To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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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RENESAS

MOS FIELD EFFECT TRANSISTOR

μPA503T

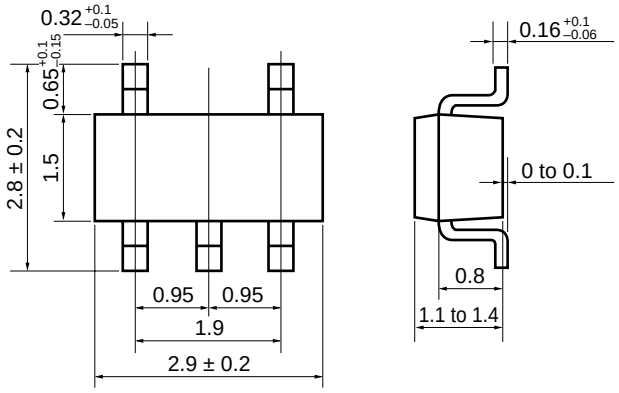
P-CHANNEL MOS FET (5-PIN 2 CIRCUITS)

The μPA503T is a mini-mold device provided with two MOS FET circuits. It achieves high-density mounting and saves mounting costs.

FEATURES

- Two source common MOS FET circuits in package the same size as SC-59
- Complement to μPA502T
- Automatic mounting supported

PACKAGE DIMENSIONS (in millimeters)

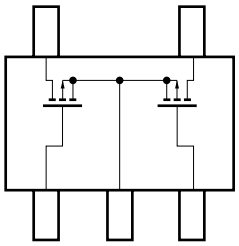


ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain to Source Voltage	V_{DSS}	–50	V
Gate to Source Voltage	V_{GSS}	∓16	V
Drain Current (DC)	$I_{D(DC)}$	–100	mA
Drain Current (pulse)	$I_{D(pulse)}$*	–200	mA
Total Power Dissipation	P_T	300 (TOTAL)	mW
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	–55 to +150	°C

* PW ≤ 10 ms, Duty Cycle ≤ 50 %

PIN CONNECTION (Top view)



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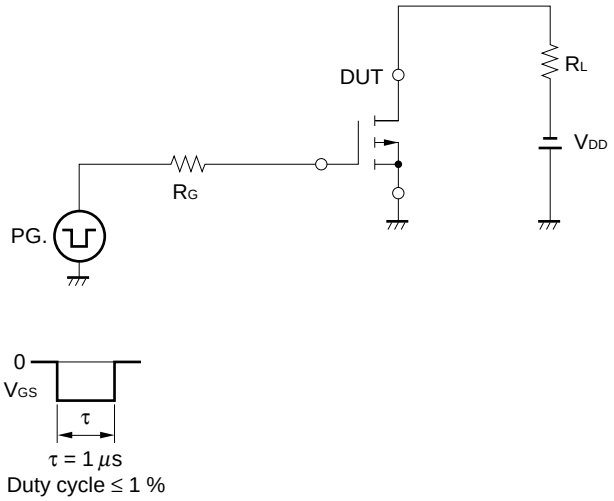
Date Published June 1996 P
Printed in Japan

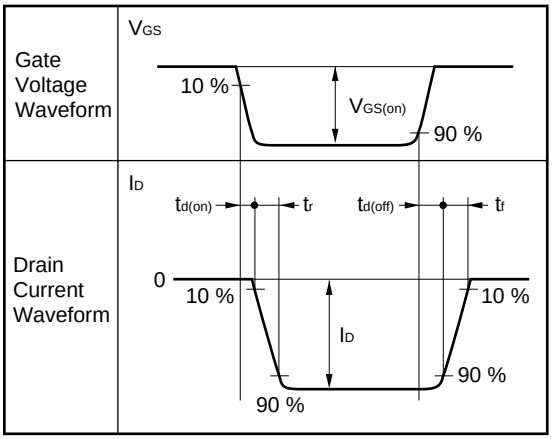
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain Cut-off Current	I_{DSS}	V_{DS} = –50 V, V_{GS} = 0			–1.0	μA
Gate Leakage Current	I_{GSS}	V_{GS} = ∓16 V, V_{DS} = 0			∓10	μA
Gate Cut-off Voltage	$V_{GS(off)}$	V_{DS} = –5.0 V, I_D = –1.0 μA	–1.5	–1.9	–2.5	V
Forward Transfer Admittance	$\|y_{fs}\|$	V_{DS} = –5.0 V, I_D = –10 mA	15			mS
Drain to Source On-State Resistance	$R_{DS(on)1}$	V_{GS} = –4.0 V, I_D = –10 mA		60	100	Ω
Drain to Source On-State Resistance	$R_{DS(on)2}$	V_{GS} = –10 V, I_D = –10 mA		40	60	Ω
Input Capacitance	C_{iss}	V_{DS} = –5.0 V, V_{GS} = 0, f = 1.0 MHz		17		pF
Output Capacitance	C_{oss}			9		pF
Reverse Transfer Capacitance	C_{rss}			1		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{GS(on)}$ = –4.0 V, R_G = 10 Ω		45		ns
Rise Time	t_r	V_{DD} = –5.0 V, I_D = –10 mA		75		ns
Turn-Off Delay Time	$t_{d(off)}$	R_L = 500 Ω		25		ns
Fall Time	t_f			80		ns

Marking: CA

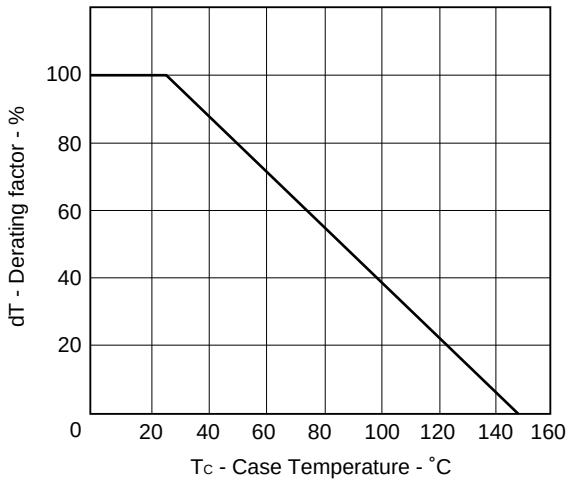
SWITCHING TIME MEASUREMENT CIRCUIT AND MEASUREMENT CONDITIONS (RESISTANCE LOADED)



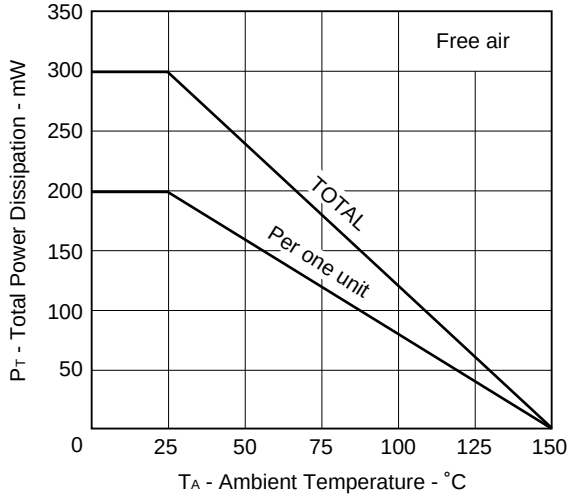


TYPICAL CHARACTERISTICS (T_A = 25 ˚C)

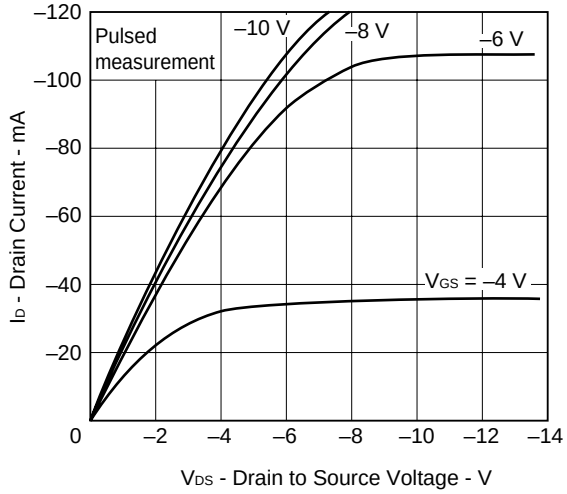
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



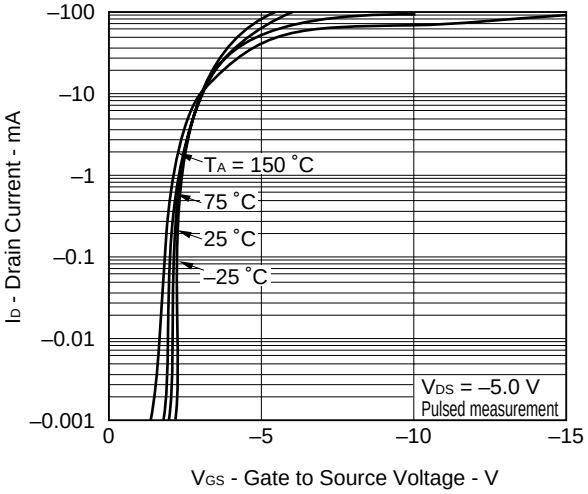
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



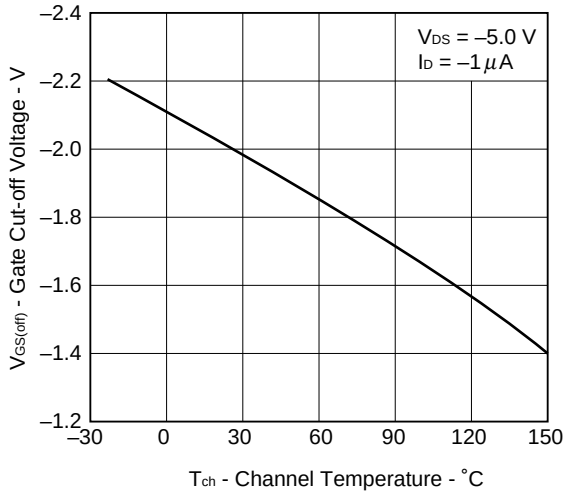
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



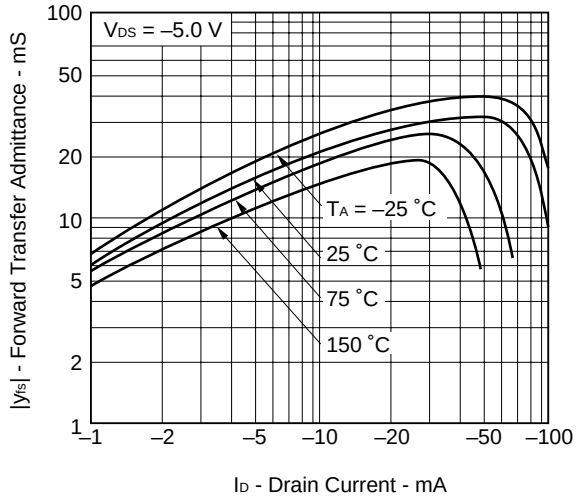
TRANSFER CHARACTERISTICS



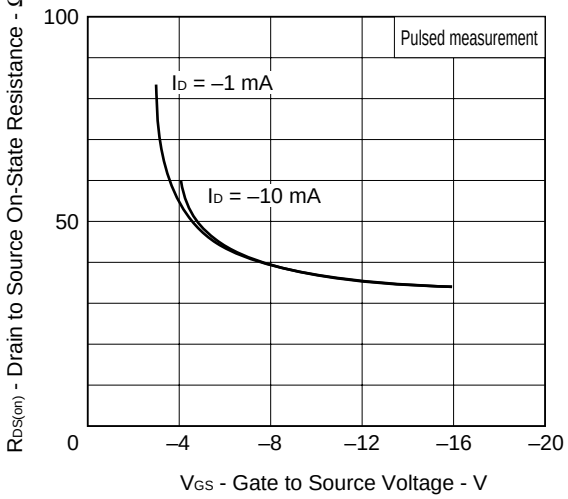
GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE



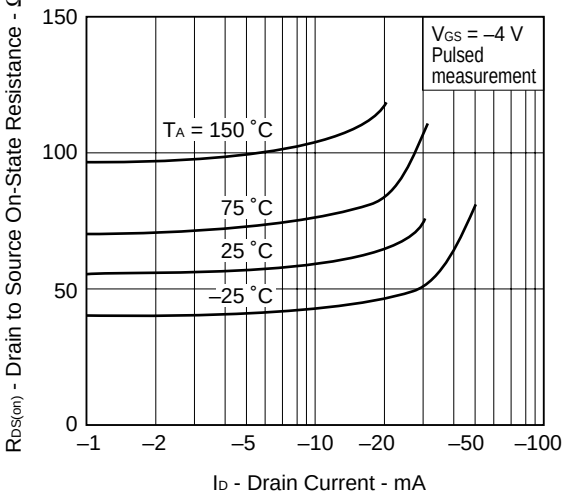
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



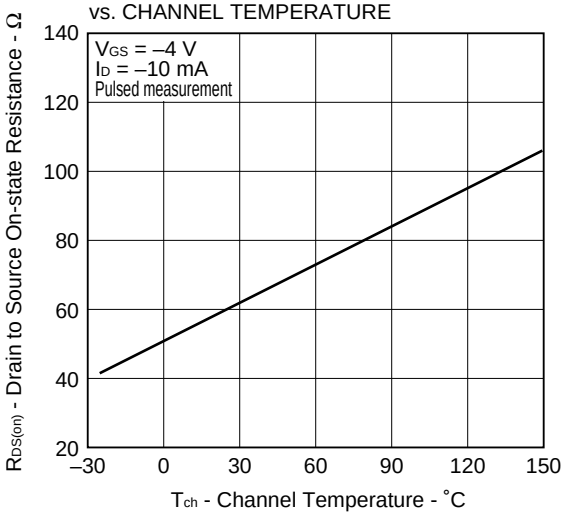
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



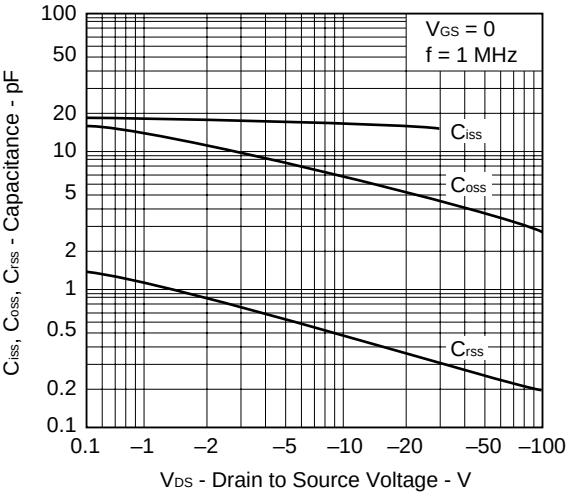
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



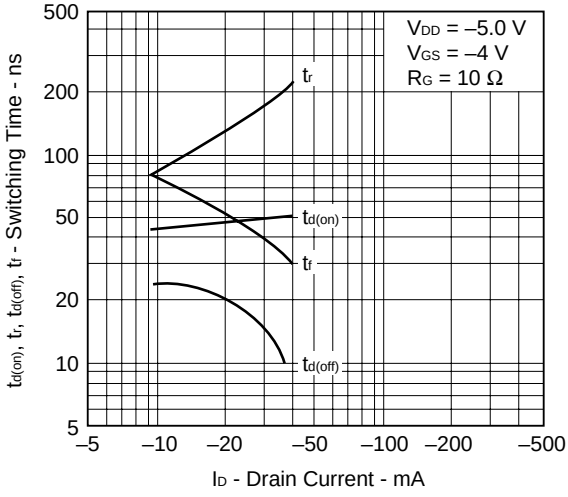
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



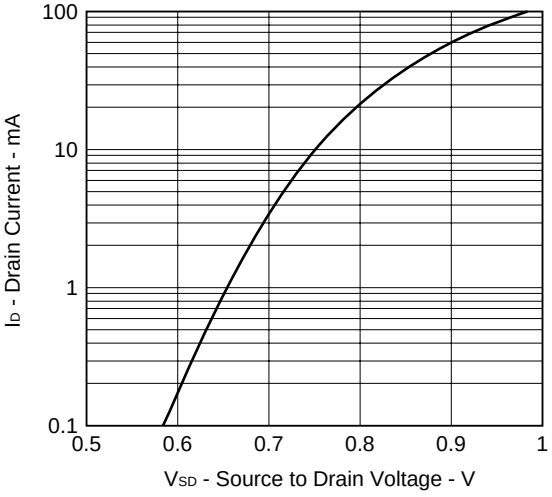
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



SWITCHING CHARACTERISTICS



SOURCE TO DRAIN DIODE FORWARD VOLTAGE



REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system	TEI-1202
Quality grade on NEC semiconductor devices	IEI-1209
Semiconductor device mounting technology manual	C10535E
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679E

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