Panasonic

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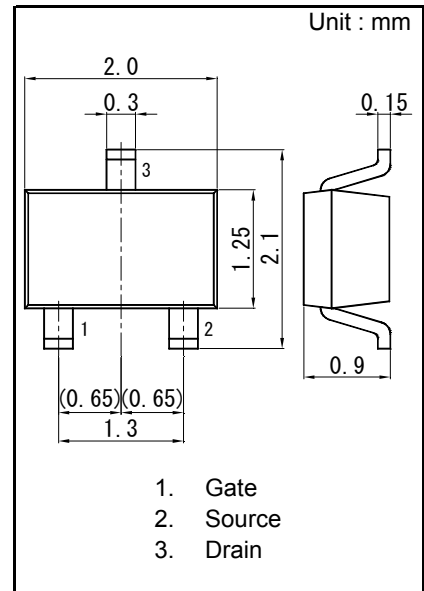Embossed type (Thermo-compression sealing) :   3 000 pcs / reel (standard)

Unit : mm

2. 0
0. 3
0. 15
3
1.25
2.1
1
2
0.9
(0. 65)(0. 65)
1. 3

1. Gate
2. Source
3. Drain

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

■ 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 $\leqq$10 μs, Duty cycle $\leqq$1 %
        *2 Measuring on ceramic board at 40 $\times$ 38 $\times$ 0.1 mm
            Absolute maximum rating PD without heat sink shall be made 150 mW.

Internal Connection

(D)
3

1
(G)
2
(S)

Pin Name
1. Gate
2. Source
3. Drain

MOS FET

MTM232270LBF

■ 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.
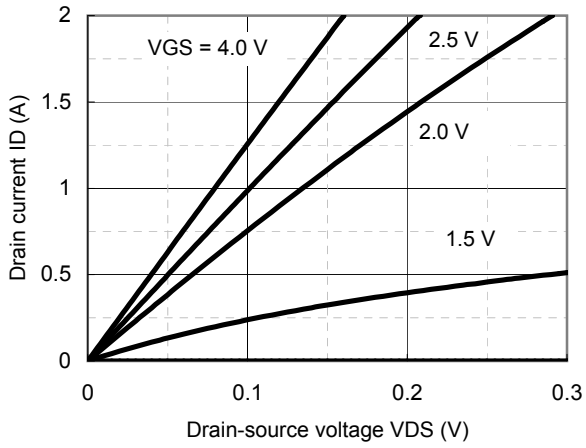
2. *1 Pulse test : Pulse width ≦ 10 μs、Duty cycle ≦ 1 %

*2 Turn-on and Turn-off test circuit
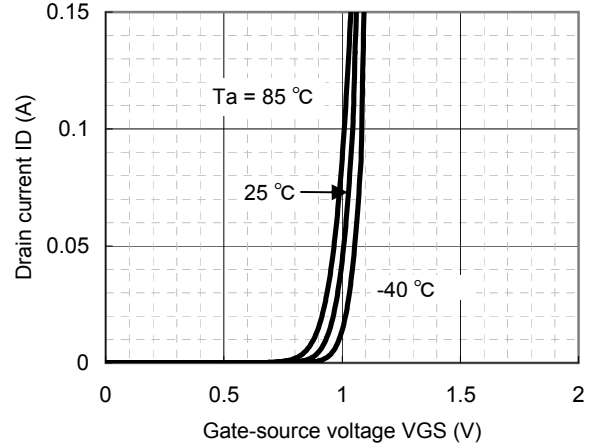
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*2 Turn-on and Turn-off test circuit

VCC = 10 V

Vin

0 V

-4 V

PW = 10 μs
D.C. ≦ 1 %

ID = 1 A
RL = 10 Ω

Vout

D

Vin

G

50 Ω

S

Vin

10 %

90 %

Vout

10 %

90 %

t(on)

t(off)

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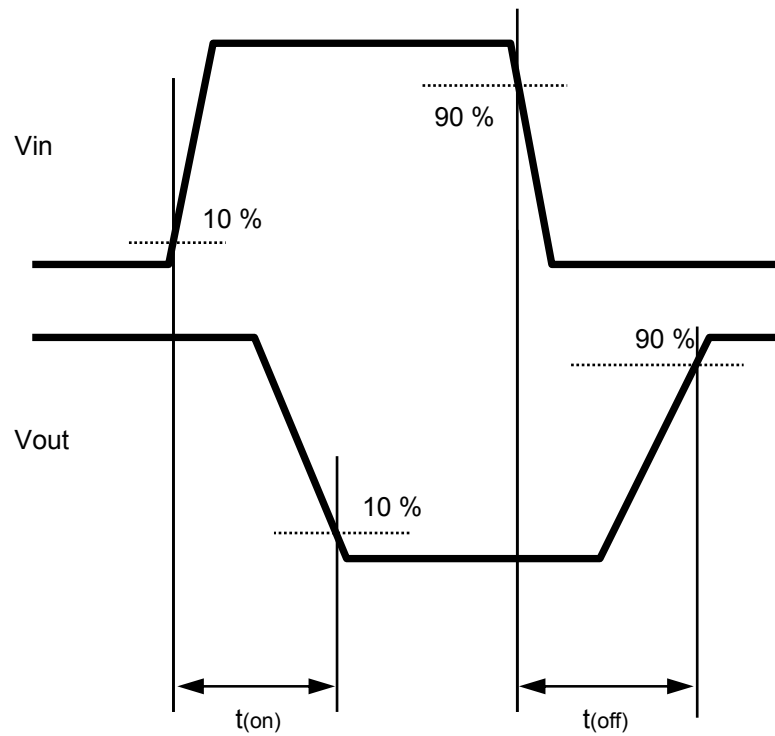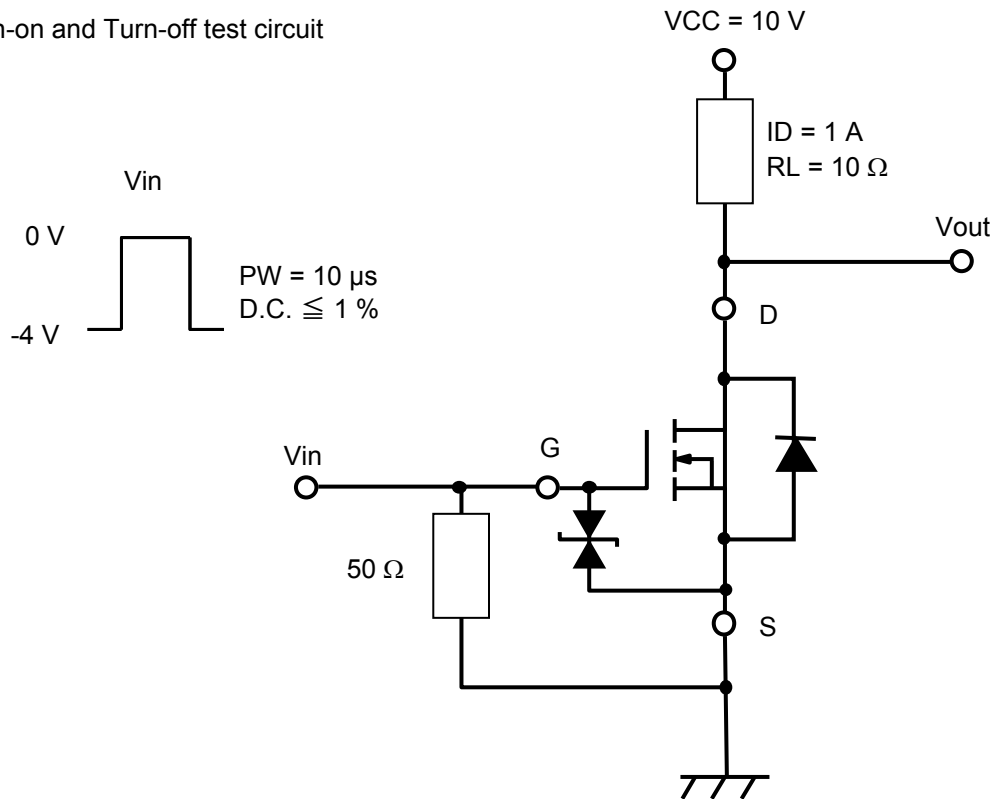
Technical Data (reference)

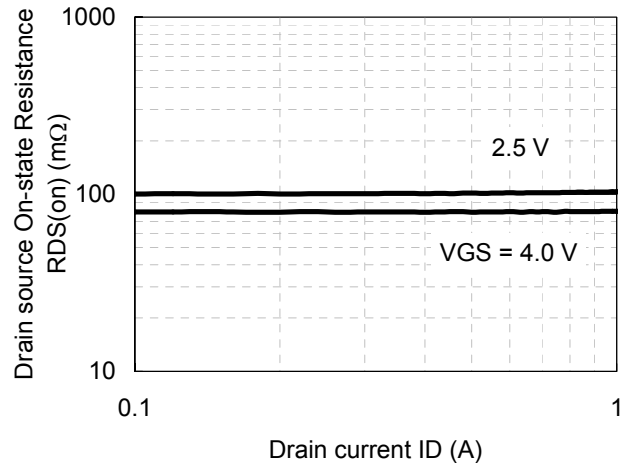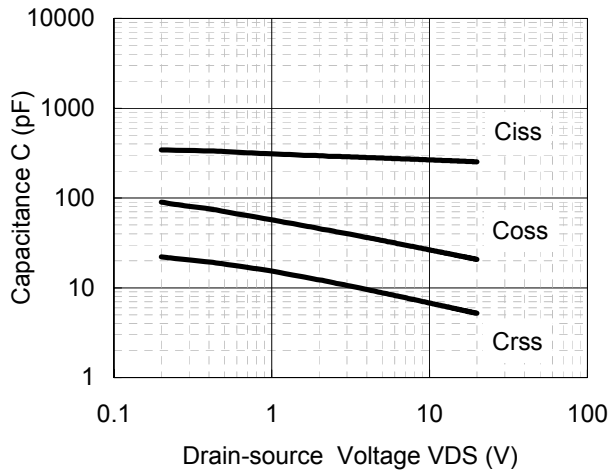### ID - VDS

ID - VGS

VDS - VGS
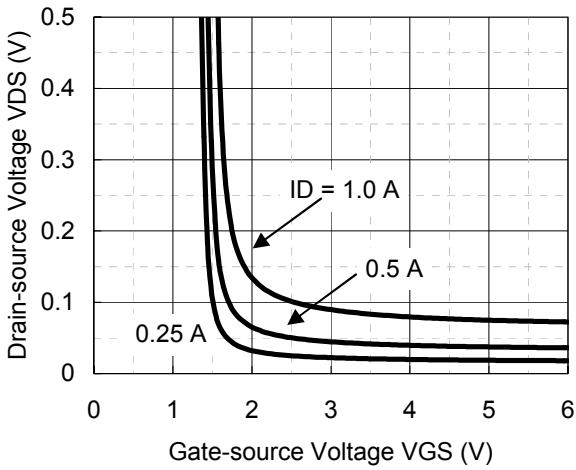
RDS(on) - ID

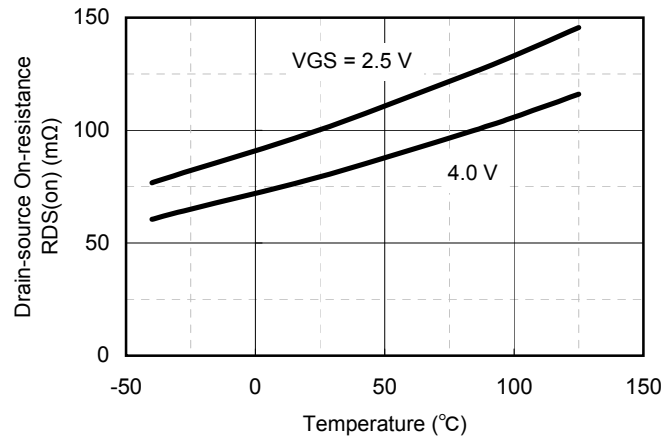### Capacitance - VDS

Dynamic Input/Output Characteristics

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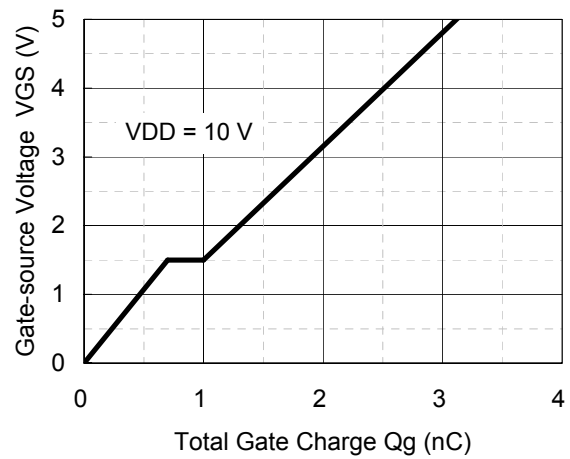
Technical Data (reference)

Vth - Ta
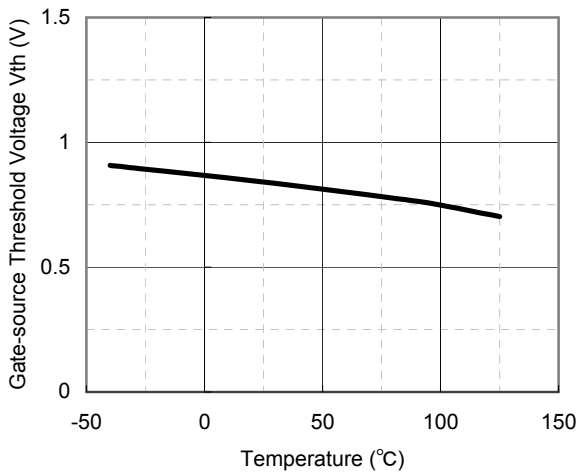
RDS(on) - Ta

PD - Ta
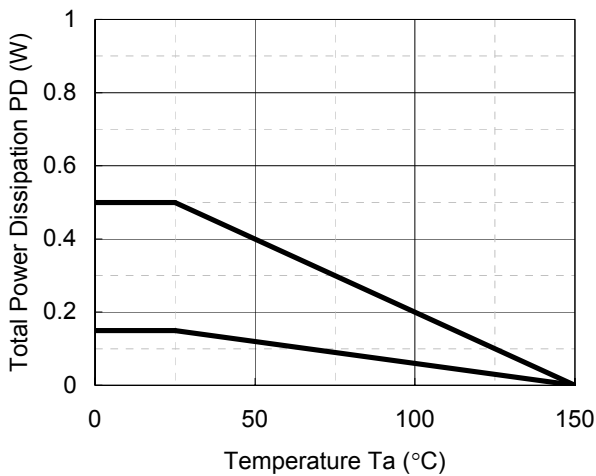
Rth - tsw

Safe Operating Area

IDp = 8 A

Operation in this area
is limited by RDS(on)

Ta = 25 °C,
Glass epoxy board (25.4×25.4×t0.8mm)
coated with copper foil,
which has more than 300mm^2.

1 ms
10 ms
100 ms
1 s
DC

MOS FET
Panasonic MTM232270LBF

SMini3-G1-B

2.0±0.2

0.3 $^{+0.1}_{0.0}$

3

1.25±0.10

2.1±0.1

1

2

(0.65) (0.65)

1.3±0.1

(0.425)

0.15 $^{+0.10}_{-0.05}$

(8°)

0.2±0.1

(10°)

0.9±0.1

0.9 $^{+0.2}_{-0.1}$

0 to 0.1
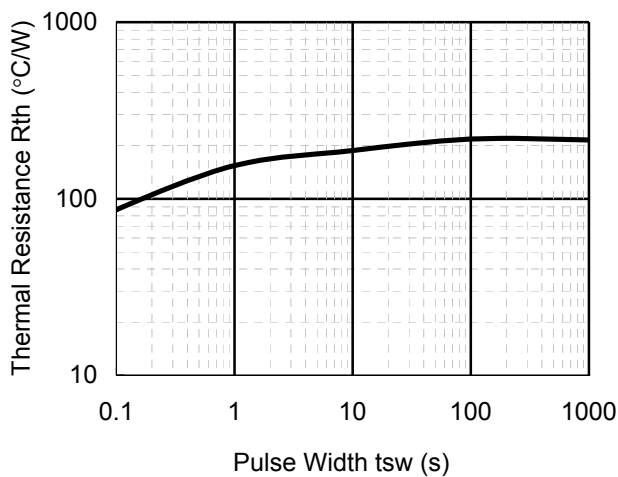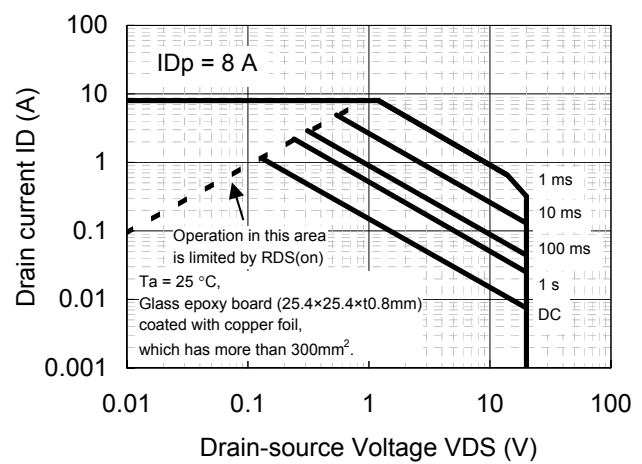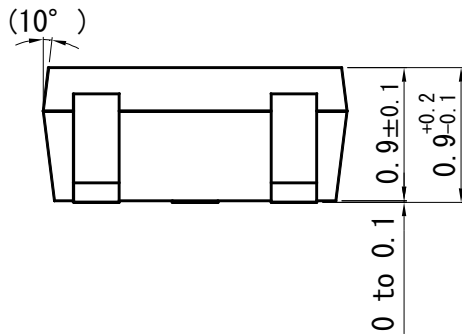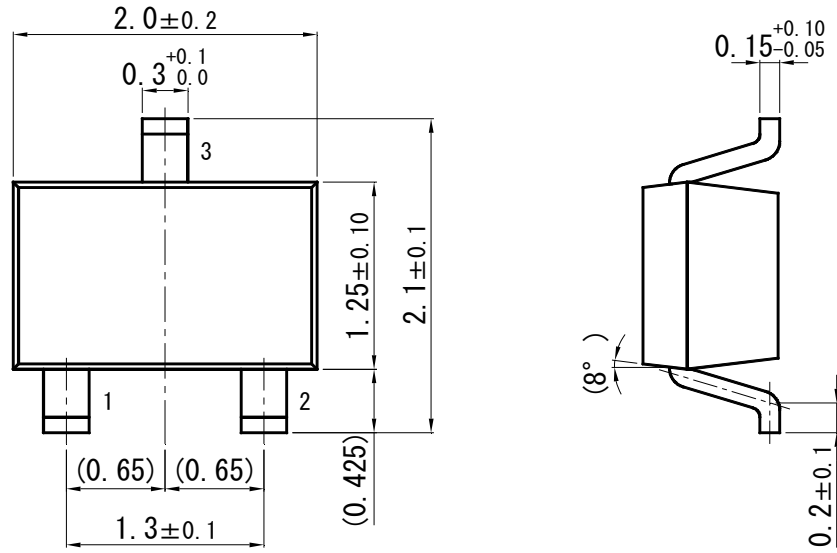
■ Land Pattern (Reference) (Unit : mm)

0.9

0.8

1.9

1.3

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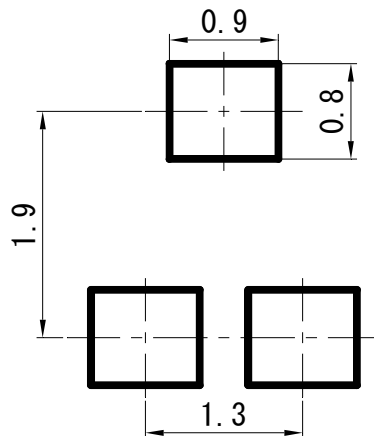
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