MOS FET

Panasonic FK6K02010L

# FK6K02010L

## Silicon N-channel MOS FET

For switching

■ Features

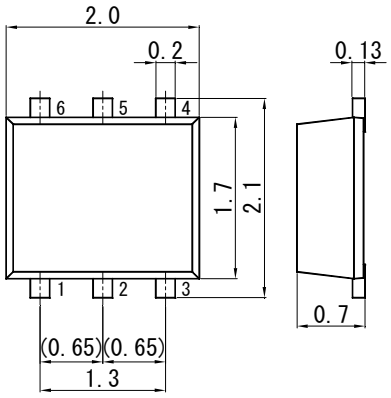
- Low drain-source On-state Resistance:RDS(on)typ. = 13 mΩ (VGS = 4.5 V)
- Low drive voltage: 2.5 V drive
- Halogen-free / RoHS compliant
  (EU RoHS / UL-94 V-0 / MSL : Level 1 compliant)

■ Marking Symbol : TA

■ Packaging

Embossed type (Thermo-compression sealing): 3 000 pcs / reel (standard)

Unit : mm




1. Drain
2. Drain
3. Gate
4. Source
5. Drain
6. Drain

| | |
|---|---|
| Panasonic | WSMini6-F1-B |
| JEITA | SC-113DA |
| Code | — |

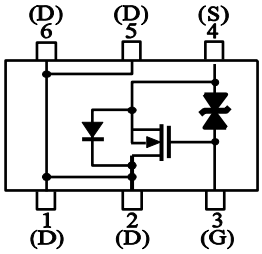
■ Absolute Maximum Ratings Ta = 25 °C

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Drain-source surrender voltage | VDSS | 20 | V |
| Gate-source surrender voltage | VGSS | ±10 | V |
| Drain current | ID | 4.5 | A |
| Peak drain current *1 | IDp | 18 | A |
| Power dissipation *2 | PD | 700 | mW |
| Channel temperature | Tch | 150 | °C |
| Operating ambient temperature | Topr | -40 to + 85 | °C |
| Storage temperature | Tstg | -55 to +150 | °C |

Note) *1 t = 10 μs, Duty Cycle < 1%

*2 Measuring on Glass epoxy board (25.4 × 25.4 × t0.8 mm)
coated with copper foil, which has more than 300 $mm^2$
Absolute maximum rating without heat sink for PD is 150 mW.

Internal Connection




Pin Name

1. Drain
2. Drain
3. Gate
4. Source
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6. Drain



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■ Electrical Characteristics Ta = 25 °C ± 3 °C

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-source surrender voltage | VDSS | ID = 1 mA, VGS = 0 | 20 | | | V |
| Drain-source cutoff current | IDSS | VDS = 20 V, VGS = 0 | | | 1.0 | μA |
| Gate-source cutoff current | IGSS | VGS = ±8 V, VDS = 0 | | | ±10 | μA |
| Gate threshold voltage | Vth | ID = 1.0 mA, VDS = 10.0 V | 0.4 | 0.85 | 1.3 | V |
| Drain-source ON resistance | RDS(ON)1 | ID = 2.0 A, VGS = 4.5 V | | 13 | 17.5 | mΩ |
| | RDS(ON)2 | ID = 1.0 A, VGS = 2.5 V | | 16 | 28 | |
| Forward transfer admittance | \|Yfs\| | ID = 1.0 A, VDS =10 V | 3.0 | | | S |
| Short-circuit input capacitance (Common source) | Ciss | VDS = 10 V, VGS = 0, f = 1 MHz | | 1 730 | | pF |
| Short-circuit output capacitance (Common source) | Coss | | | 155 | | pF |
| Reverse transfer capacitance (Common source) | Crss | | | 150 | | pF |
| Turn-on delay time *1 | td(on) | VDD = 10 V<br>VGS = 0 to 4 V<br>ID=1.0A | | 19 | | ns |
| Rise time *1 | tr | | | 30 | | ns |
| Turn-off delay time *1 | td(off) | | | 150 | | ns |
| Fall time *1 | tf | | | 75 | | ns |

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.
2. *1 Measurement circuit for Turn-on Delay Time/Rise Time/Turn-off Delay Time/Fall Time



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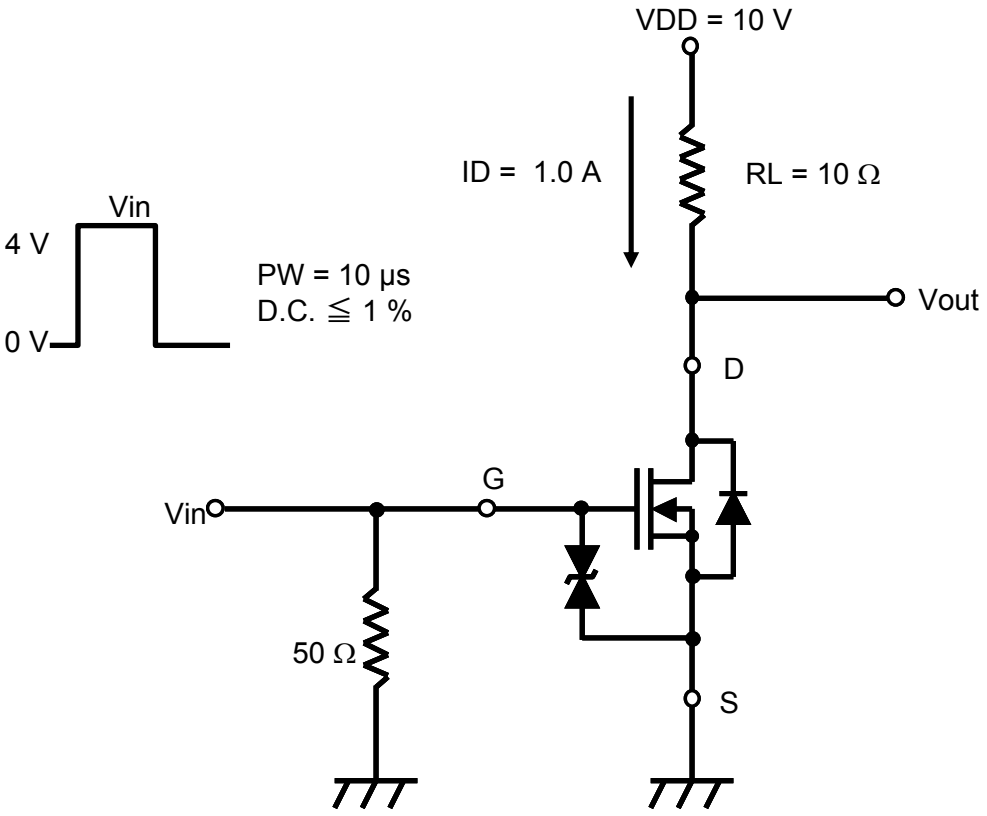
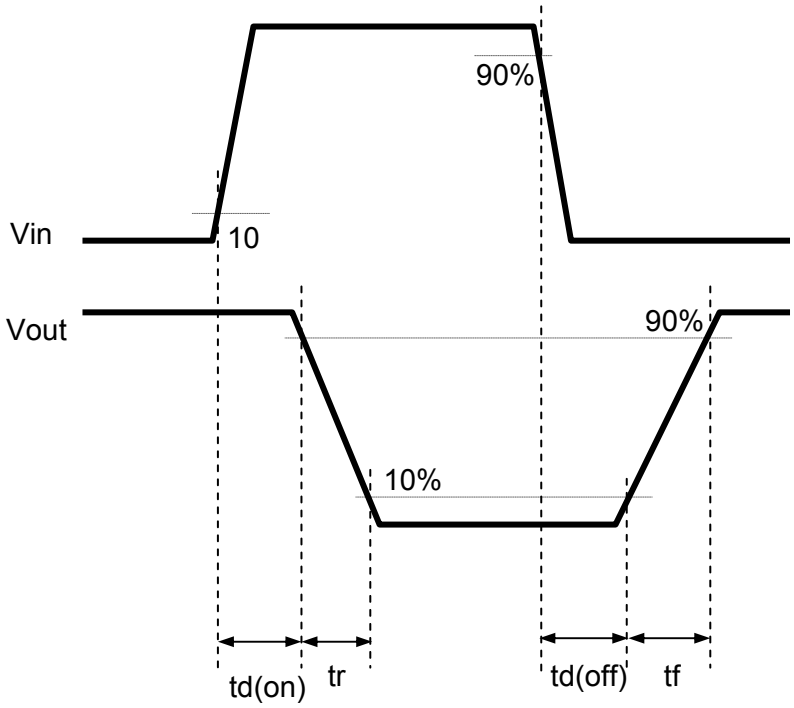
*1 Measurement circuit for Turn-on Delay Time/Rise Time/Turn-off Delay Time/Fall Time



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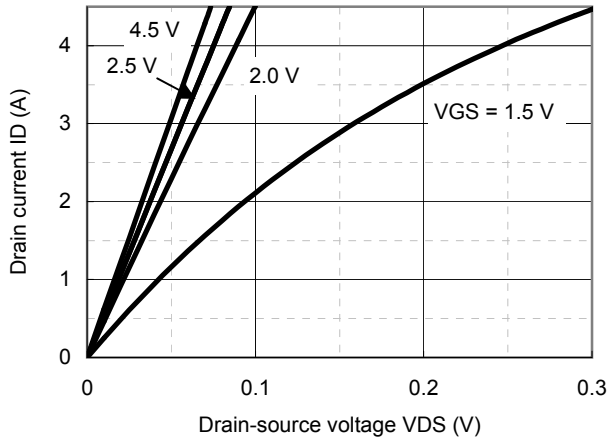
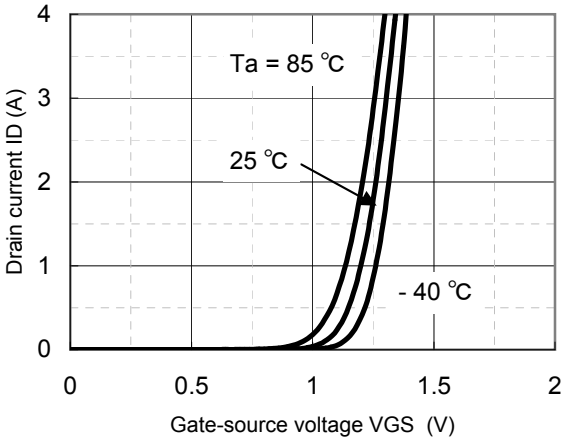
## Technical Data ( reference )

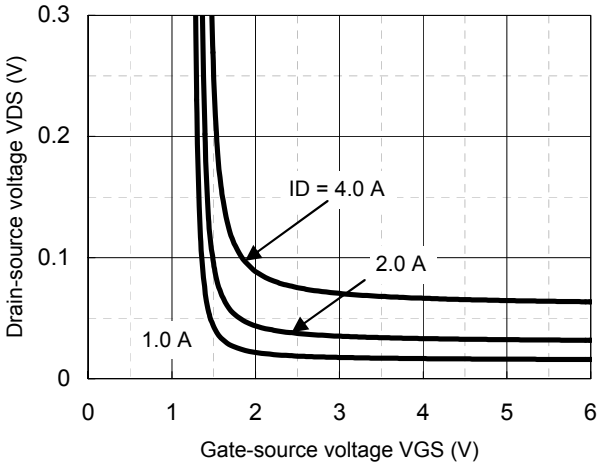
ID - VDS



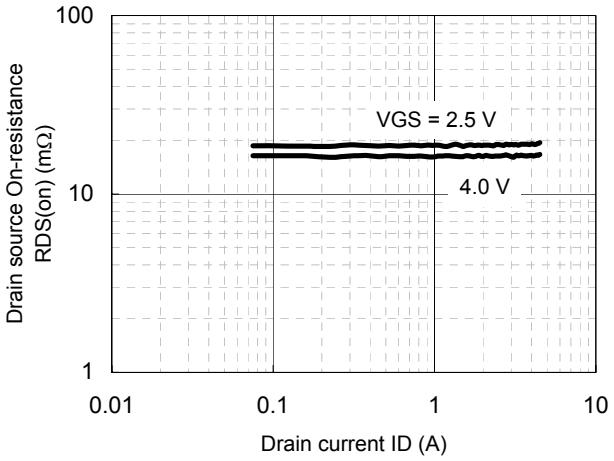

ID - VGS



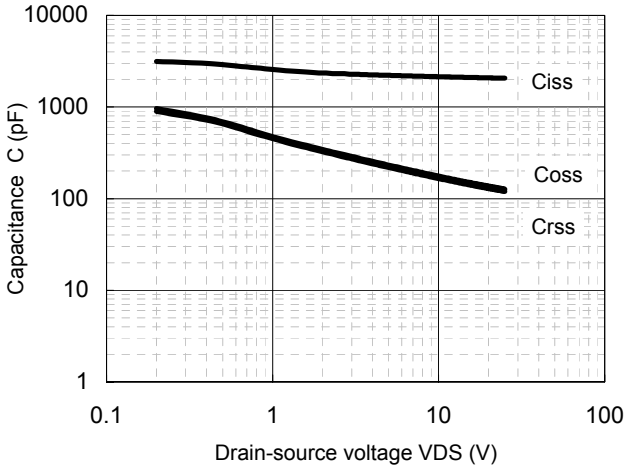

VDS - VGS




RDS(on) - ID




Capacitance - VDS



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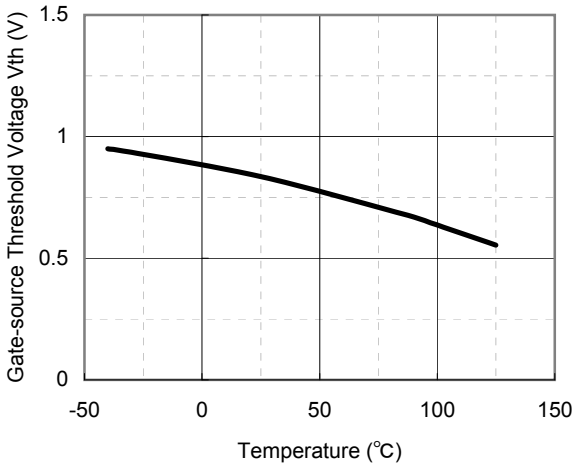
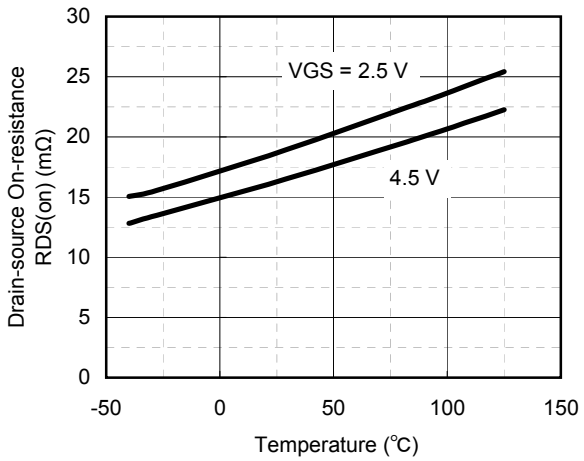
## Technical Data ( reference )

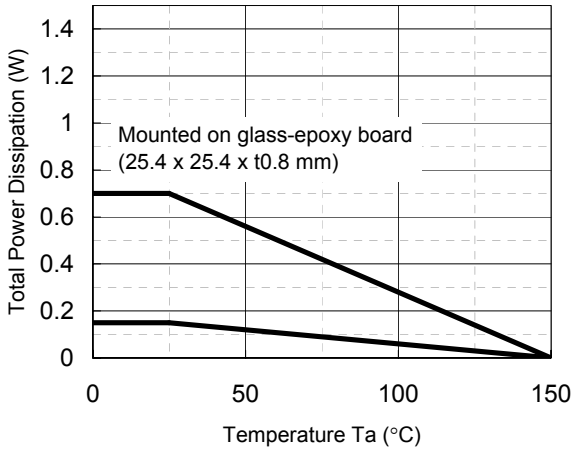
Vth - Ta



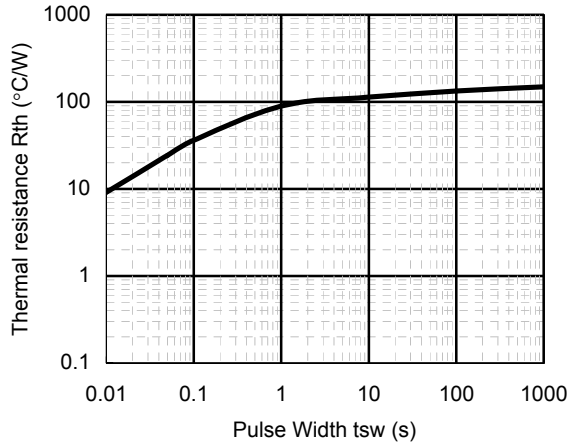

RDS(on) - Ta



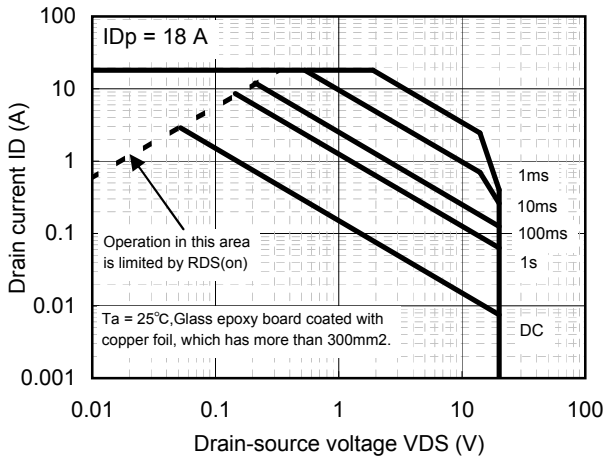

PD - Ta




Rth - tsw




Safe Operating Area



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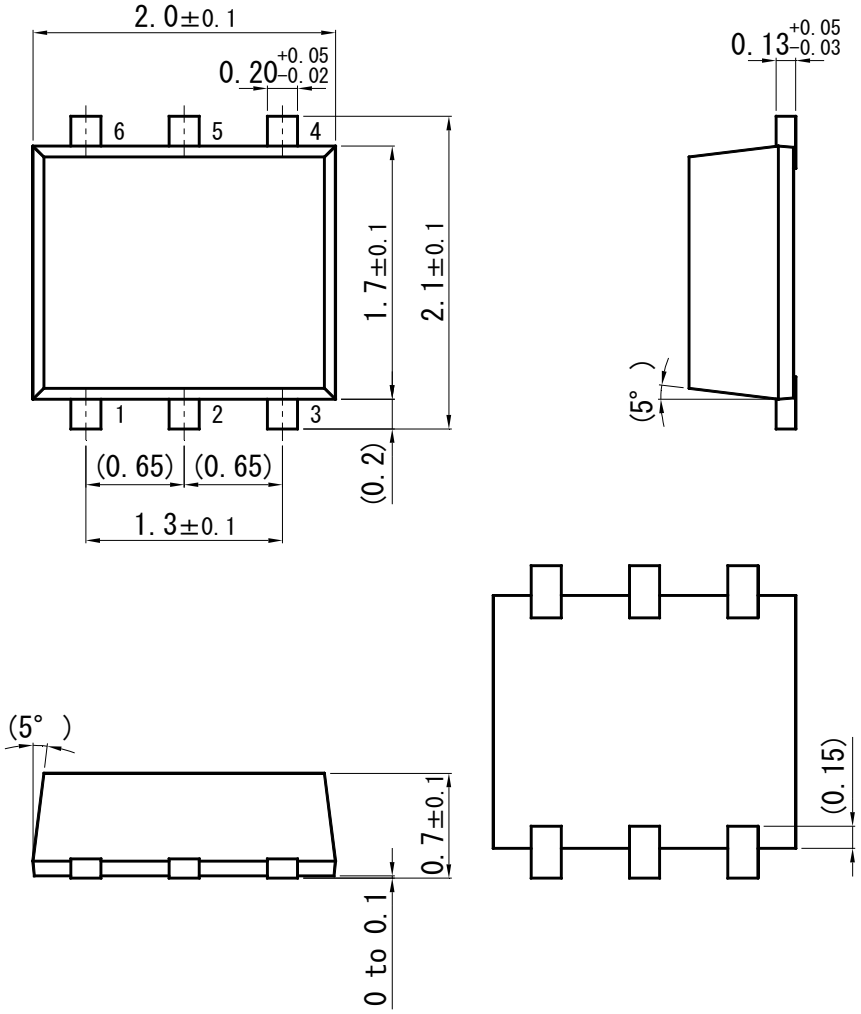
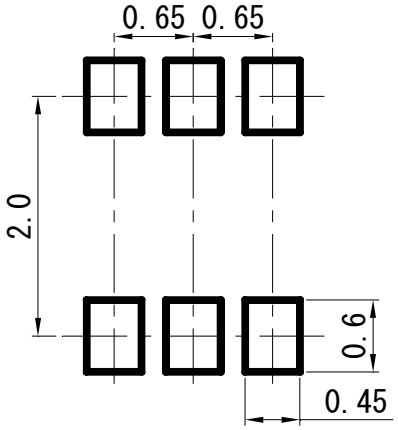
## WSMini6-F1-B

Unit: mm




■Land Pattern (Reference) (Unit : mm)



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