

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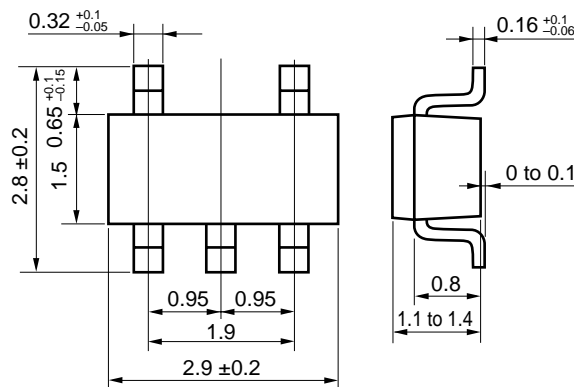
N-CHANNEL/P-CHANNEL MOS FET (5-PIN 2 CIRCUITS)

The μ PA505T is a mini-mold device provided with two MOS FET circuits. It achieves high-density mounting and saves mounting costs.

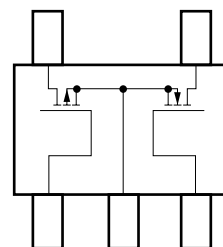
FEATURES

- Two source common MOS FET circuits in package the same size as SC-59
- Complementary MOS FETs are provided in one package.
- Automatic mounting supported

PACKAGE DIMENSIONS (in millimeters)



PIN CONNECTION (Top View)



Marking: FA

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain to Source Voltage	V _{DSS}	50/-50	V
Gate to Source Voltage	V _{GSS}	±20/±16	V
Drain Current (DC)	I _{D(DC)}	±100/±100	mA
Drain Current (pulse)	I _{D(pulse)*}	±200/±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 %

Note The left and right values in the ratings column are correspond to N-ch and P-ch FETs, respectively.

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

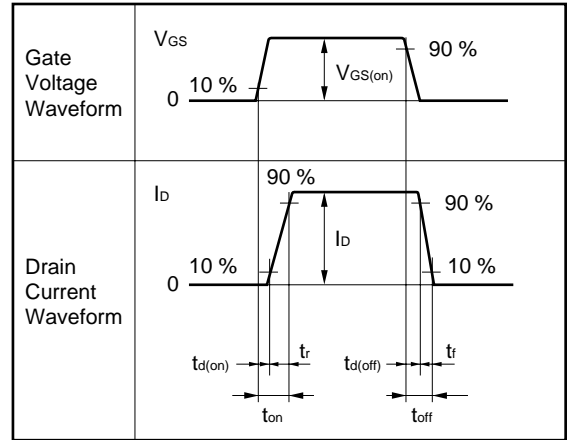
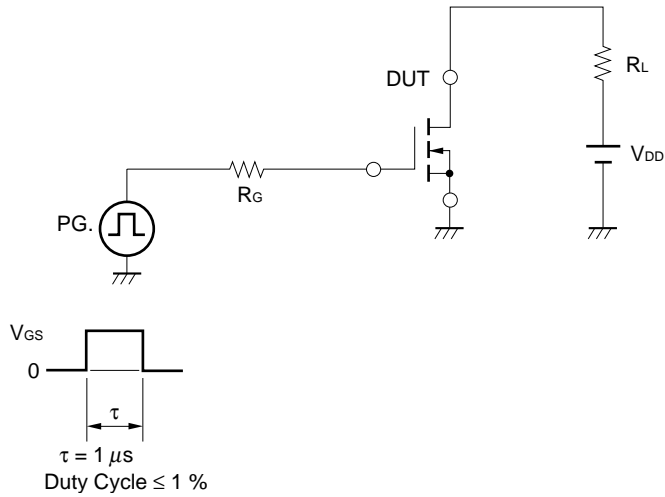
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain Cut-off Current	I _{DSS}	V _{DS} = 50/-50 V, V _{GS} = 0	-	-	1.0 -1.0	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20/±16 V, V _{DS} = 0	-	-	±1.0 ±10	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 5.0/-5.0 V, I _D = 1/-1 μA	0.8 -1.5	1.4 -1.9	1.8 -2.5	V
Forward Transfer Admittance	y _{fs}	V _{DS} = 5.0/-5.0 V, I _D = 10/-10 mA	20 15	-	-	mS
Drain to Source On-State Resistance	R _{DS(on)1}	V _{GS} = 4/-4 V, I _D = 10/-10 mA	-	19 60	30 100	Ω
Drain to Source On-State Resistance	R _{DS(on)2}	V _{GS} = 10/-10 V, I _D = 10/-10 mA	-	15 40	25 60	Ω
Input Capacitance	C _{iSS}	V _{DS} = 5.0/-5.0 V V _{GS} = 0, f = 1.0 MHz	-	16 10	-	pF
Output Capacitance	C _{oSS}		-	12 4	-	pF
Reverse Transfer Capacitance	C _{rSS}		-	3 4	-	pF
Turn-On Delay Time	t _{d(on)}	V _{DD} = 5.0/-5.0 V, I _D = 10/-10 mA V _{GS(on)} = 5.0/-5.0 V R _G = 10 Ω, R _L = 500 Ω	-	17 40	-	ns
Rise Time	t _r		-	10 40	-	ns
Turn-Off Delay Time	t _{d(off)}		-	68 100	-	ns
Fall Time	t _f		-	38 80	-	ns

Marking: FA

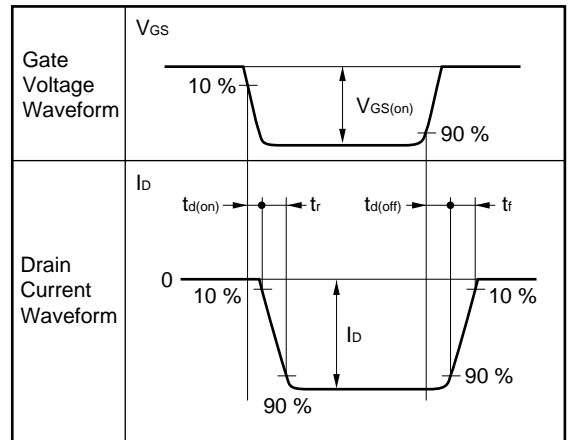
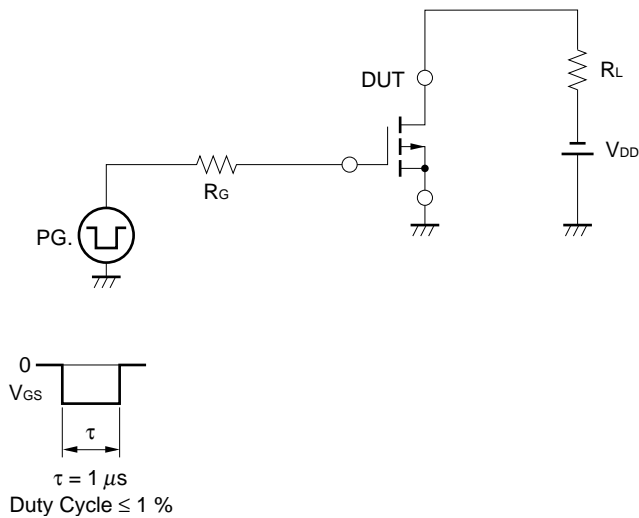
Note The left and right values in above table represent the N-ch and P-ch characteristics, respectively.

**SWITCHING TIME MEASUREMENT CIRCUIT AND MEASUREMENT CONDITIONS
(RESISTANCE LOADED)**

- N-ch part



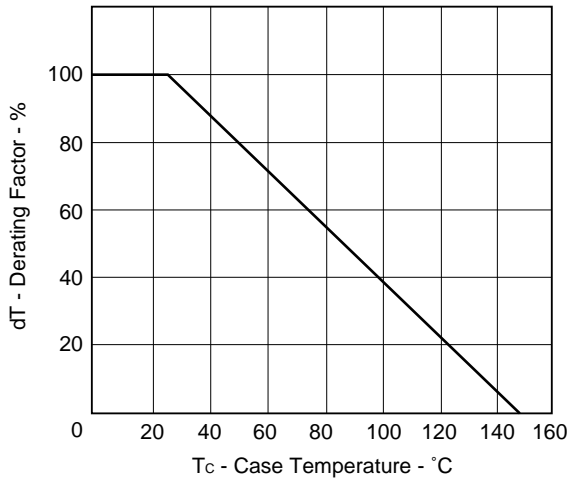
- P-ch part



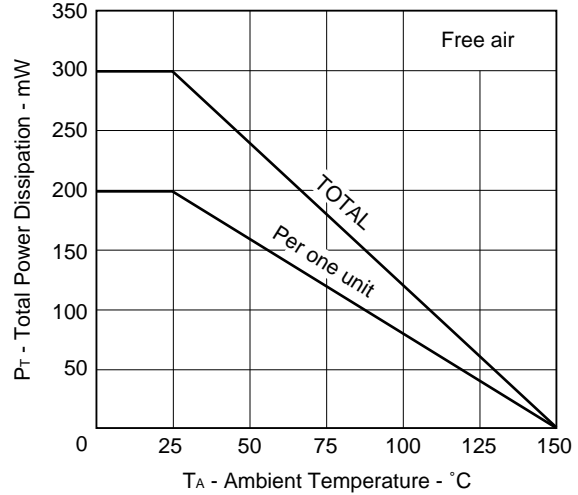
TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

- N-ch part

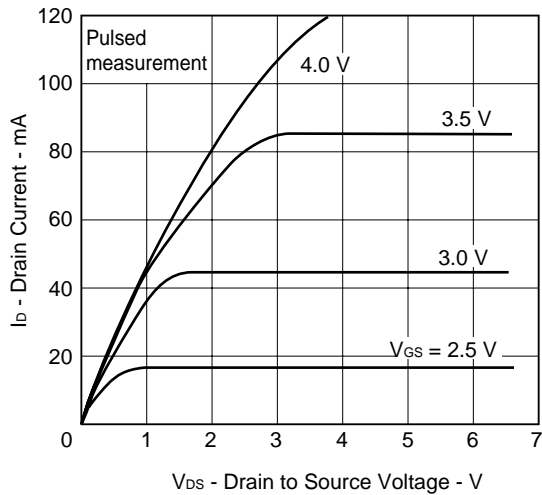
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



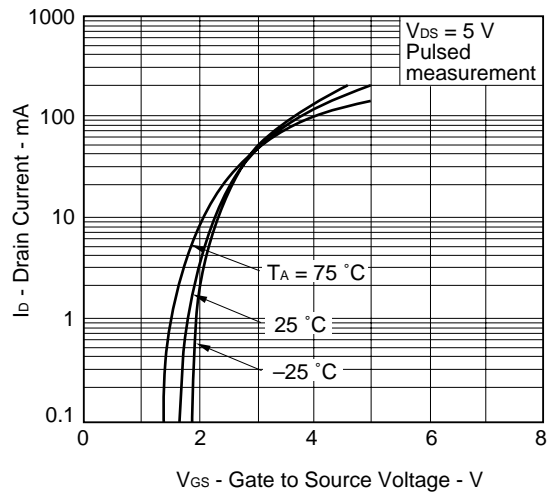
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



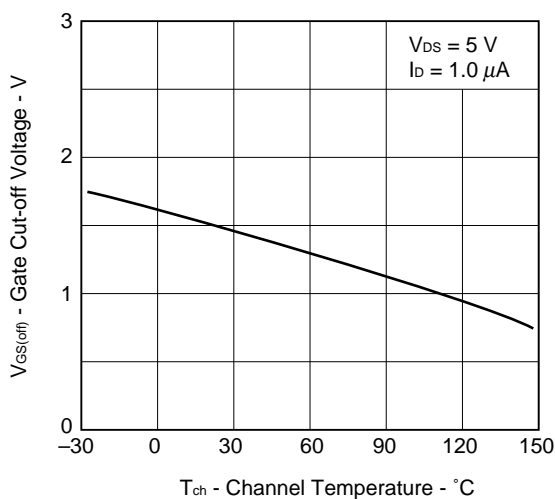
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



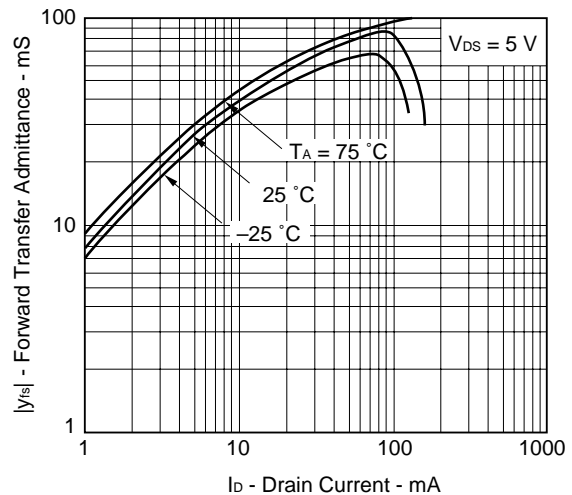
TRANSFER CHARACTERISTICS

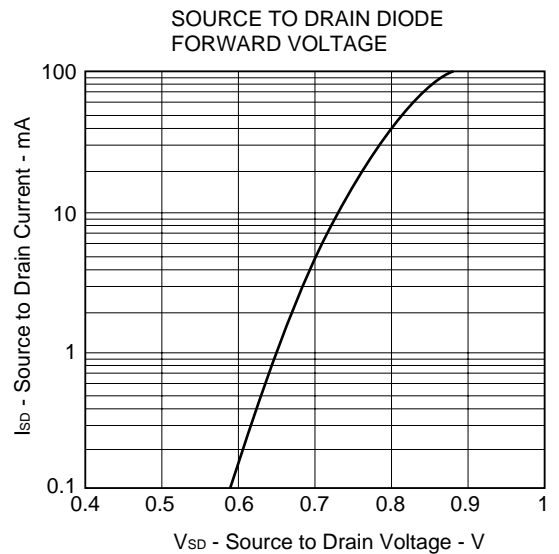
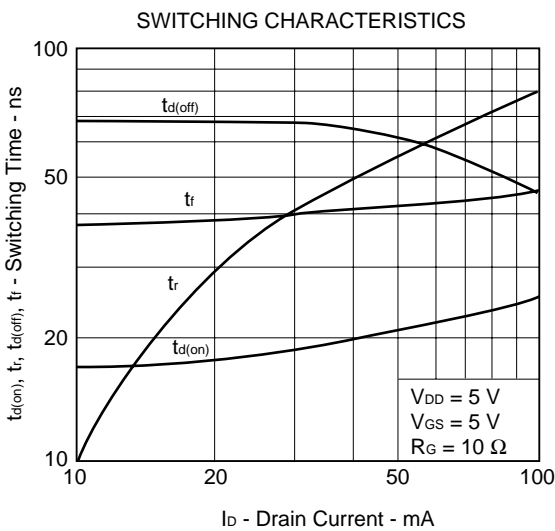
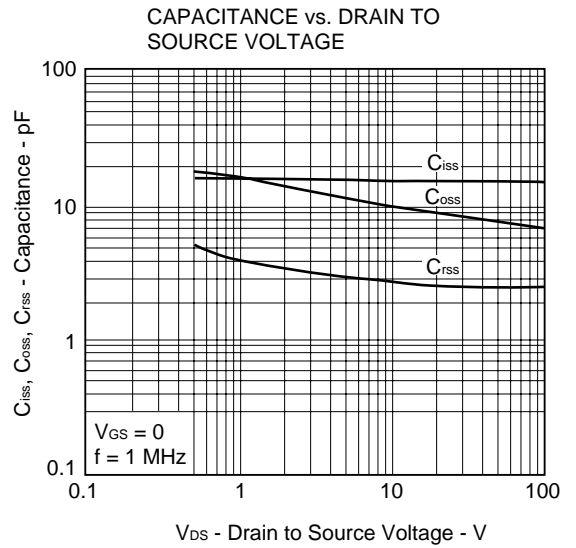
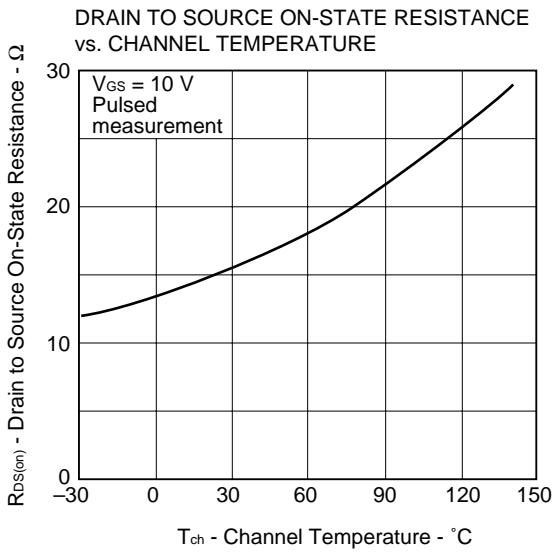
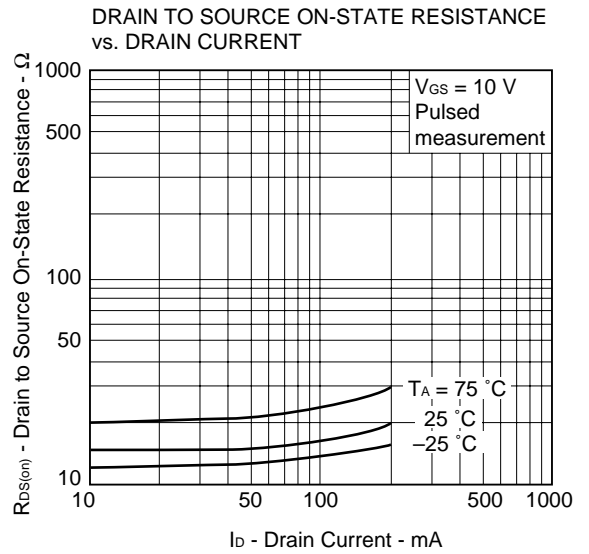
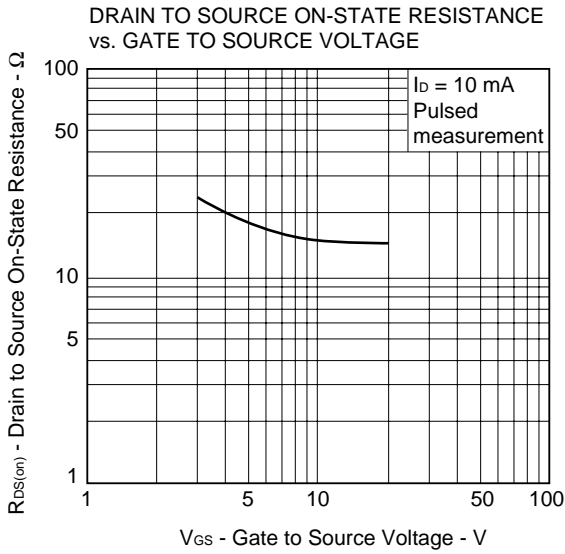


GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE



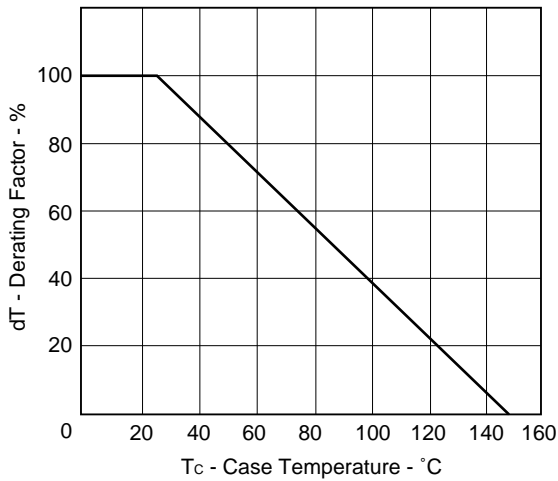
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



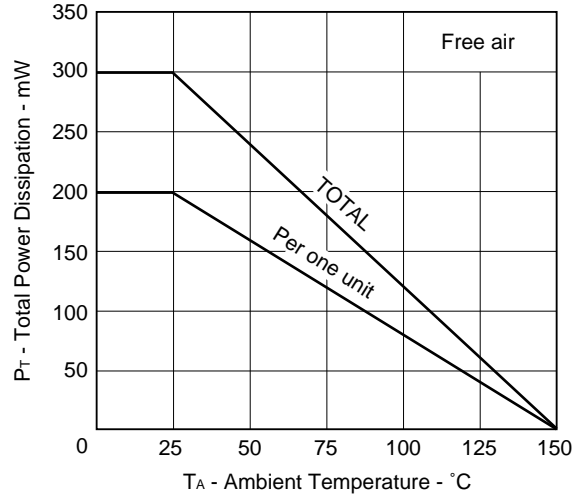


- P-ch part

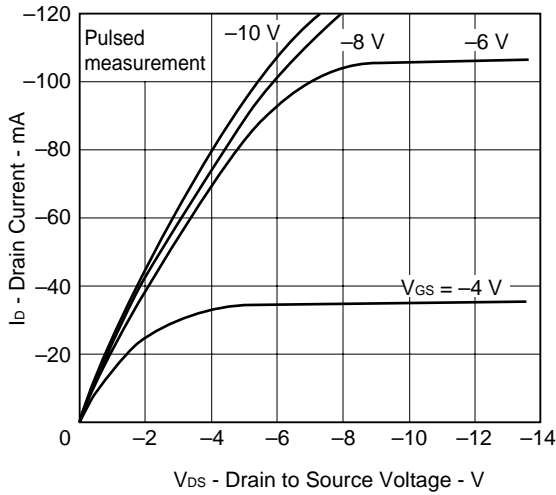
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



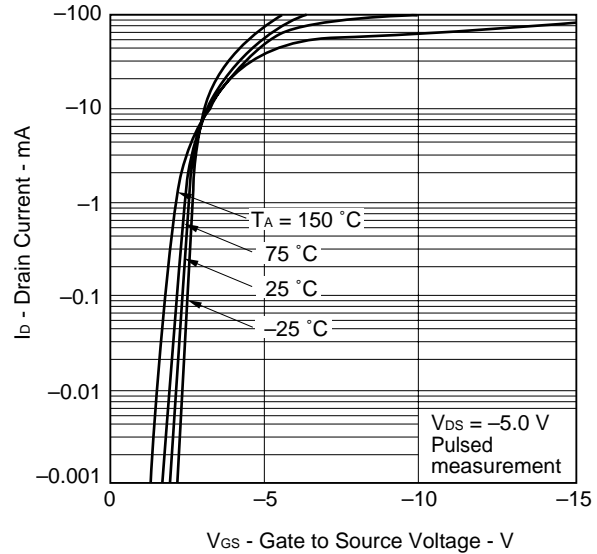
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



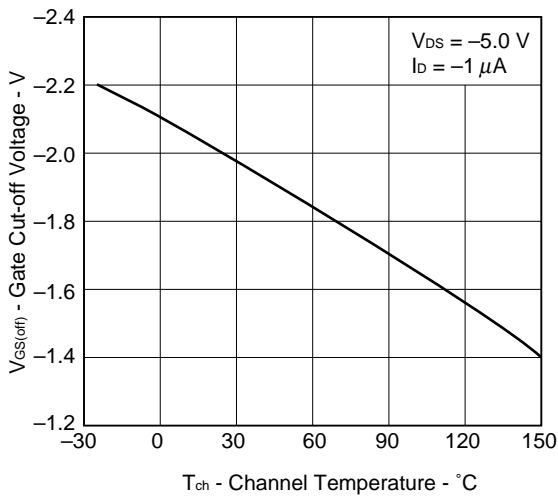
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



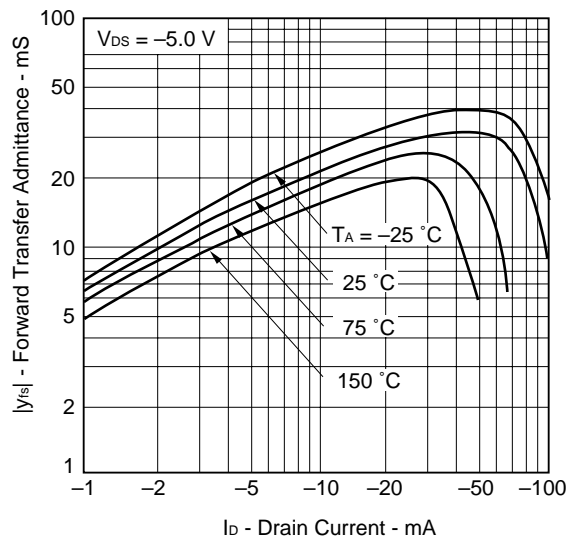
TRANSFER CHARACTERISTICS

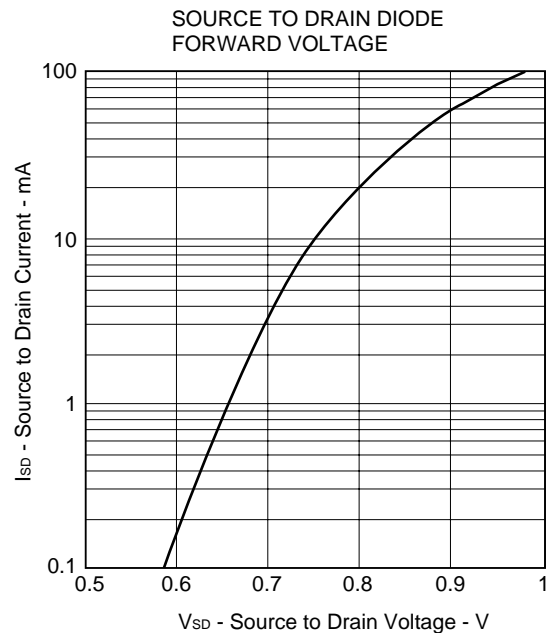
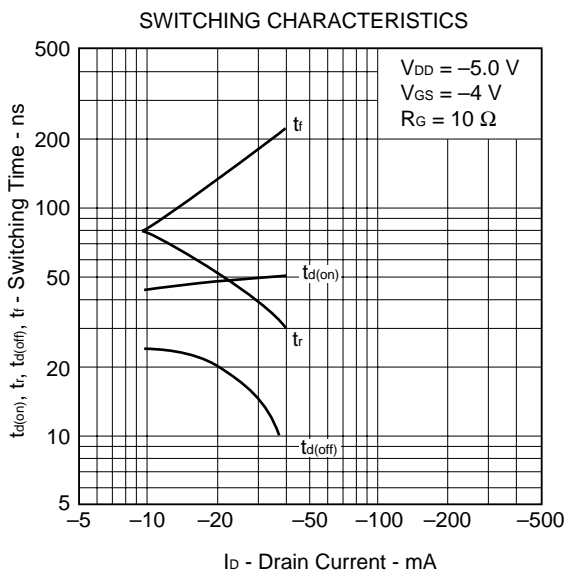
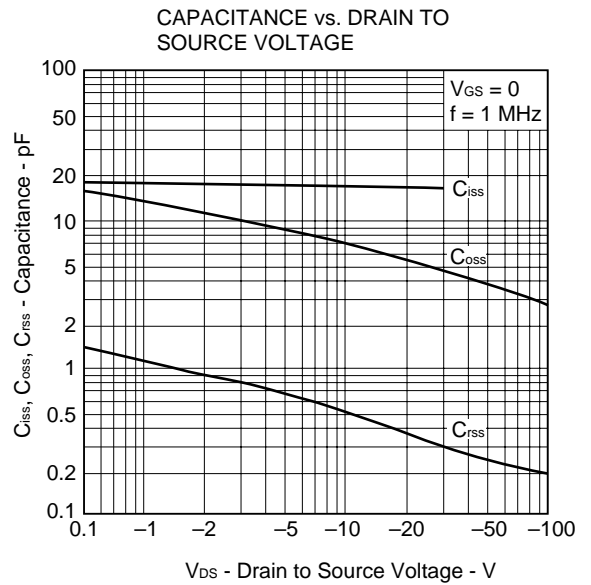
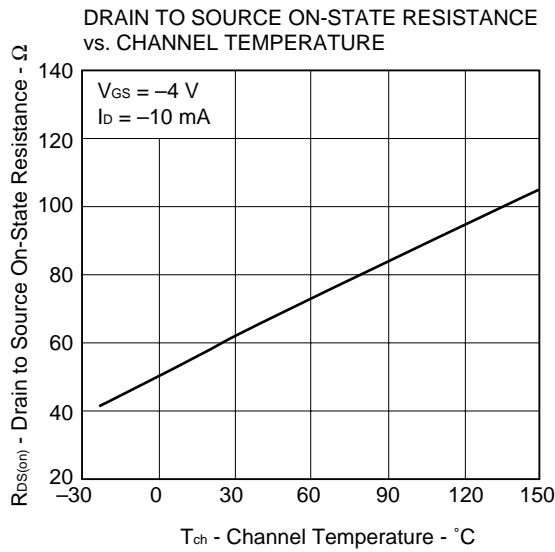
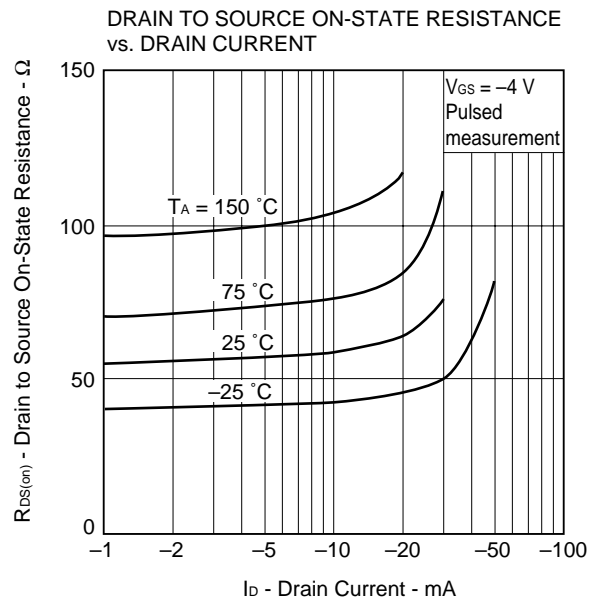
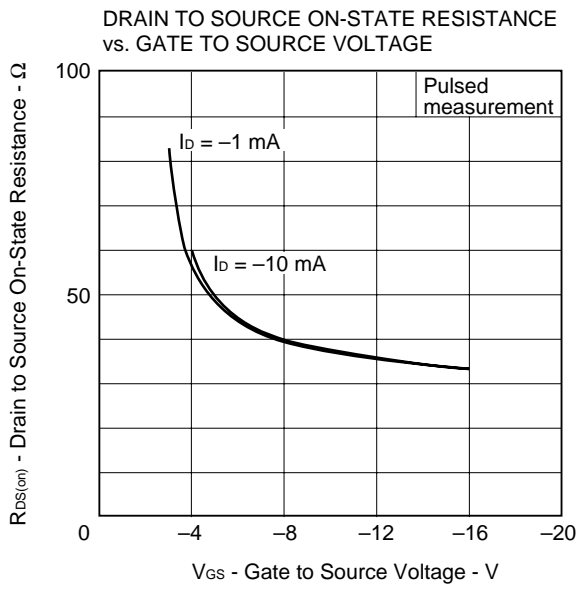


GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE



FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT





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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