

N-CHANNEL MOS FIELD EFFECT TRANSISTOR FOR HIGH SPEED SWITCHING

DESCRIPTION

The μ PA611TA is a switching device which can be driven directly by a 2.5-V power source.

The μ PA611TA has excellent switching characteristics, and is suitable for use as a high-speed switching device in digital circuits.

FEATURES

- Can be driven by a 2.5-V power source
- Low gate cut-off voltage

ORDERING INFORMATION

| PART NUMBER | PACKAGE |
|---------------|-------------------|
| μ PA611TA | SC-74 (Mini Mold) |

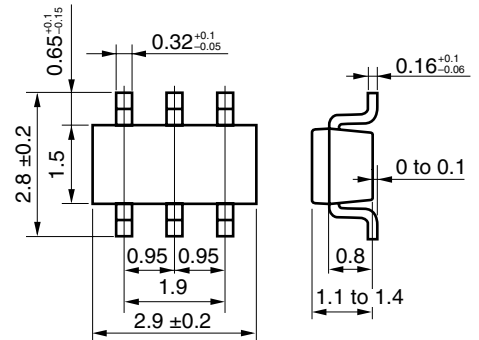
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

| | | | |
|---------------------------------------|-----------------------|-------------|----|
| Drain to Source Voltage | V _{DSS} | 30 | V |
| Gate to Source Voltage | V _{GSS} | ±20 | V |
| Drain Current (DC) | I _{D(DC)} | ±0.1 | A |
| Drain Current (pulse) ^{Note} | I _{D(pulse)} | ±0.4 | A |
| Total Power Dissipation | P _T | 300 (TOTAL) | mW |
| Channel Temperature | T _{ch} | 150 | °C |
| Storage Temperature | T _{stg} | -55 to +150 | °C |

Note PW ≤ 10 μs, Duty Cycle ≤ 1 %

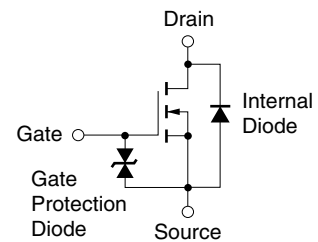
Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

PACKAGE DRAWING (Unit : mm)

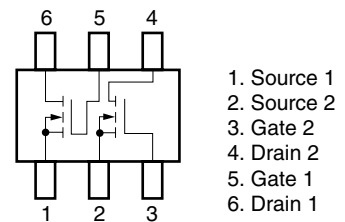


EQUIVALENT CIRCUIT

(1/2 Circuit)



PIN CONNECTION (Top View)



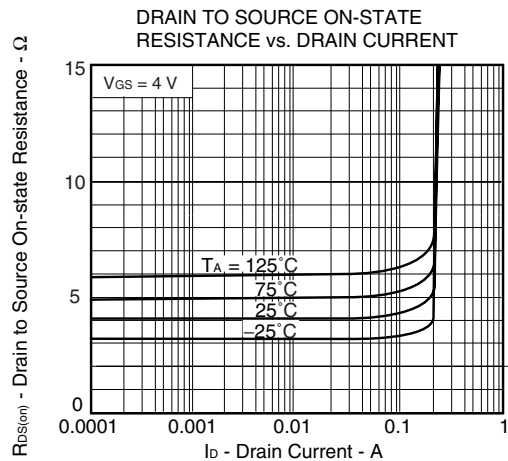
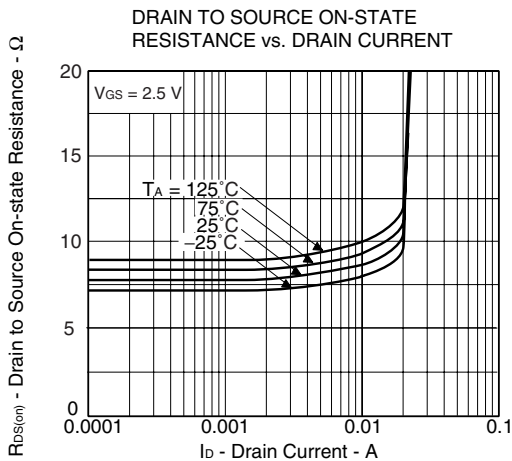
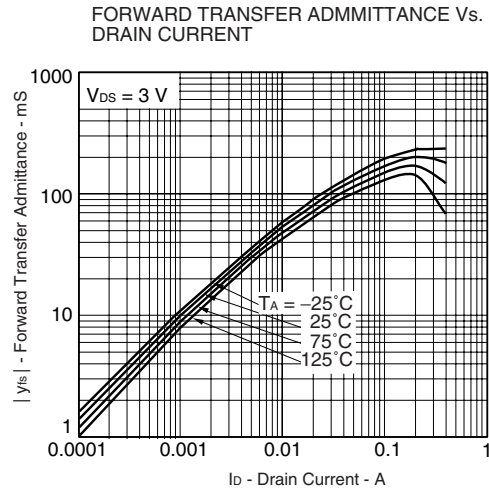
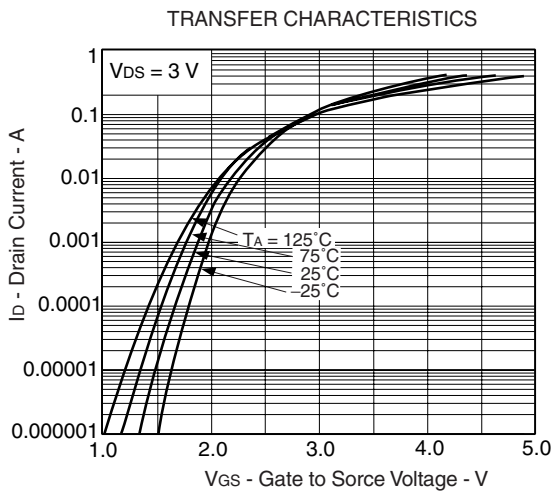
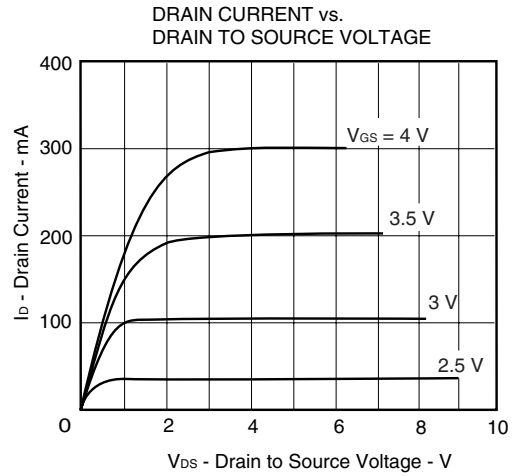
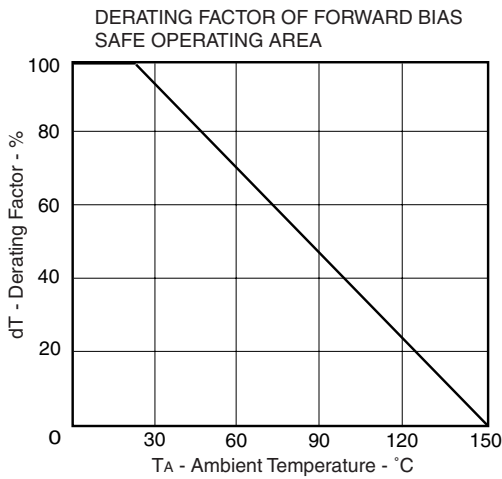
Marking : IB

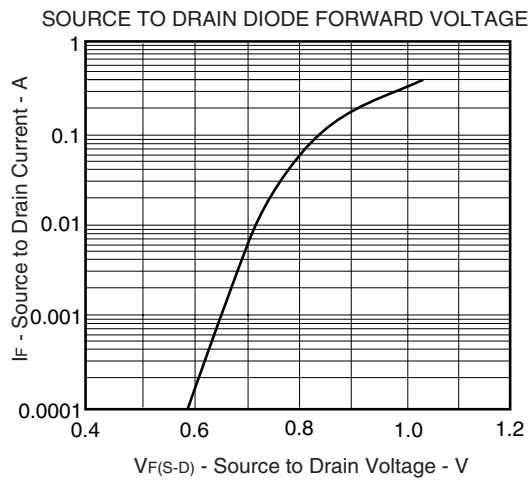
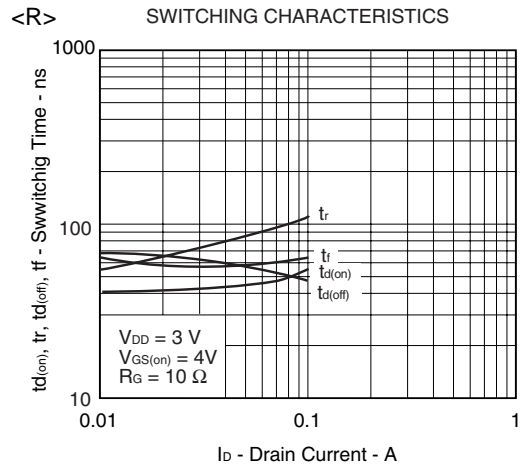
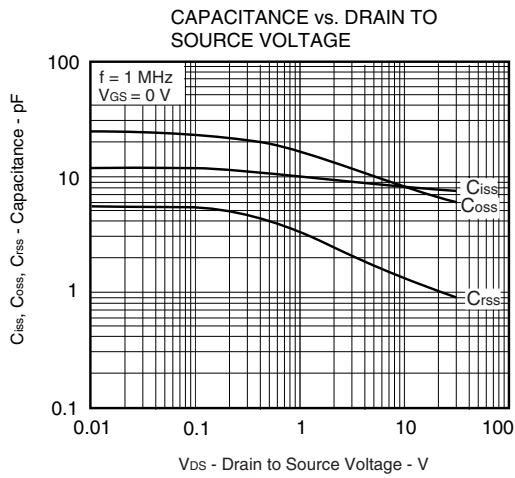
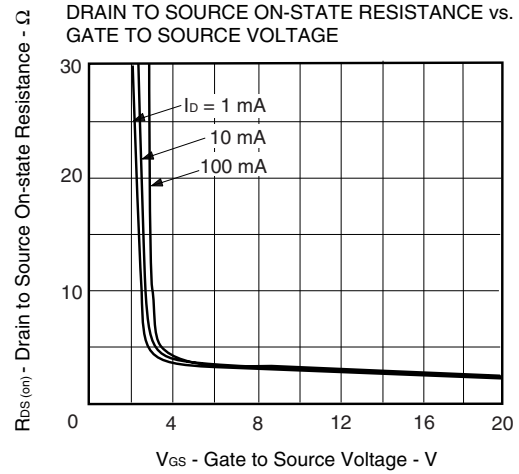
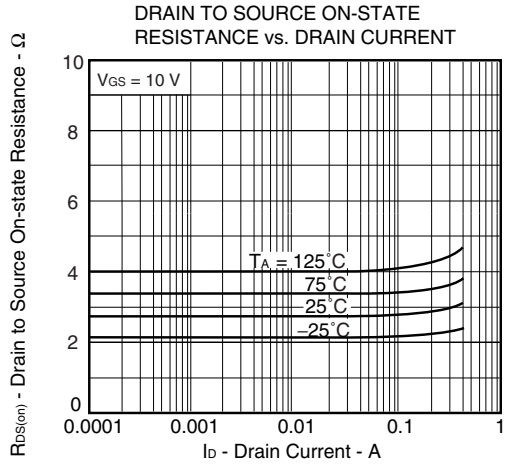
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ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

| CHARACTERISTICS | SYMBOL | TEST CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-------------------------------------|----------------------|--|------|------|------|------|
| Drain Cut-off Current | I _{DSS} | V _{DS} = 30 V, V _{GS} = 0 V | | | 1 | μA |
| Gate Leakage Current | I _{GSS} | V _{GS} = ±20 V, V _{DS} = 0 V | | | ±10 | μA |
| Gate Cut-off Voltage | V _{GS(off)} | V _{DS} = 3 V, I _D = 10 μA | 1.0 | 1.4 | 1.8 | V |
| Forward Transfer Admittance | y _{fs} | V _{DS} = 3 V, I _D = 10 mA | 20 | | | mS |
| Drain to Source On-state Resistance | R _{DS(on)1} | V _{GS} = 2.5 V, I _D = 1 mA | | 8 | 15 | Ω |
| | R _{DS(on)2} | V _{GS} = 4 V, I _D = 10 mA | | 4 | 8 | Ω |
| | R _{DS(on)3} | V _{GS} = 10 V, I _D = 10 mA | | 3 | 5 | Ω |
| Input Capacitance | C _{iss} | V _{DS} = 3 V | | 9 | | pF |
| Output Capacitance | C _{oss} | V _{GS} = 0 V | | 12 | | pF |
| Reverse Transfer Capacitance | C _{rss} | f = 1 MHz | | 2.1 | | pF |
| Turn-on Delay Time | t _{d(on)} | V _{DD} = 3 V | | 40 | | ns |
| Rise Time | t _r | I _D = 10 mA | | 55 | | ns |
| Turn-off Delay Time | t _{d(off)} | V _{GS(on)} = 4 V | | 68 | | ns |
| Fall Time | t _f | R _G = 10 Ω, R _L = 300 Ω | | 64 | | ns |

TYPICAL CHARACTERISTICS (T_A = 25 °C)





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