

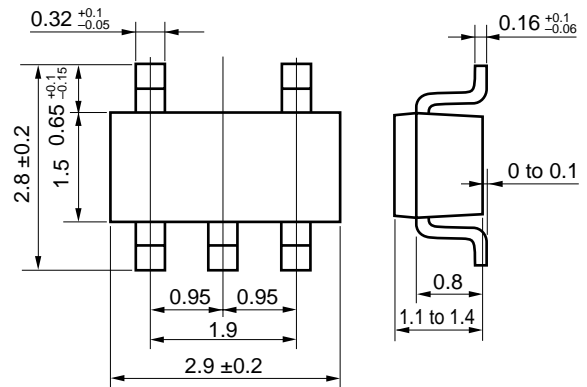
### N-CHANNEL/P-CHANNEL MOS FET (5-PIN 2 CIRCUITS)

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

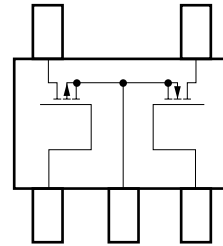
#### FEATURES

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain to Source Voltage	$V_{DSS}$	50/-50	V
Gate to Source Voltage	$V_{GSS}$	$\pm 20/\mp 16$	V
Drain Current (DC)	$I_{D(DC)}$	$\pm 100/\mp 100$	mA
Drain Current (pulse)	$I_{D(pulse)^*}$	$\pm 200/\mp 200$	mA
Total Power Dissipation	$P_T$	300 (TOTAL)	mW
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\*  $PW \leq 10$  ms, Duty Cycle  $\leq 50$  %

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

ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C)

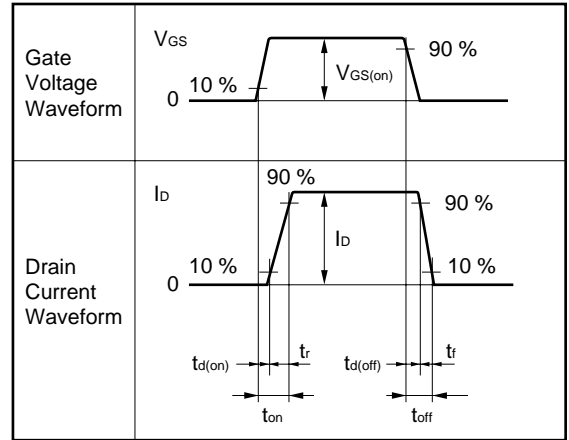
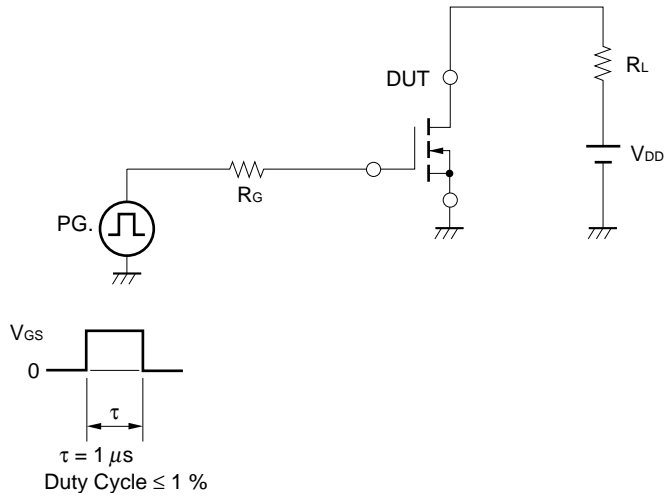
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain Cut-off Current	I <sub>DSS</sub>	V <sub>DS</sub> = 50/-50 V, V <sub>GS</sub> = 0	-	-	1.0 -1.0	μA
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20/±16 V, V <sub>DS</sub> = 0	-	-	±1.0 ±10	μA
Gate Cut-off Voltage	V <sub>GS(off)</sub>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

Marking: FA

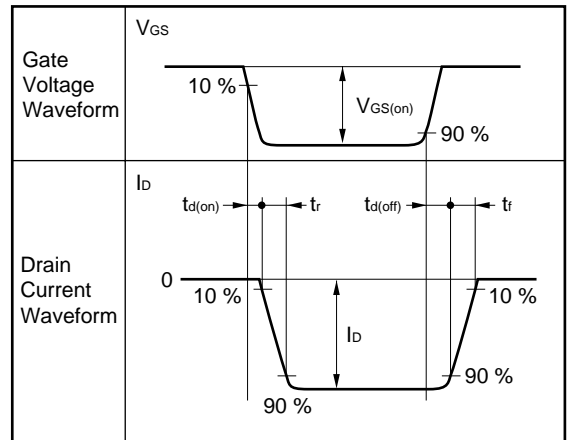
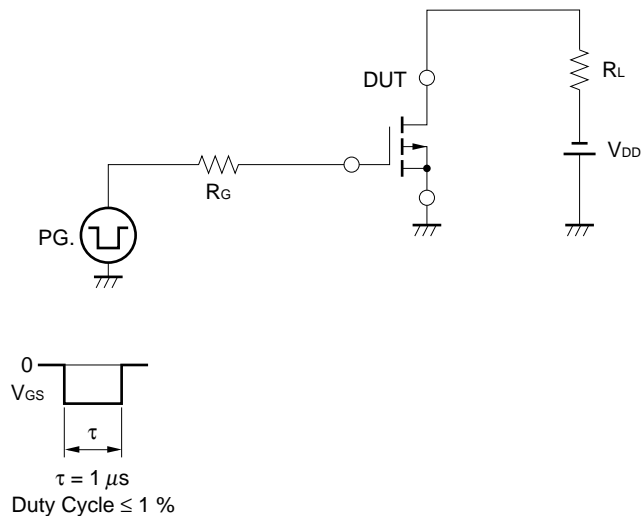
**Note** The left and right values in above table represent the N-ch and P-ch characteristics, respectively.

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

- N-ch part



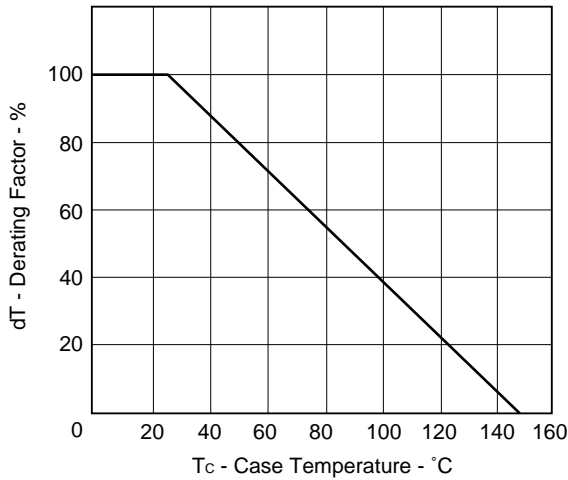
- P-ch part



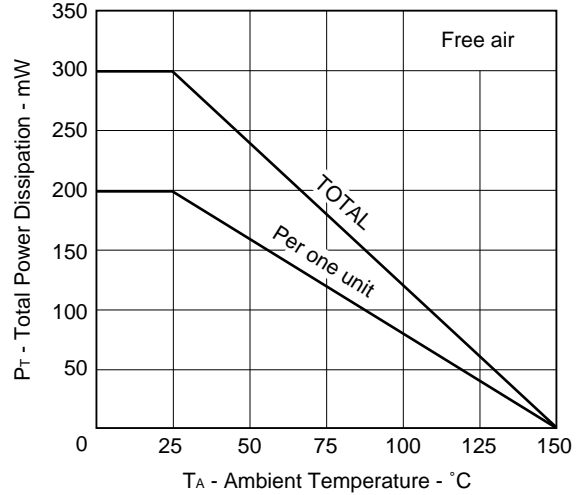
TYPICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

- N-ch part

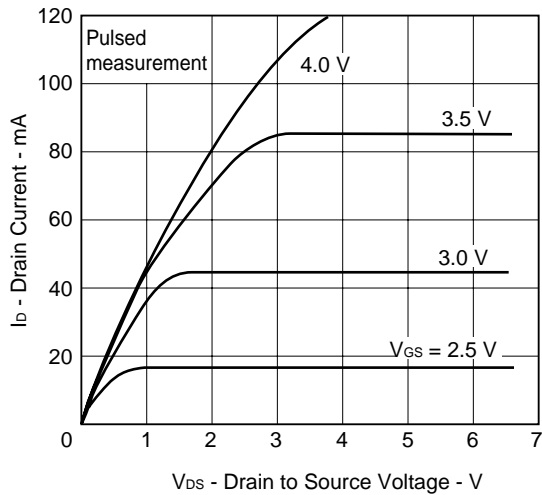
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



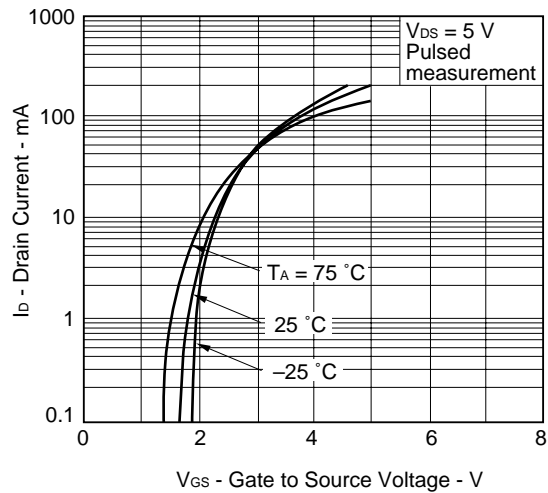
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



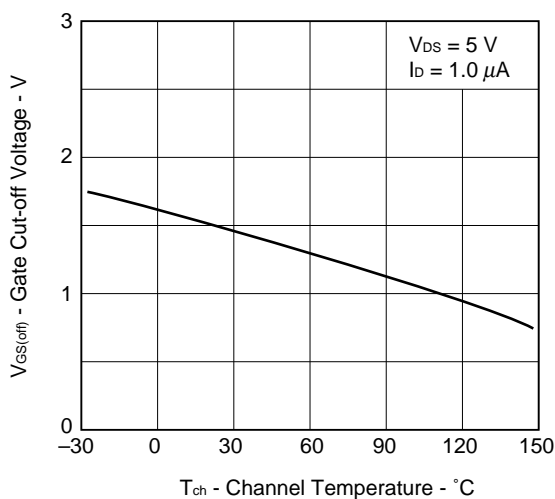
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



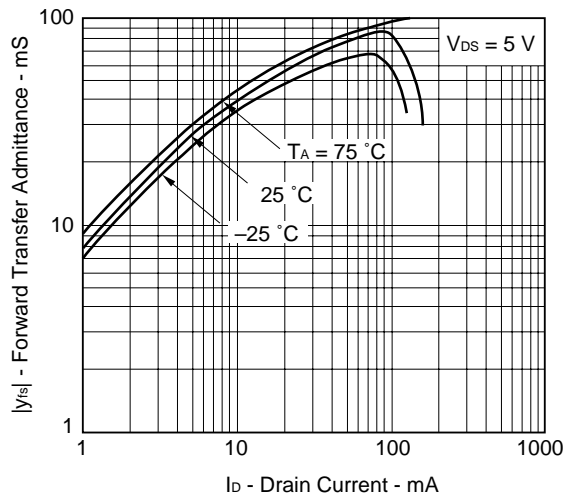
TRANSFER CHARACTERISTICS

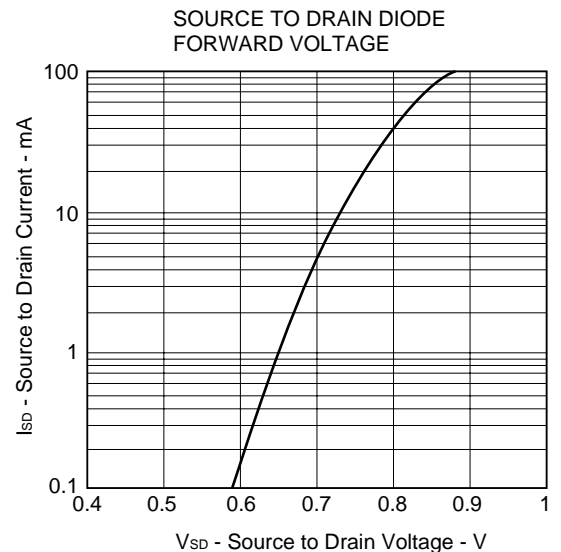
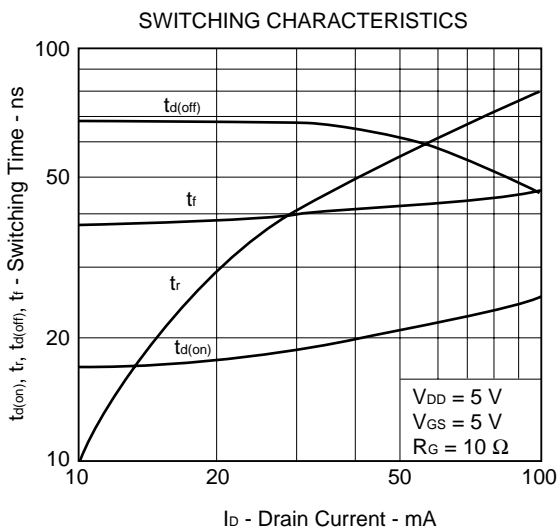
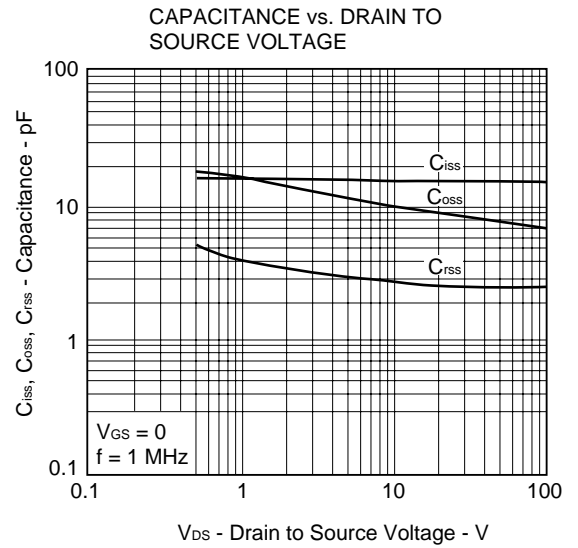
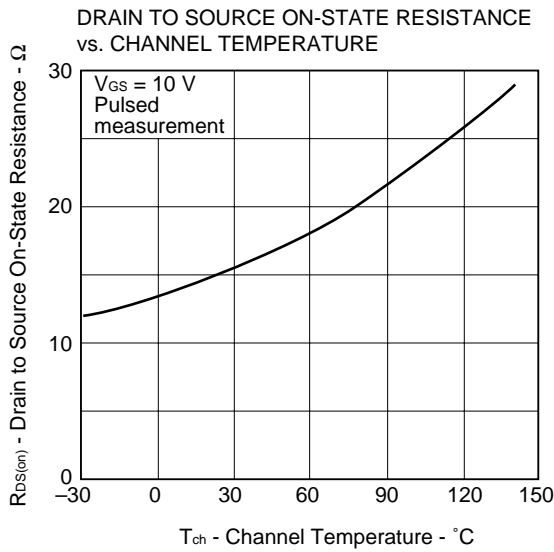
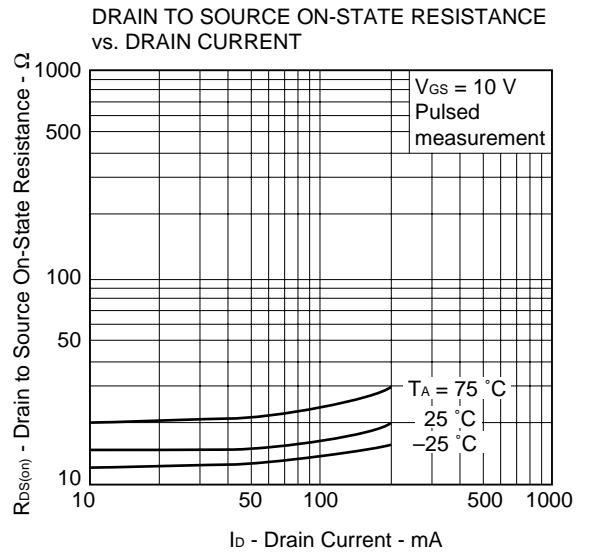
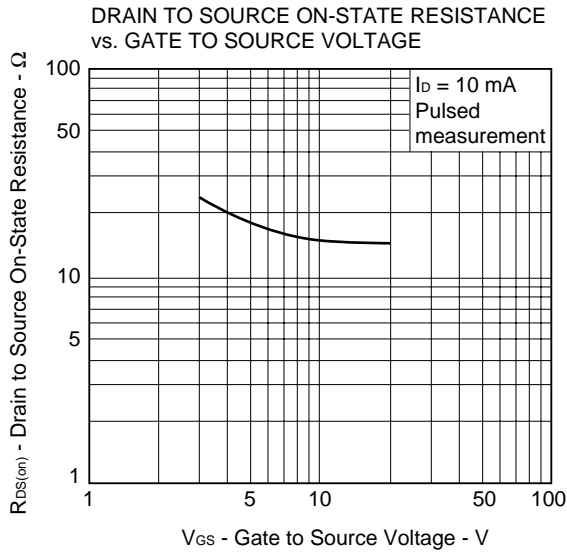


GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE



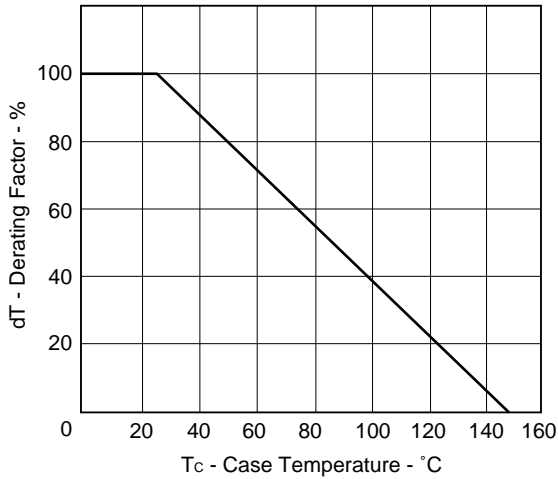
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



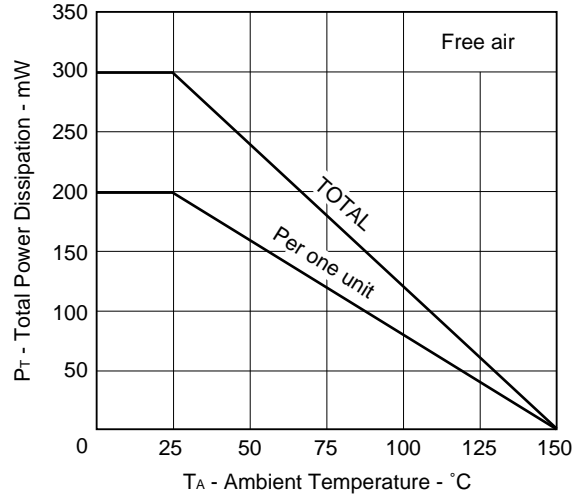


- P-ch part

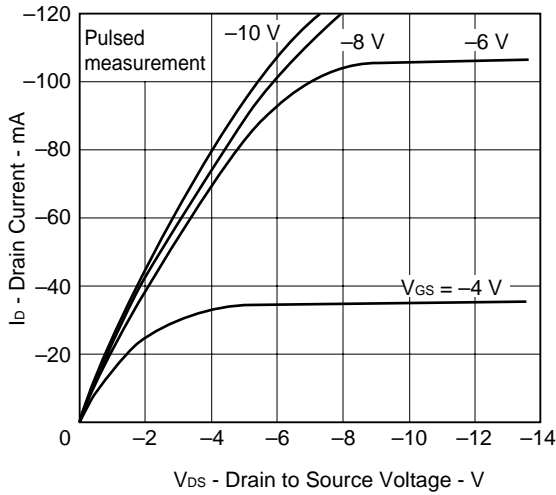
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



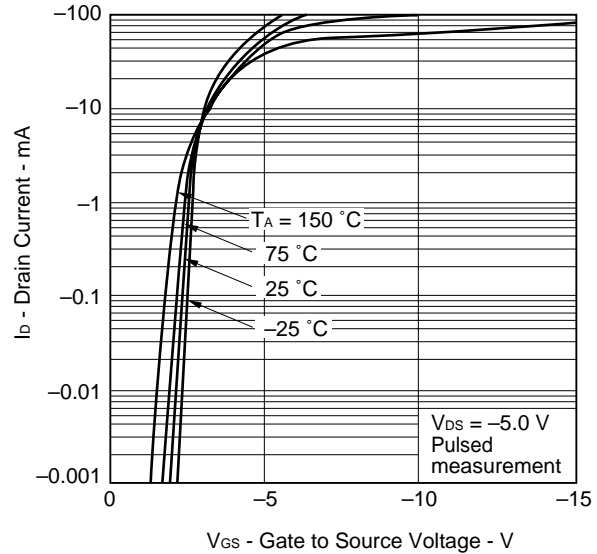
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



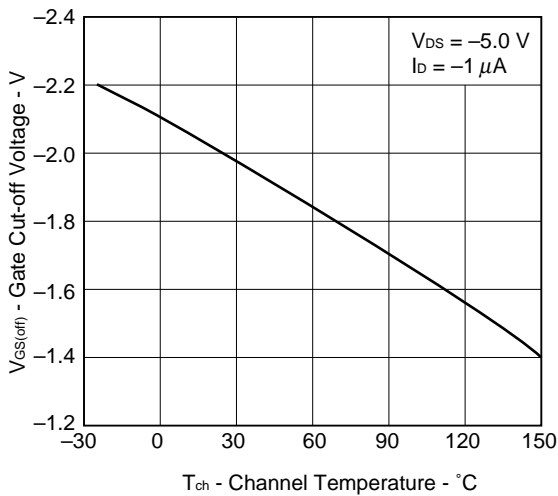
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



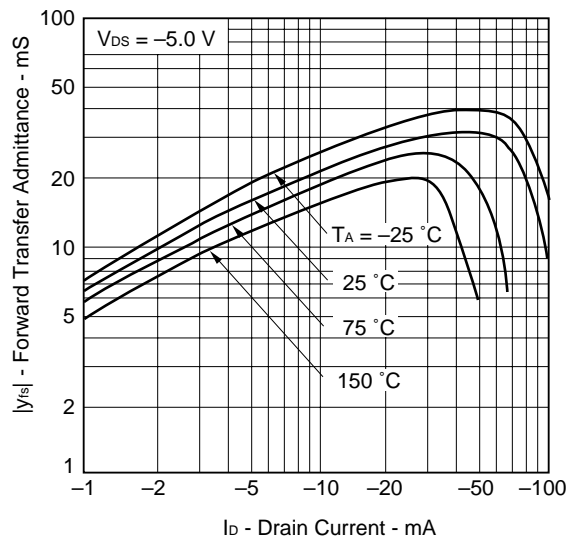
TRANSFER CHARACTERISTICS

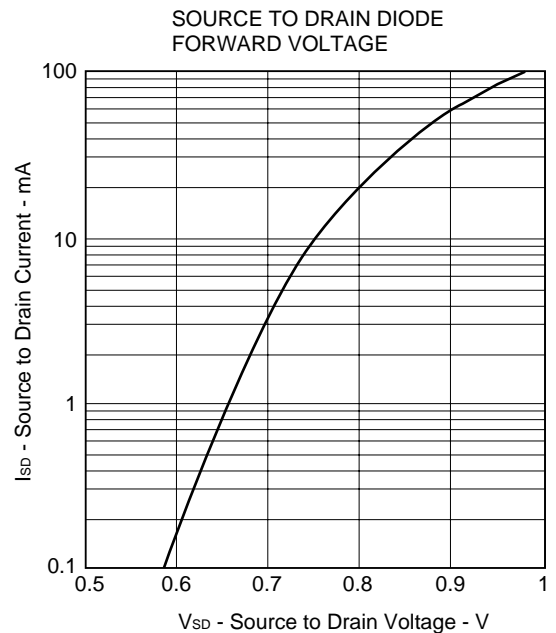
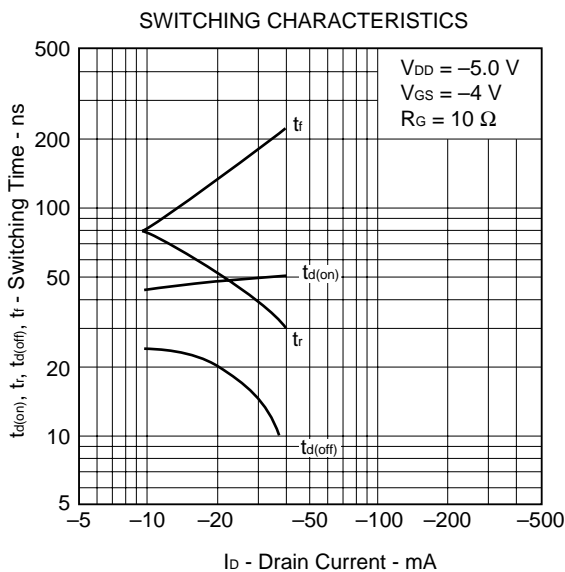
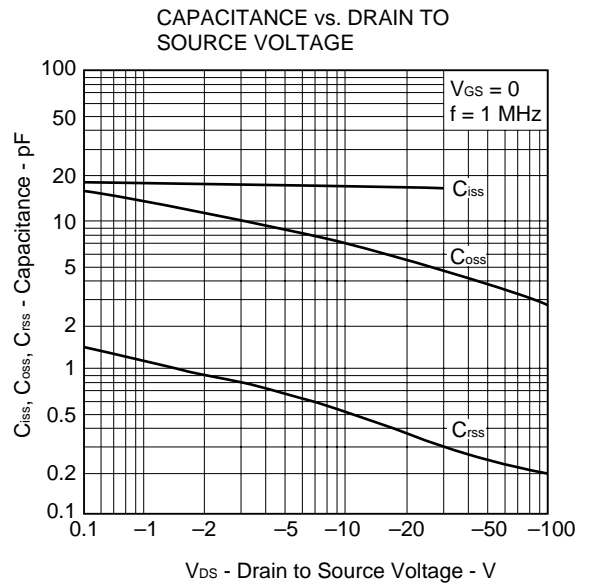
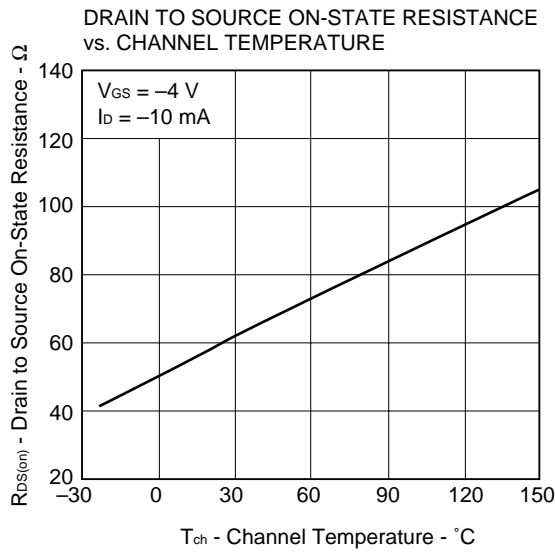
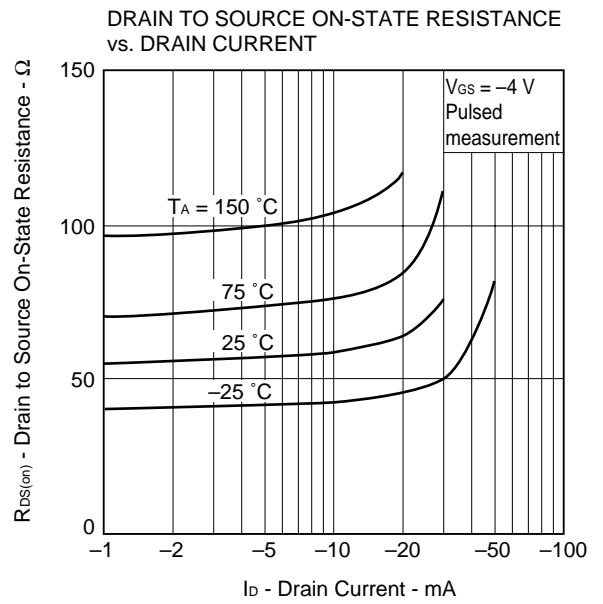
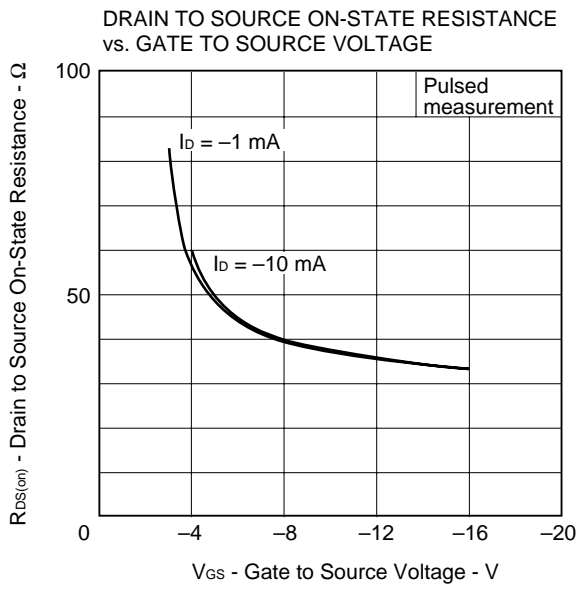


GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE



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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