MOS FET

Panasonic

FM6K62010L

# FM6K62010L

## Silicon N-channel MOSFET(FET)
## Silicon epitaxial planar type(SBD)

For switching
For DC-DC Converter

■ Features

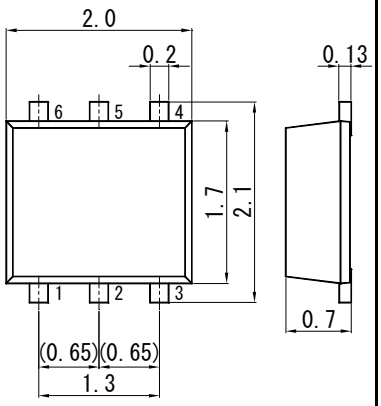
- Low drain-source ON resistance : RDS (on) typ. = 80 mΩ ( VGS = 4.0 V )
- Low drive voltage : 2.5 V drive
- Halogen-free / RoHS compliant
  (EU RoHS / UL-94 V-0 / MSL:Level 1 compliant)

■ Marking Symbol : Y5

■ Packaging

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

Unit : mm




1. Gate
2 Source
3 Cathode
4. Anode
5 N/C
6 Drain

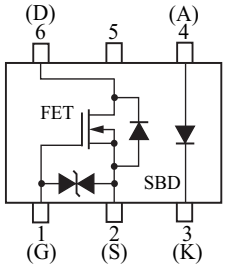
| | |
|---|---|
| Panasonic | WSMini6-F1-B |
| JEITA | SC-113DA |
| Code | — |

■ Absolute Maximum Ratings Ta = 25 °C

| 項目 | | Symbol | Rating | Unit |
|---|---|---|---|---|
| FET | Drain to Source Voltage | VDS | 20 | V |
| | Gate to Source Voltage | VGS | ±10 | V |
| | Drain current | ID | 2.0 | A |
| | Drain Current (Pulsed) | IDp | 12 | A |
| | Channel temperature | Tch | 125 | °C |
| SBD | Reverse voltage | VR | 20 | V |
| | Forward current (Average) | IF(AV) | 1.0 | A |
| | Non-repetitive Peak forward surge current *1 | IFSM | 3.0 | A |
| | Junction temperature | Tj | 125 | °C |
| Overall | Total power dissipation *2 | PD | 700 | mW |
| | Operating ambient temperature | Topr | -40 to + 85 | °C |
| | Storage temperature | Tstg | -55 to +125 | °C |

Note: *1 60 Hz sine wave 1 cycle (Non-repetitive peak current)
*2 Measuring on ceramic substrate at 40 mm × 38 mm × 0.2 mm
PD absolute maximum rating without a heat shink: 150 mW

Internal Connection




Pin Name

1. Gate
2. Source
3. Cathode
4. Anode
5. N/C
6. Drain



Established : 2011-12-19
Revised : 2013-10-18

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

FET (N-ch.)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain to Source Breakdown Voltage | VDSS | ID = 1.0 mA, VGS = 0 | 20 | | | V |
| Zero Gate Voltage Drain Current | IDSS | VDS = 20 V, VGS = 0 | | | 1.0 | μA |
| Gate-source Leakage Current | IGSS | VGS = ±8 V, VDS = 0 | | | ±10 | μA |
| Gate-source Threshold Voltage | Vth | ID = 1.0 mA, VDS = 10 V | 0.4 | 0.85 | 1.3 | V |
| Drain-source On-State Resistance | RDS(on)1 | ID = 1.0 A, VGS = 4.0 V | | 80 | 105 | mΩ |
| | RDS(on)2 | ID = 0.5 A, VGS = 2.5 V | | 100 | 150 | |
| Forward transfer admittance | \|Yfs\| | ID = 1.0 A, VDS = 10 V | 3.0 | | | S |
| Input Capacitance | Ciss | VDS = 10 V, VGS = 0, f = 1 MHz | | 280 | | pF |
| Output Capacitance | Coss | | | 18 | | |
| Reverse Transfer Capacitance | Crss | | | 17 | | |
| Turn-on delay time *1 | td(on) | VDD = 10 V, VGS = 0 V to 4 V | | 5 | | ns |
| Rise time *1 | tr | ID = 1.0 A | | 8 | | |
| Turn-off delay time *1 | td(off) | VDD = 10 V, VGS = 4 V to 0 V | | 20 | | ns |
| Fall time *1 | tf | ID = 1.0 A | | 18 | | |

Note: 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.
2. *1 Turn-on, Turn-off measurement circuit

SBD

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Forward voltage | VF1 | IF = 800 mA | | | 0.47 | V |
| | VF2 | IF = 1.0 A | | | 0.52 | V |
| Reverse current | IR | VR = 20 V | | | 80 | μA |

Note: Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 Measuring methods for diodes.



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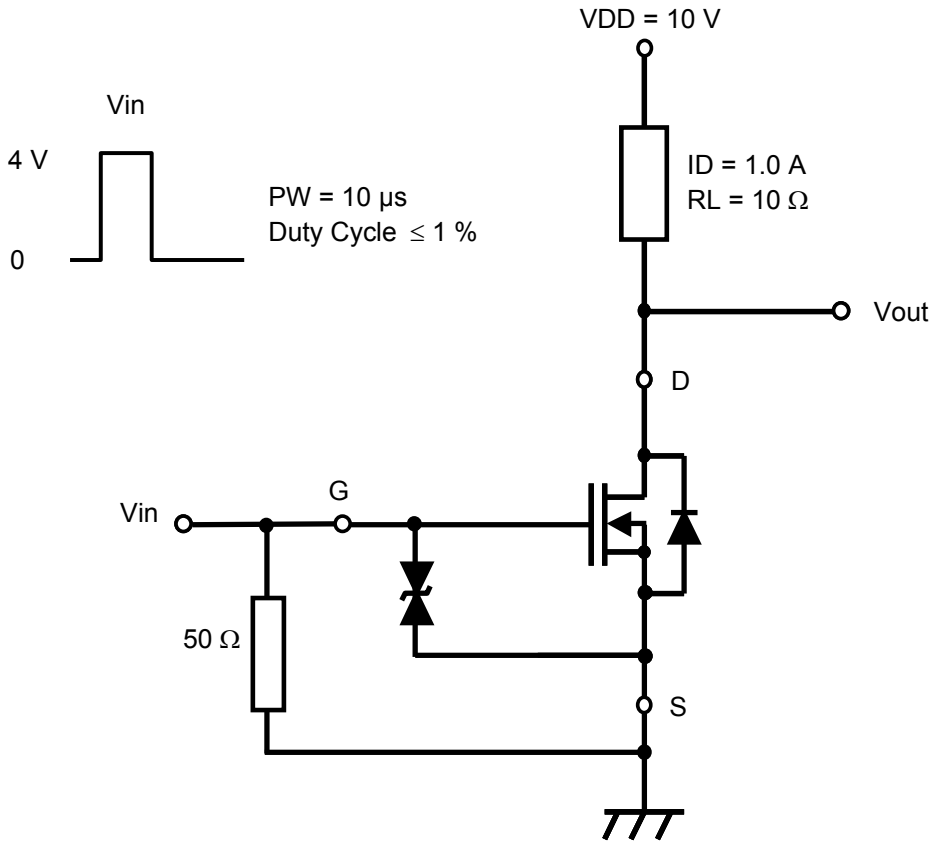
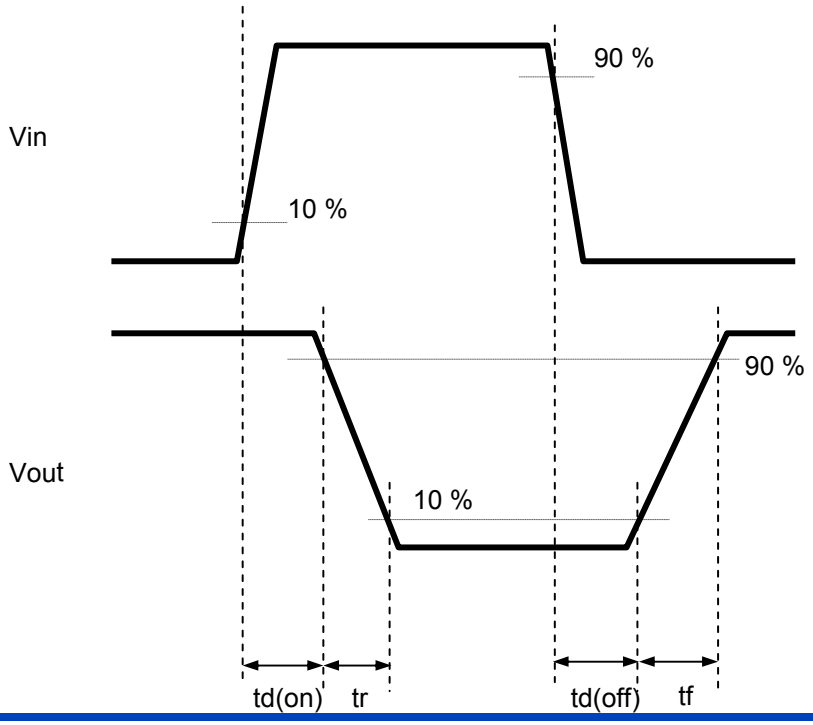
*1 Turn-on, Turn-off measurement circuit



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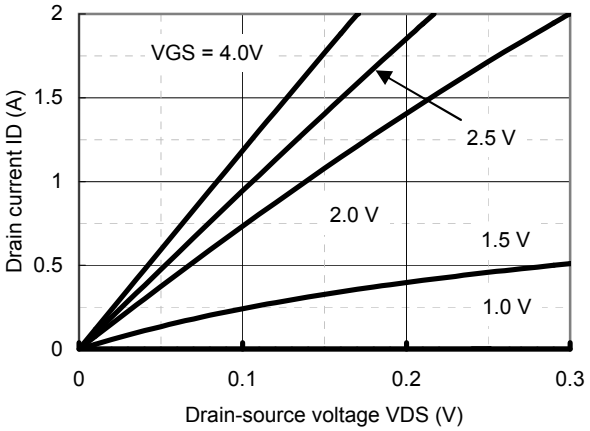
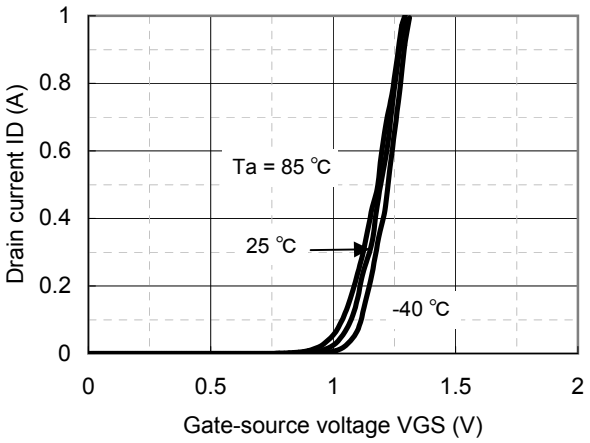
## Technical Data ( reference )

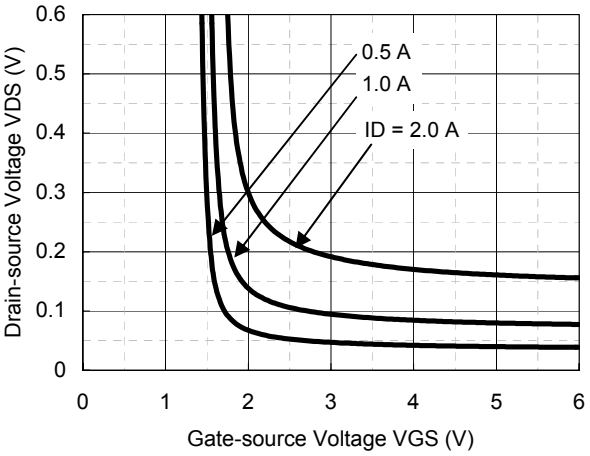
ID - VDS



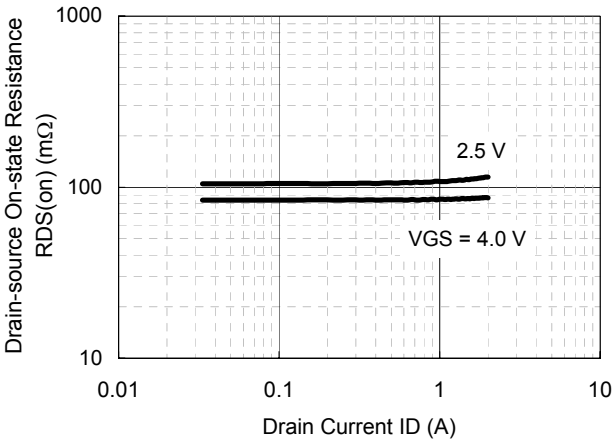

ID - VGS



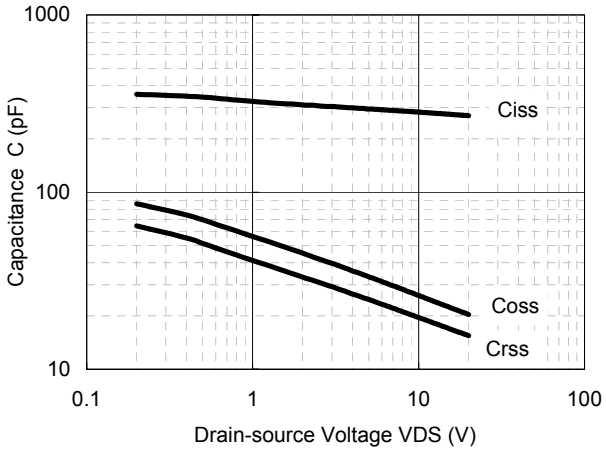

VDS - VGS




RDS(on) - ID




Capacitance - VDS



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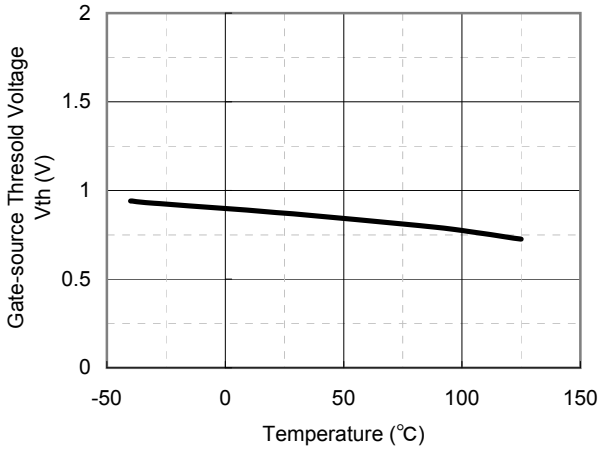
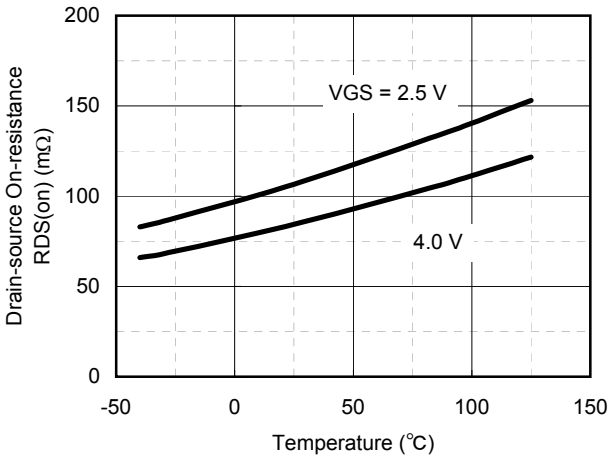
## Technical Data ( reference )

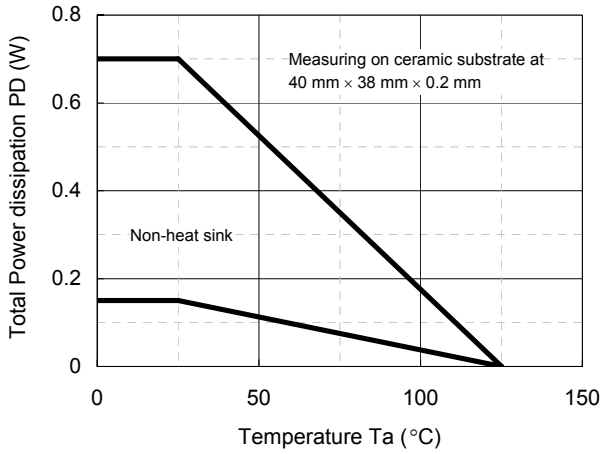
Vth - Ta



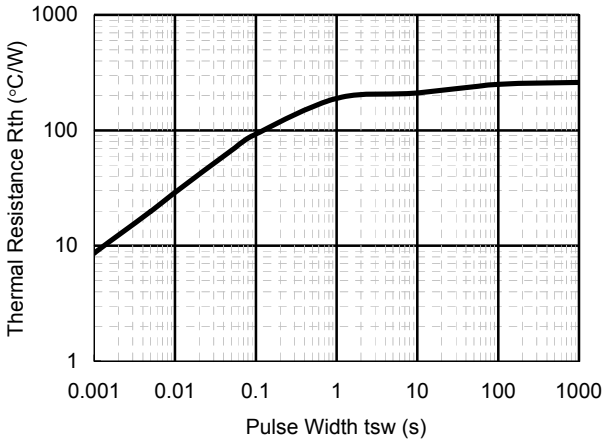

RDS(on) - Ta



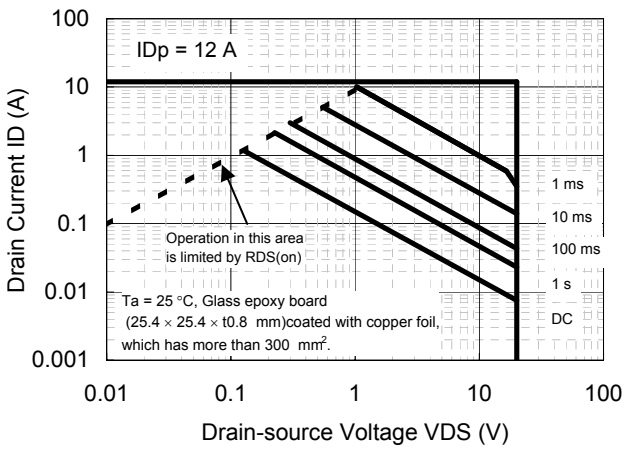

PD - Ta




Rth - tsw




Safe Operating Area



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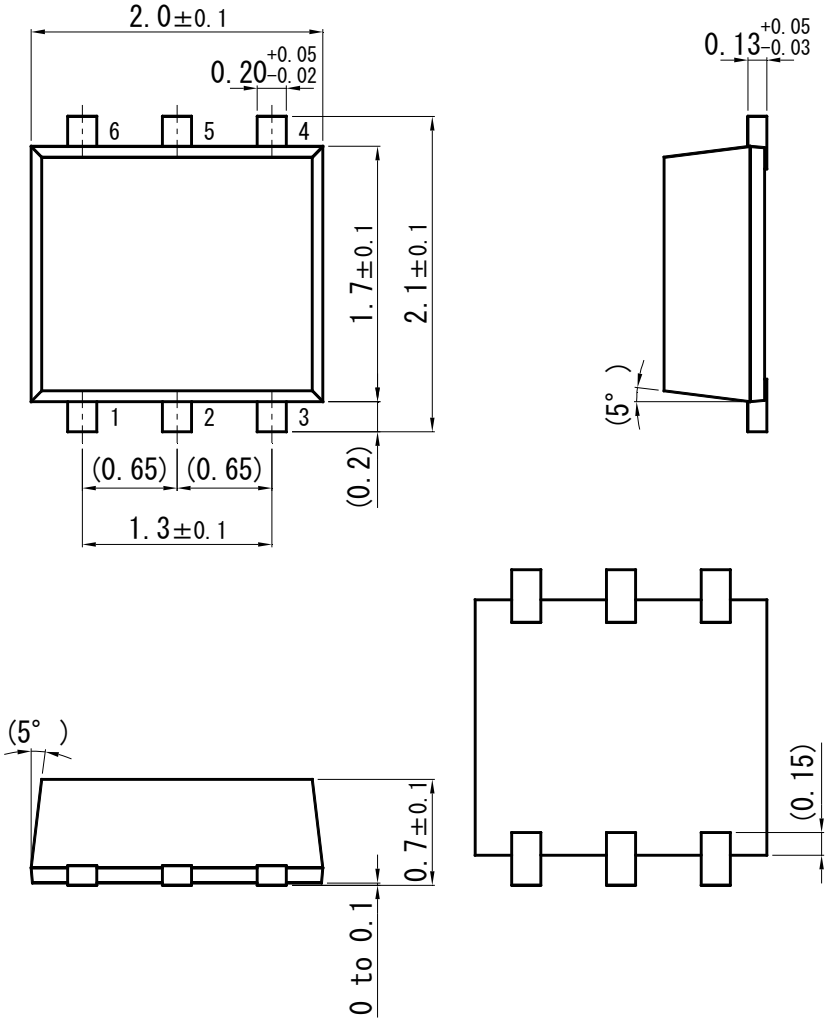
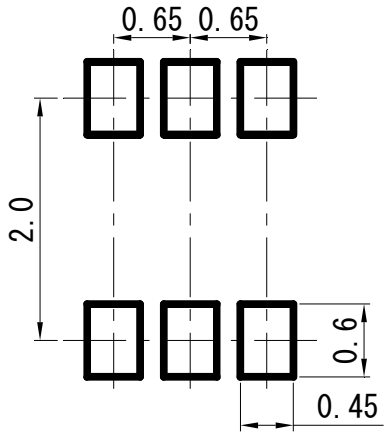
## WSMini6-F1-B

Unit: mm




■ Land Pattern (Reference) (Unit : mm)



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