



MTM232270LBF

Silicon N-channel MOS FET

For switching
 MTM13227 in SMini3 type package

■ Features

- Low drain-source On-state resistance : RDS(on) typ = 85 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 : ET

■ Packaging

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

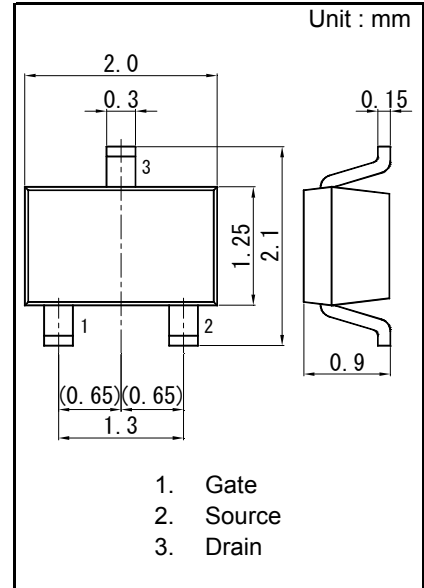
■ Absolute Maximum Ratings Ta = 25 °C

| 項目 | 記号 | 定格 | 単位 |
|-------------------------------|------|-------------|----|
| Drain-source Voltage | VDS | 20 | V |
| Gate-source Voltage | VGS | ±10 | |
| Drain current | ID | 2.0 | A |
| Peak drain current *1 | IDp | 8 | A |
| Power dissipation *2 | PD | 500 | mW |
| Channel temperature | Tch | 150 | °C |
| Operating ambient temperature | Topr | -40 to +85 | °C |
| Storage Temperature Range | Tstg | -55 to +150 | °C |

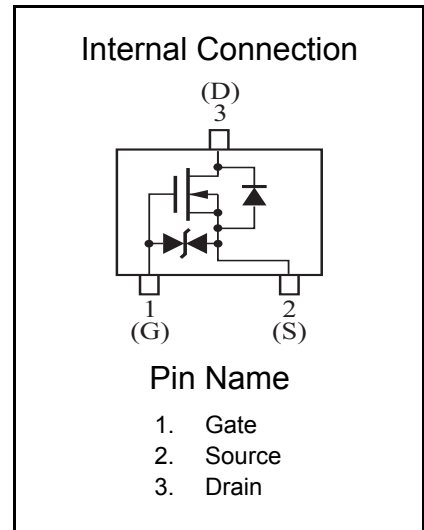
Note) *1 Pulse width ≤ 10 μs, Duty cycle ≤ 1 %

*2 Measuring on ceramic board at 40 × 38 × 0.1 mm

Absolute maximum rating PD without heat sink shall be made 150 mW.



| | |
|-----------|-------------|
| Panasonic | SMini3-G1-B |
| JEITA | SC-70 |
| Code | SOT-323 |



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

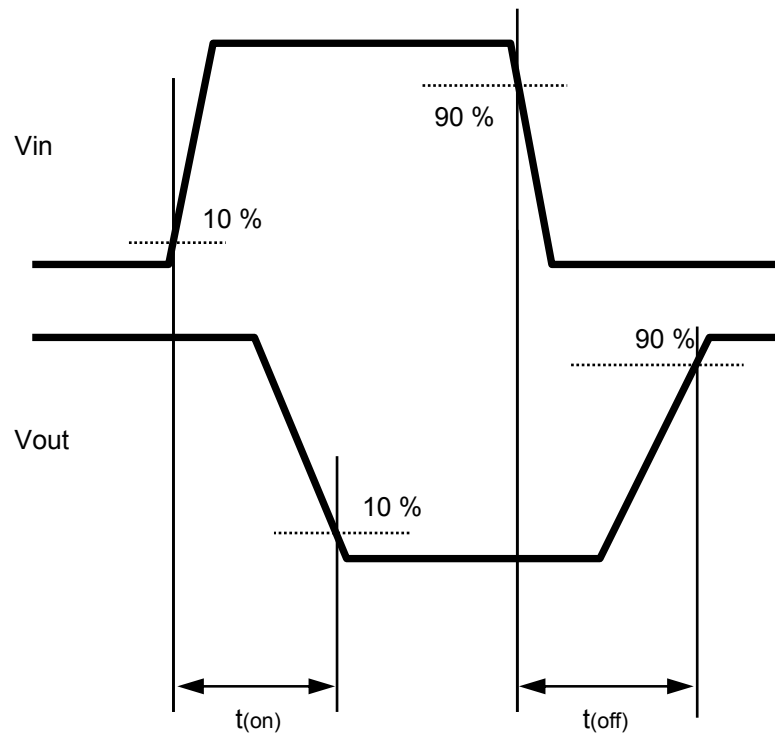
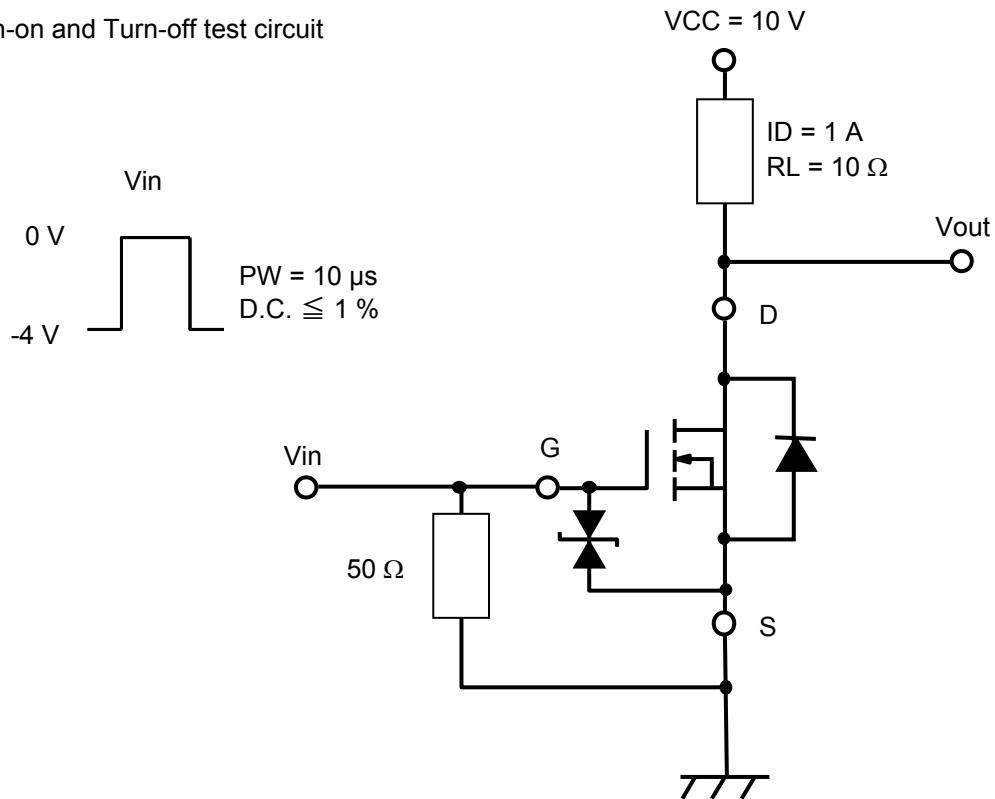
| 項目 | 記号 | 条件 | 最小 | 標準 | 最大 | 単位 |
|--|----------|---|-----|------|-----|----|
| Drain-source surrender voltage | VDSS | ID = 1 mA, VGS = 0 V | 20 | | | V |
| Drain-source cutoff current | IDSS | VDS = 20 V, VGS = 0 V | | | 10 | μA |
| Gate-source cutoff current | IGSS | VGS = ±8 V, VDS = 0 V | | | ±10 | μA |
| Gate threshold voltage | Vth | ID = 1.0 mA, VDS = 10 V | 0.4 | 0.85 | 1.3 | V |
| Drain-source ON resistance *1 | RDS(ON)1 | ID = 1 A, VGS = 4 V | | 85 | 110 | mΩ |
| | RDS(ON)2 | ID = 0.5 A, VGS = 2.5 V | | 100 | 150 | |
| Forward transfer admittance *1 | Yfs | ID = 1 A, VDS = 10 V, f = 1 kHz | 3.0 | | | S |
| Short-circuit input capacitance (Common source) | Ciss | VDS = 10 V, VGS = 0, f = 1 MHz | | 290 | | pF |
| Short-circuit output capacitance (Common source) | Coss | | | 26 | | |
| Reverse transfer capacitance (Common source) | Crss | | | 20 | | |
| Turn-on Time *2 | ton | VDD = 10 V, VGS = 0 to 4 V ID = 1 A | | 12 | | ns |
| Turn-off Time *2 | toff | VDD = 10 V, VGS = -4 to 0 V ID = 1 A | | 60 | | ns |

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.

2. *1 Pulse test : Pulse width ≤ 10 μs, Duty cycle ≤ 1 %

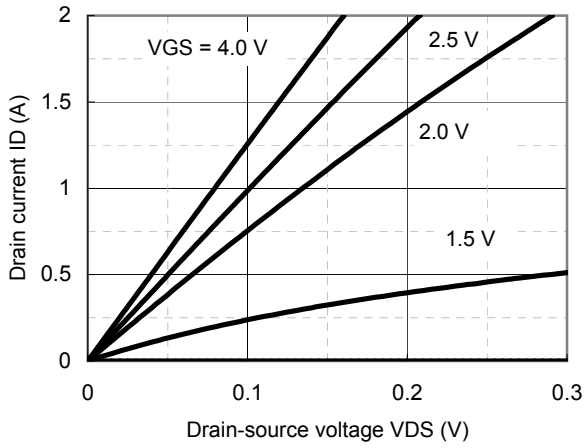
*2 Turn-on and Turn-off test circuit

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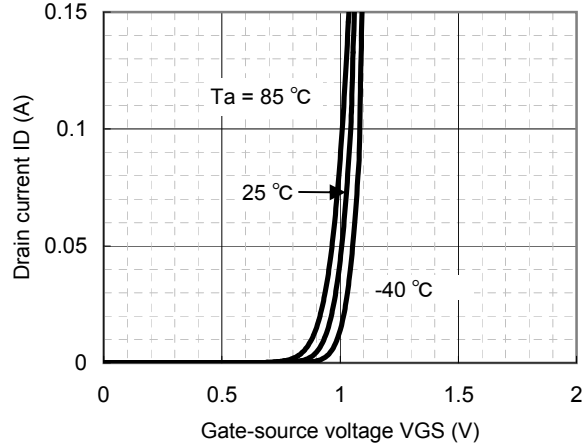


Technical Data (reference)

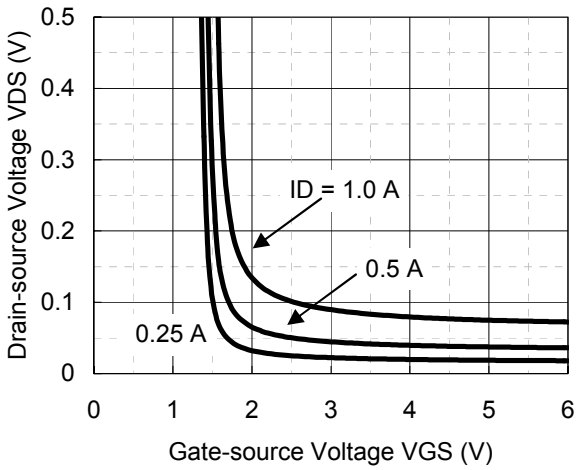
ID - VDS



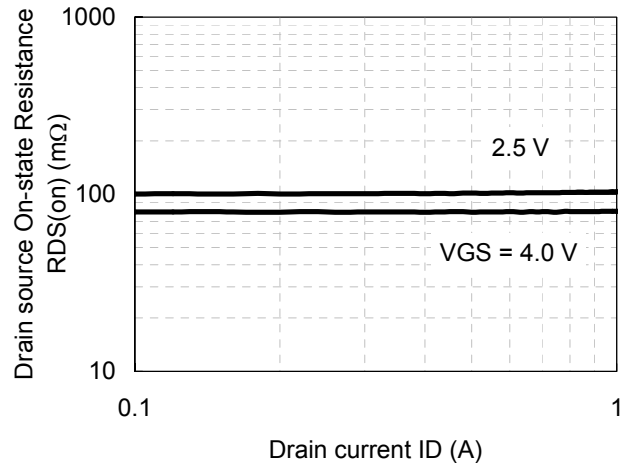
ID - VGS



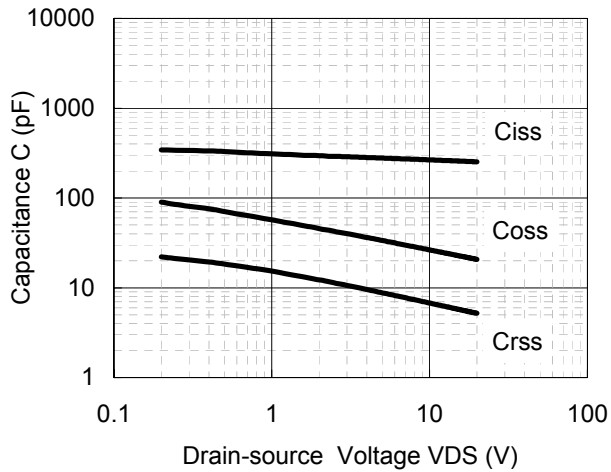
VDS - VGS



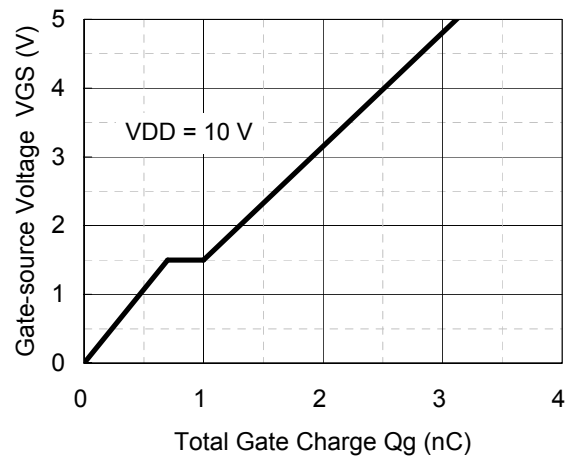
RDS(on) - ID



Capacitance - VDS

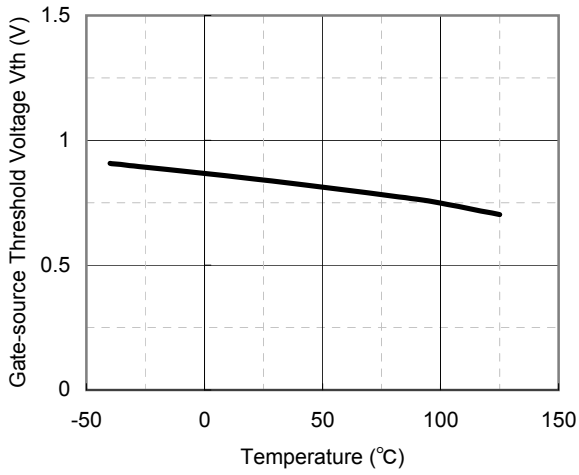


Dynamic Input/Output Characteristics

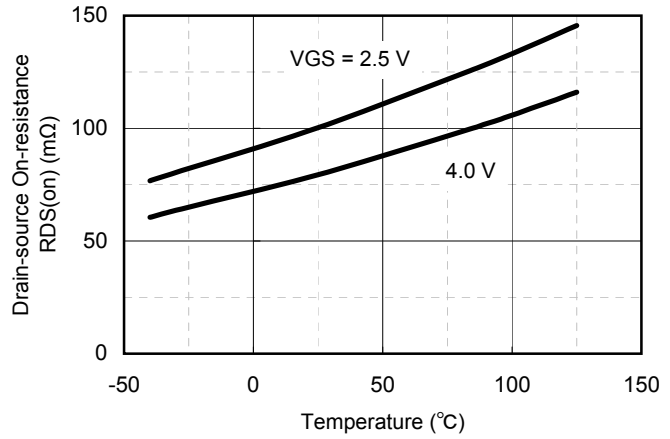


Technical Data (reference)

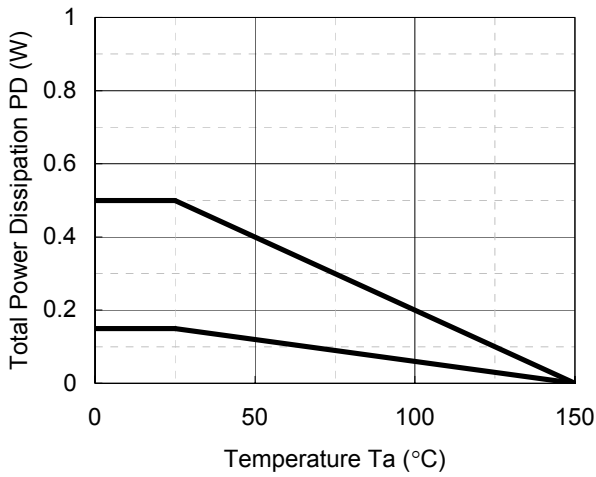
Vth - Ta



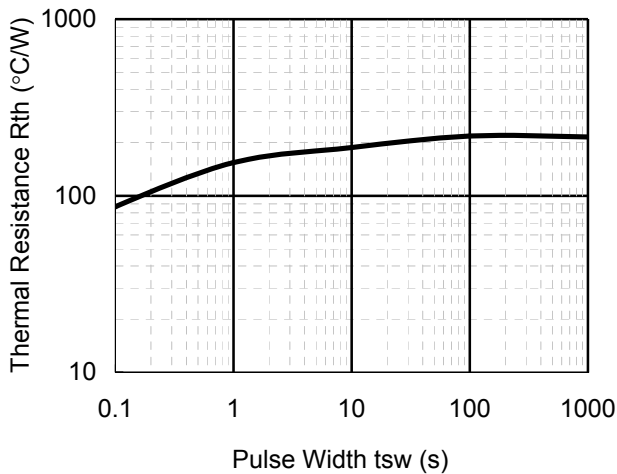
RDS(on) - Ta



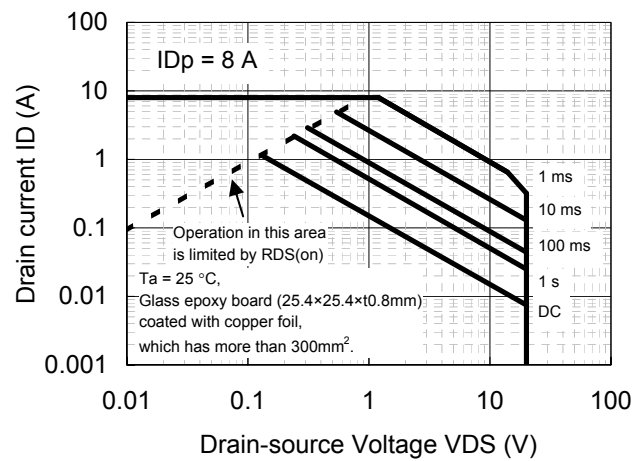
PD - Ta



Rth - tsw

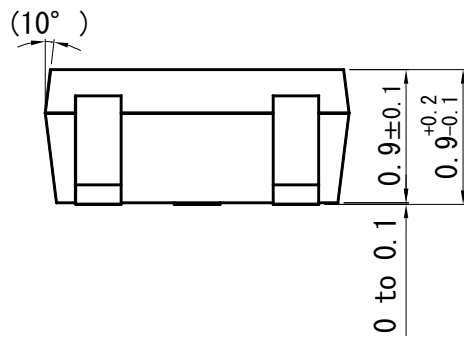
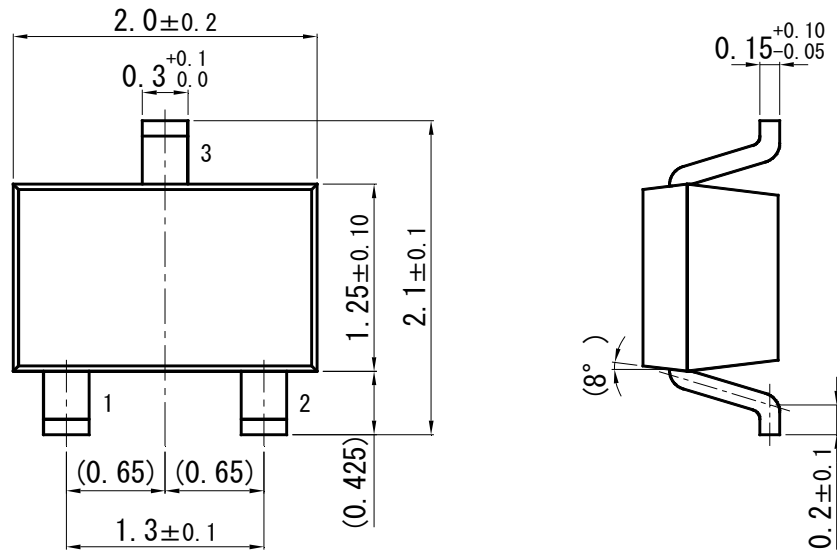


Safe Operating Area

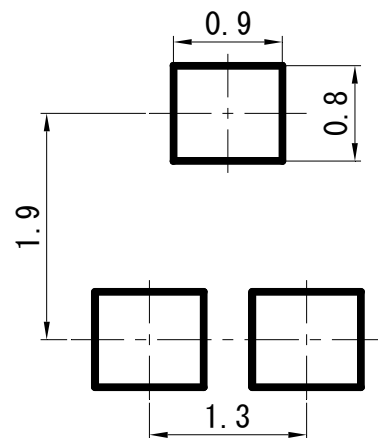




SMini3-G1-B



■ Land Pattern (Reference) (Unit : mm)



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