

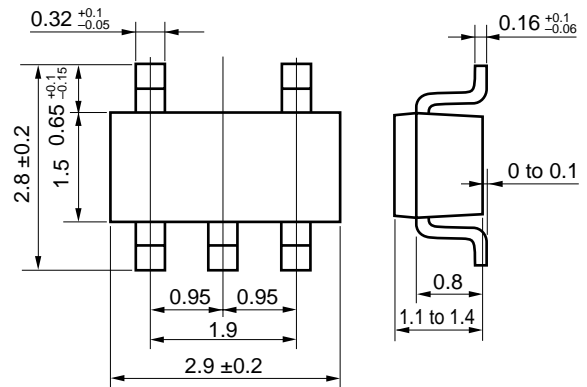
N-CHANNEL/P-CHANNEL MOS FET (5-PIN 2 CIRCUITS)

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

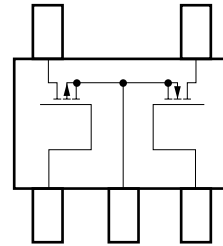
FEATURES

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

| 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 ≤ 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)

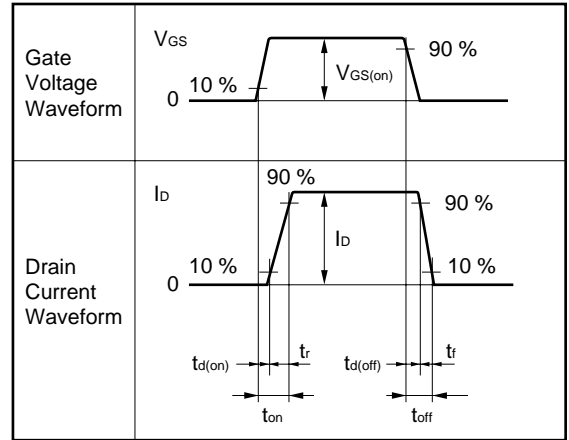
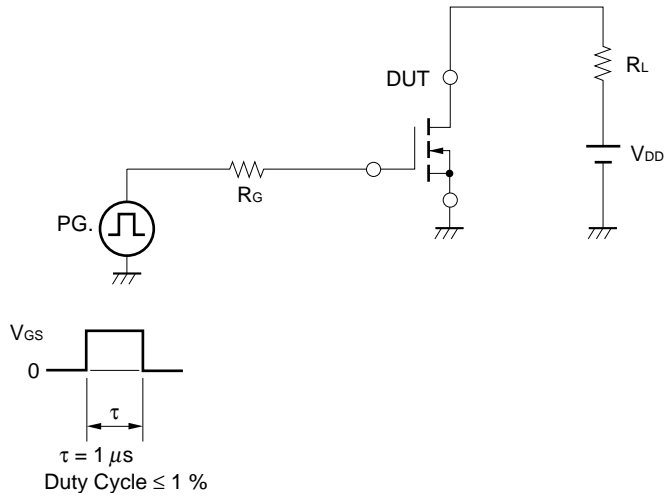
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-------------------------------------|----------------------|---|-------------|-------------|-------------|------|
| Drain Cut-off Current | I _{DSS} | V _{DS} = 50/-50 V, V _{GS} = 0 | - | - | 1.0 -1.0 | μA |
| Gate Leakage Current | 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

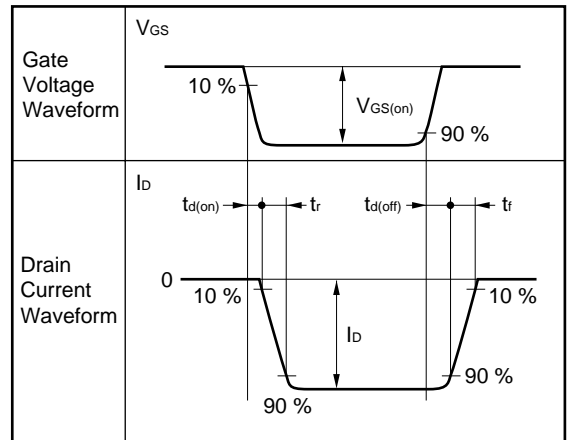
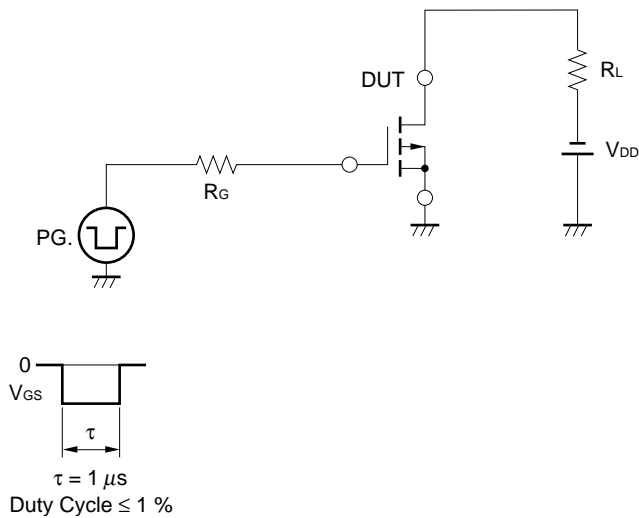
Note The left and right values in above table represent the N-ch and P-ch characteristics, respectively.

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

- N-ch part



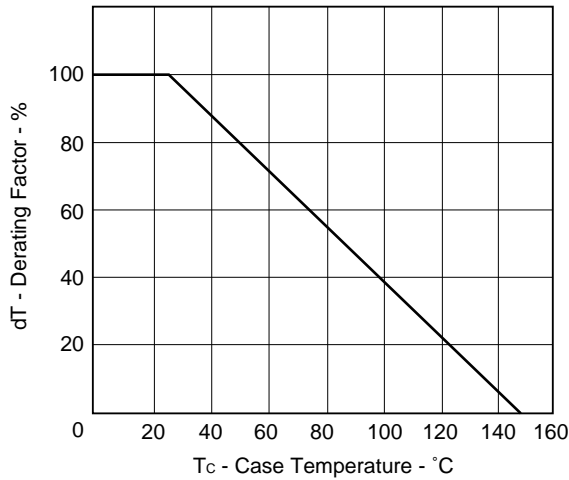
- P-ch part



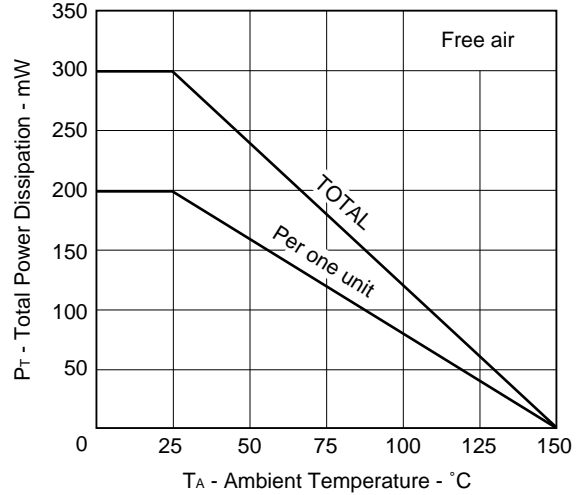
TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

- N-ch part

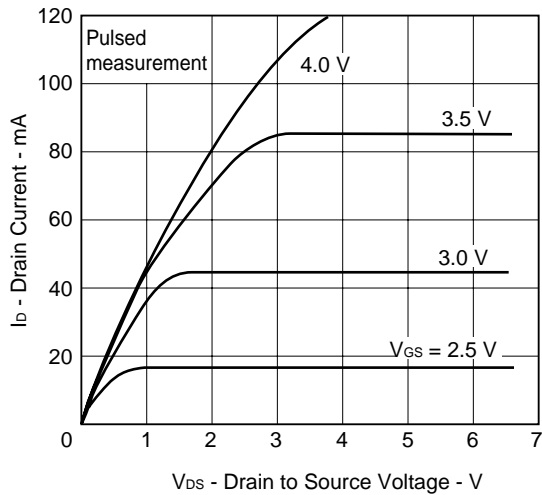
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



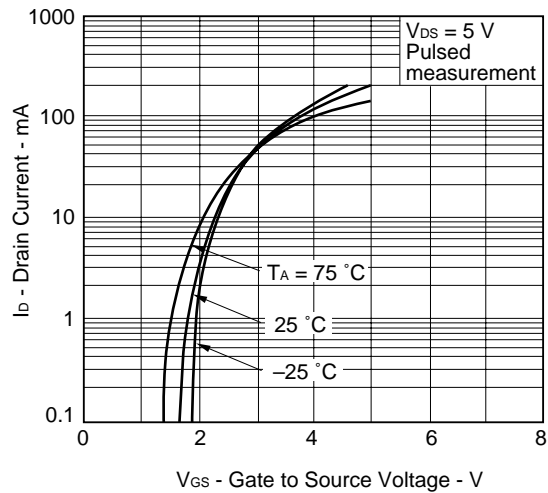
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



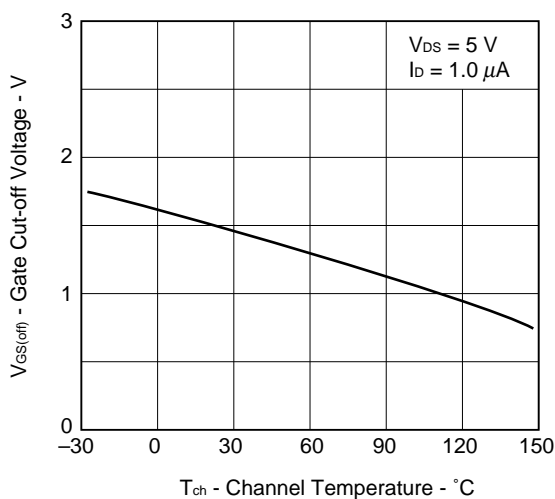
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



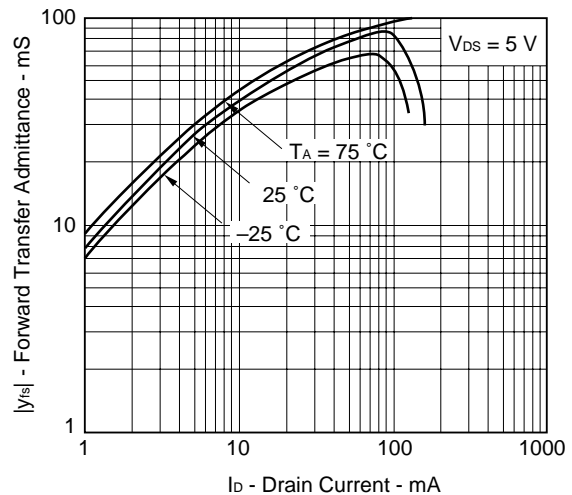
TRANSFER CHARACTERISTICS

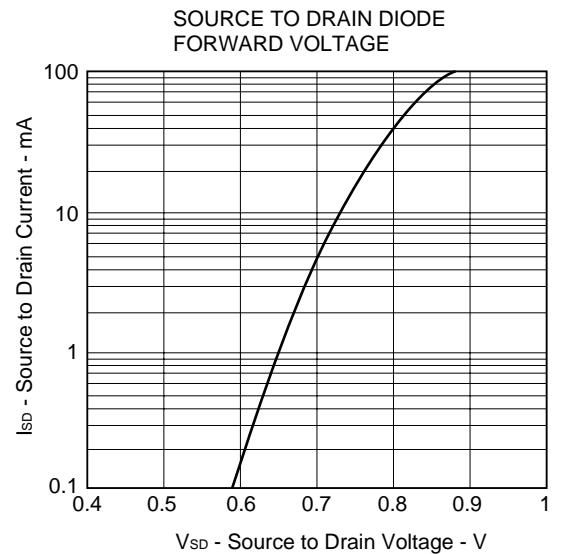
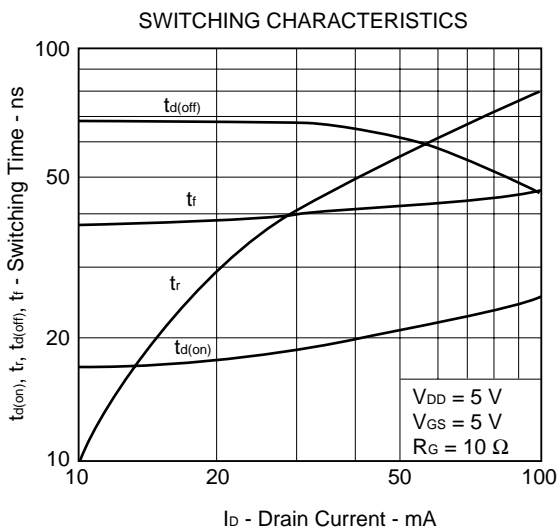
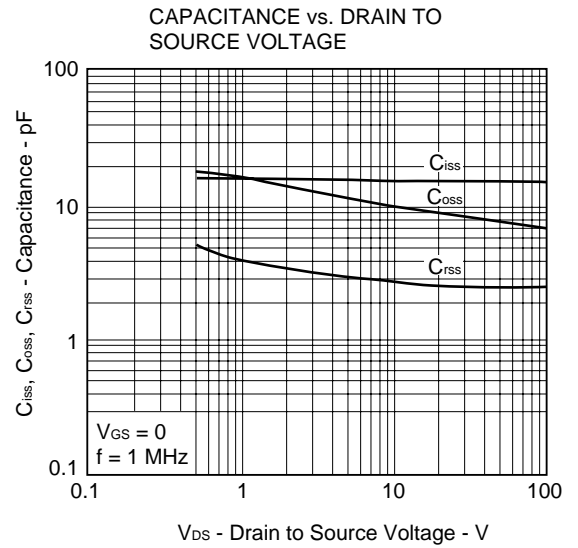
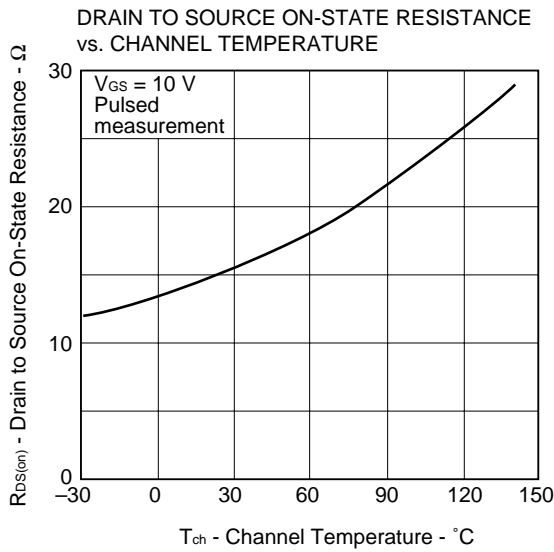
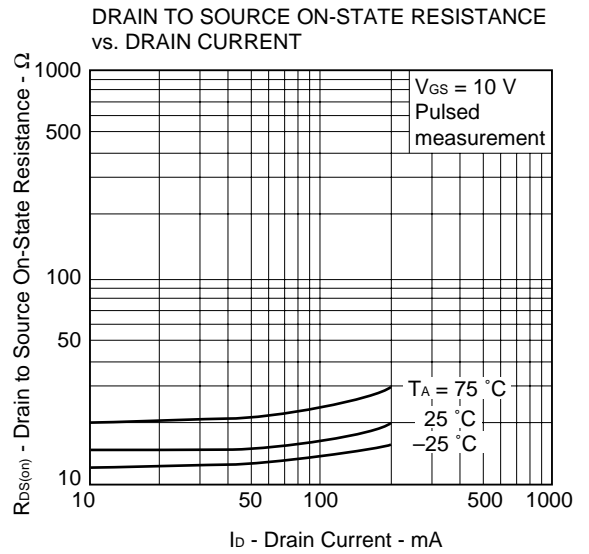
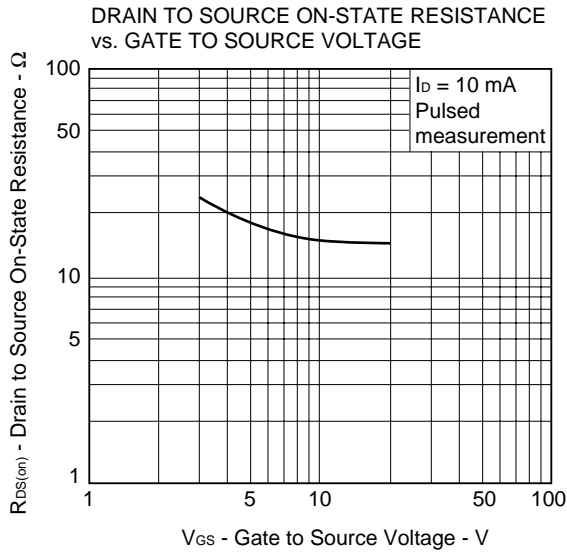


GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE



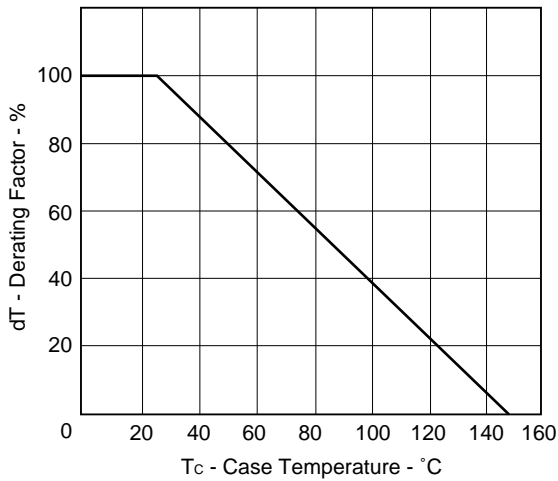
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



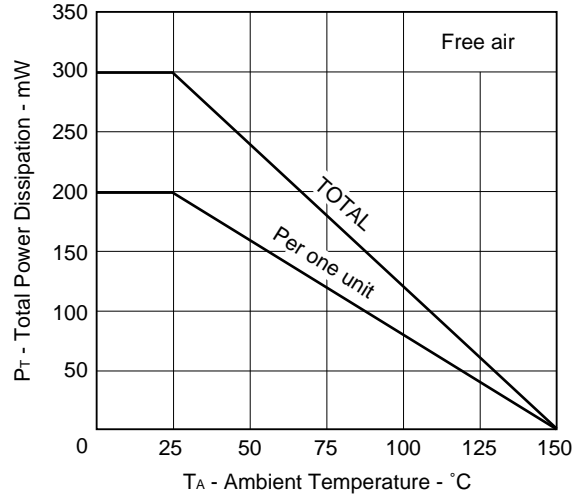


- P-ch part

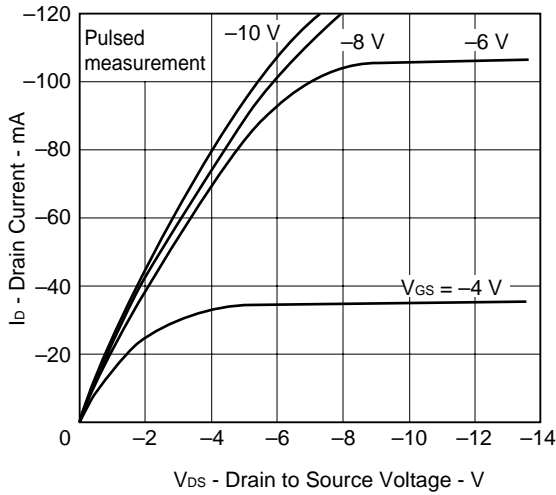
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



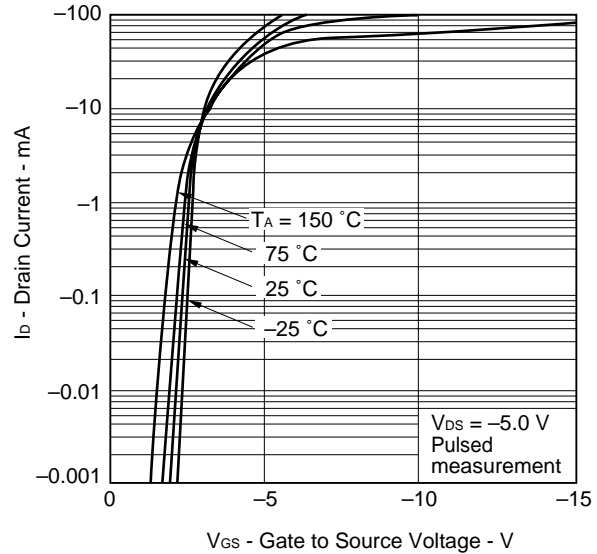
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



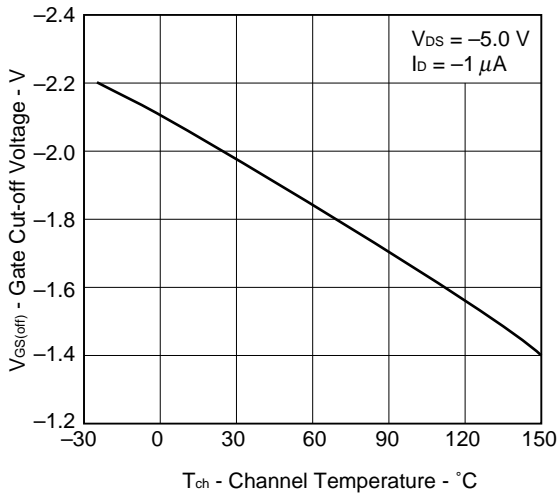
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



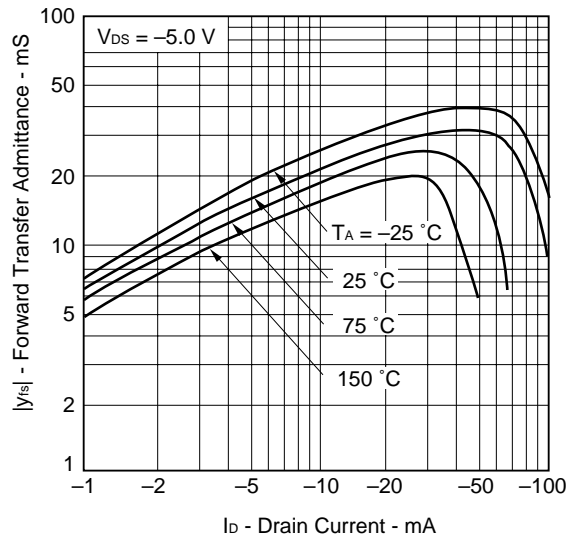
TRANSFER CHARACTERISTICS

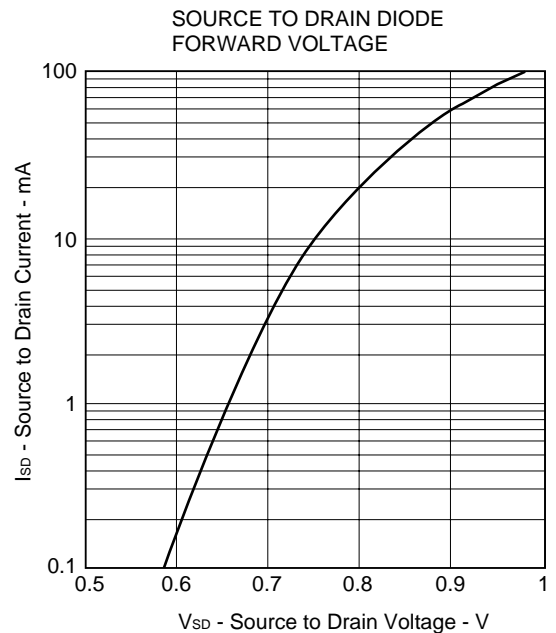
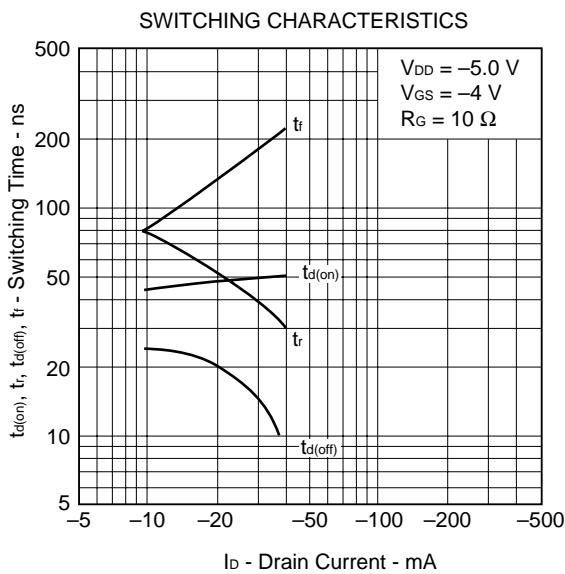
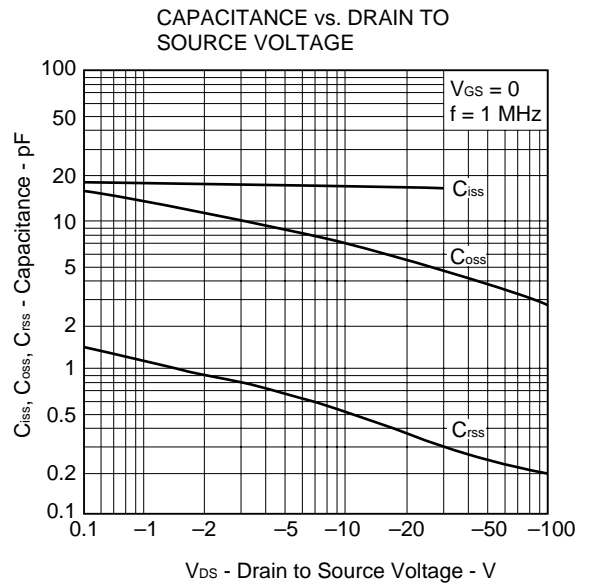
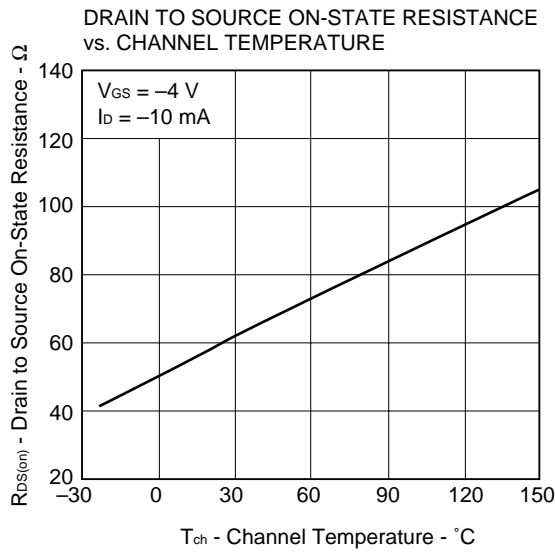
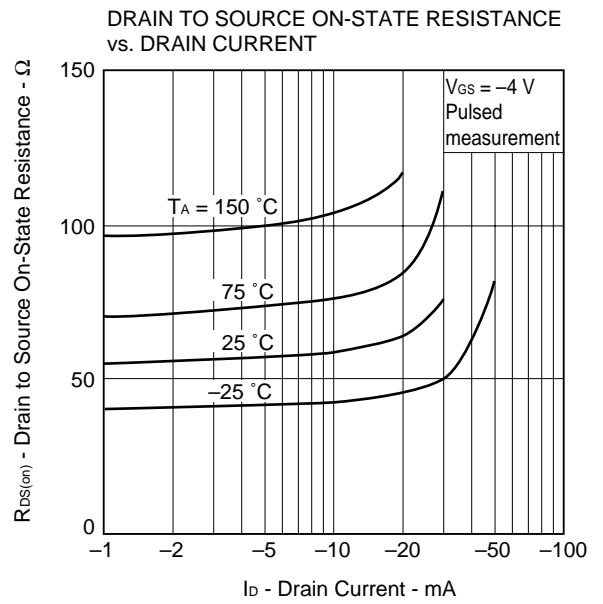
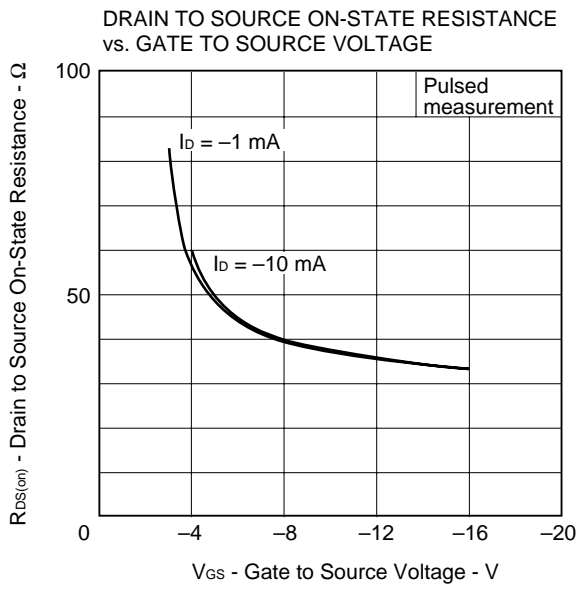


GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE



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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