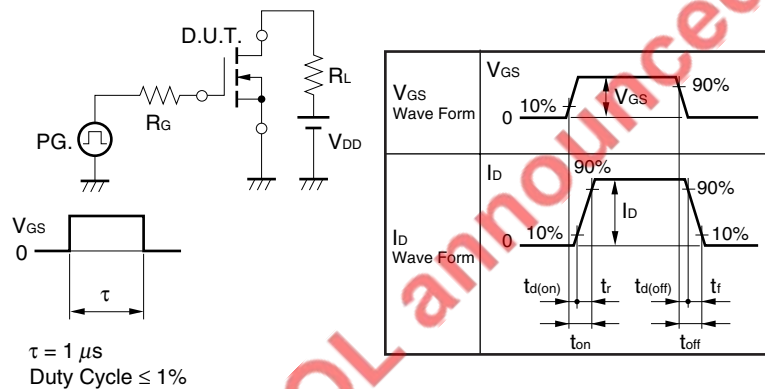
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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

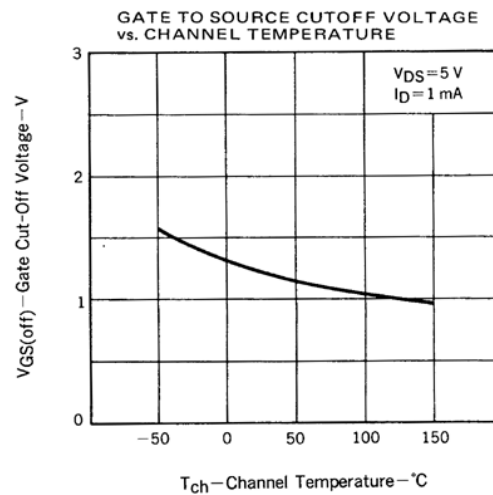
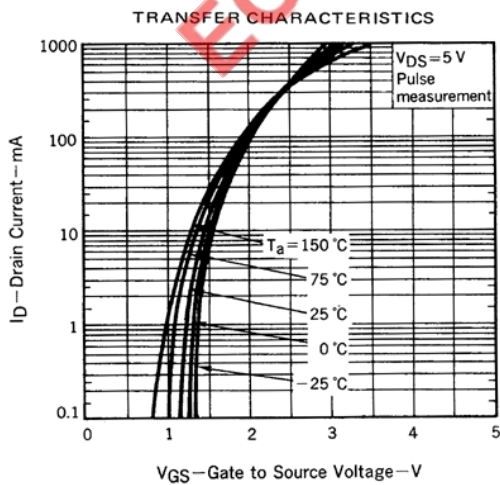
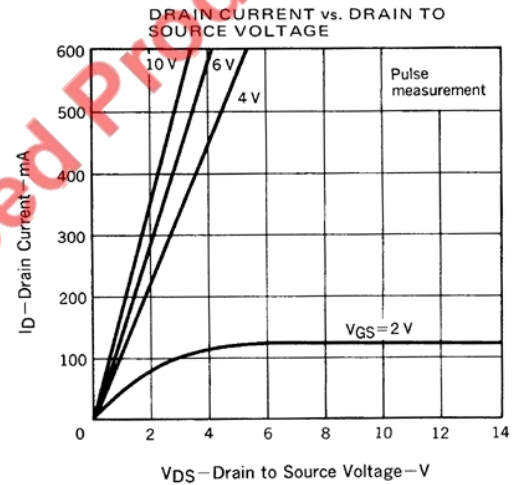
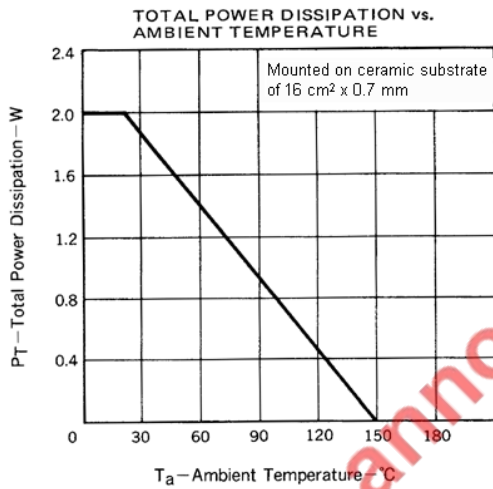
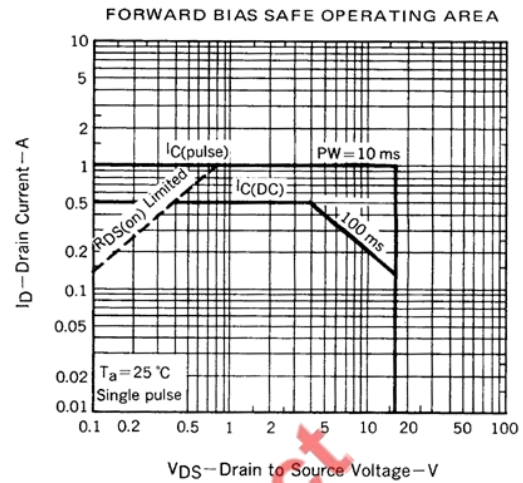
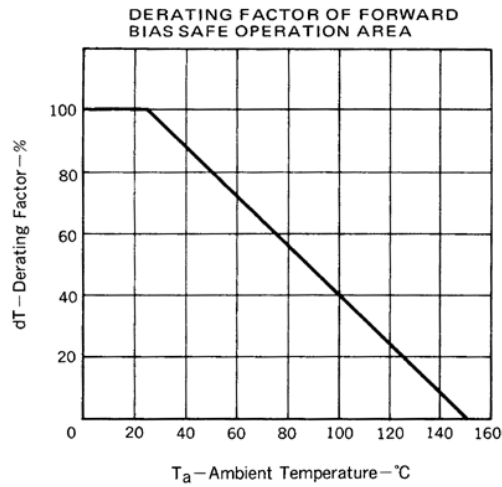
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0 V			1.0	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±16 V, V _{DS} = 0 V			±5.0	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 5.0 V, I _D = 1.0 mA	0.8	1.0	1.6	V
Forward Transfer Admittance Note	y _{fs}	V _{DS} = 5.0 V, I _D = 0.3 A	400	550		mS
Drain to Source On-state Resistance Note	R _{DS(on)1}	V _{GS} = 2.5 V, I _D = 0.3 A		1.8	2.0	Ω
	R _{DS(on)2}	V _{GS} = 4.0 V, I _D = 0.3 A		0.8	1.5	Ω
Input Capacitance	C _{iss}	V _{DS} = 5.0 V		60		pF
Output Capacitance	C _{oss}	V _{GS} = 0 V		70		pF
Reverse Transfer Capacitance	C _{rss}	f = 1 MHz		15		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = 10 V, I _D = 0.3 A		95		ns
Rise Time	t _r	V _{GS} = 3.0 V		360		ns
Turn-off Delay Time	t _{d(off)}	R _G = 10 Ω		160		ns
Fall Time	t _f			150		ns

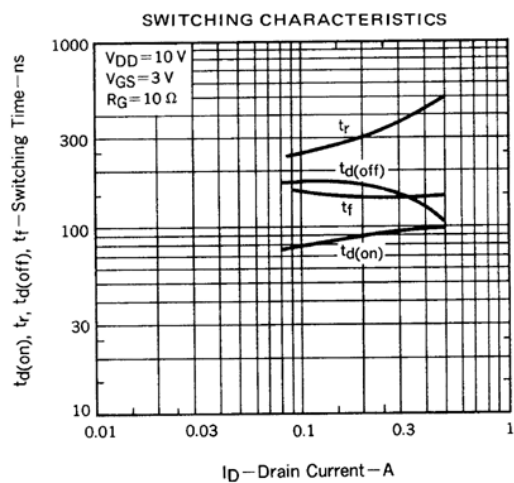
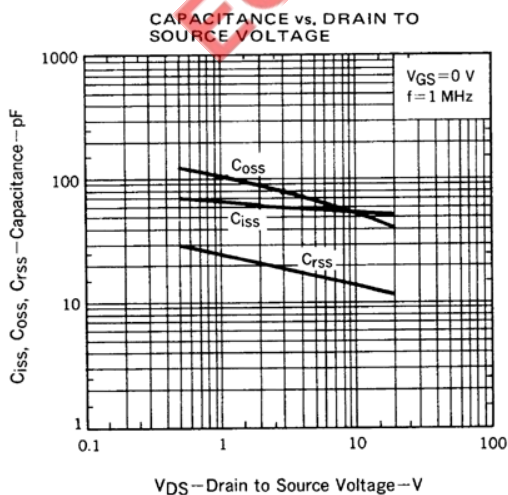
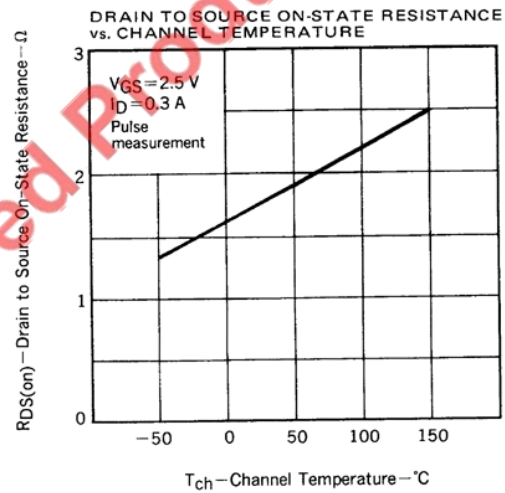
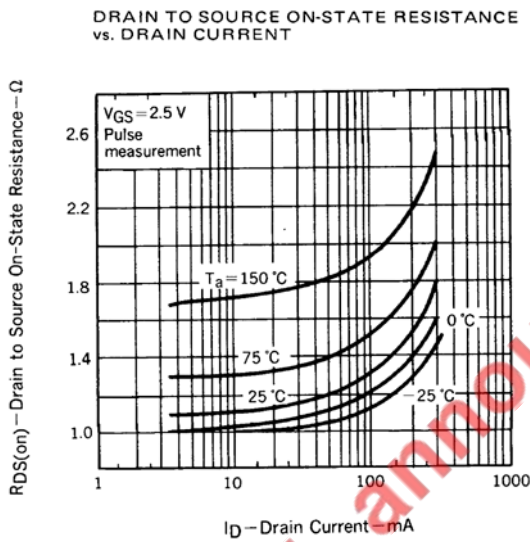
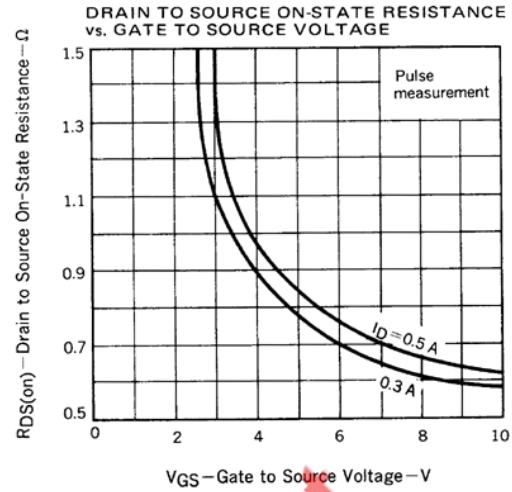
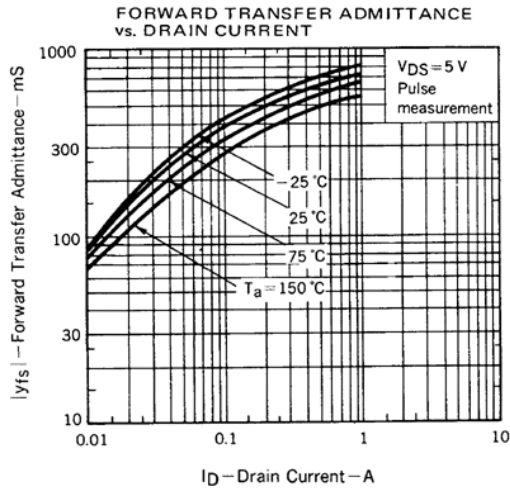
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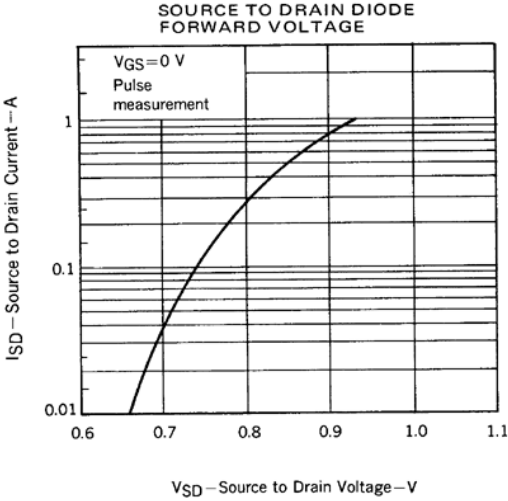
TEST CIRCUIT SWITCHING TIME



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







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