

MTM232270LBF

Silicon N-channel MOSFET

For switching

MTM13227 in SMini3 type package

■ Features

- Low drain-source ON resistance: $R_{DS(on)}$ typ. = 85 m Ω ($V_{GS} = 4.0$ 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

MTM232270LBF Embossed type (Thermo-compression sealing):
3 000 pcs / reel (standard)

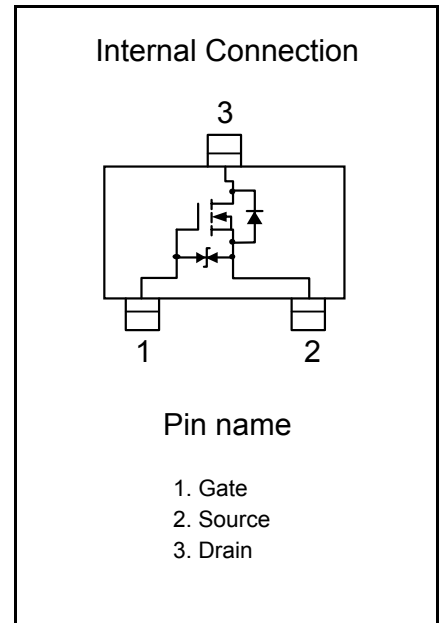
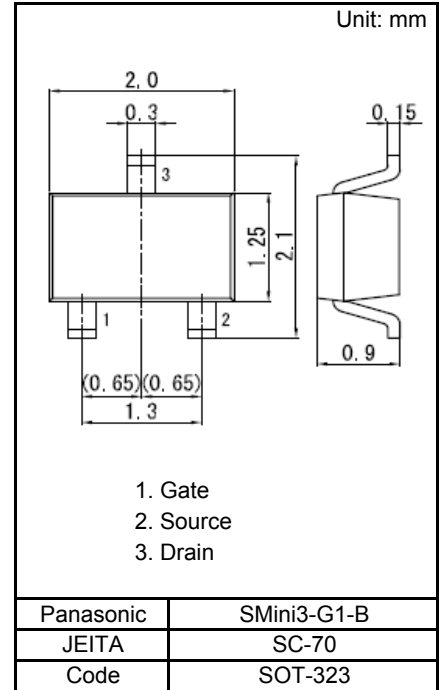
■ Absolute Maximum Ratings $T_a = 25$ °C

Parameter	Symbol	Rating	Unit
Drain-source Voltage	V_{DS}	20	V
Gate-source Voltage	V_{GS}	± 10	V
Drain current	I_D	2.0	A
Drain Current (Pulsed) ^{*1}	I_{Dp}	8	A
Total Power Dissipation ^{*2}	PD	500	mW
Channel Temperature	T_{ch}	150	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

Note: ^{*1} Pulse width ≤ 10 μ s, Duty cycle $\leq 1\%$

^{*2} Measuring on ceramic board at 40 mm \times 38 mm \times 0.1 mm.

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



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

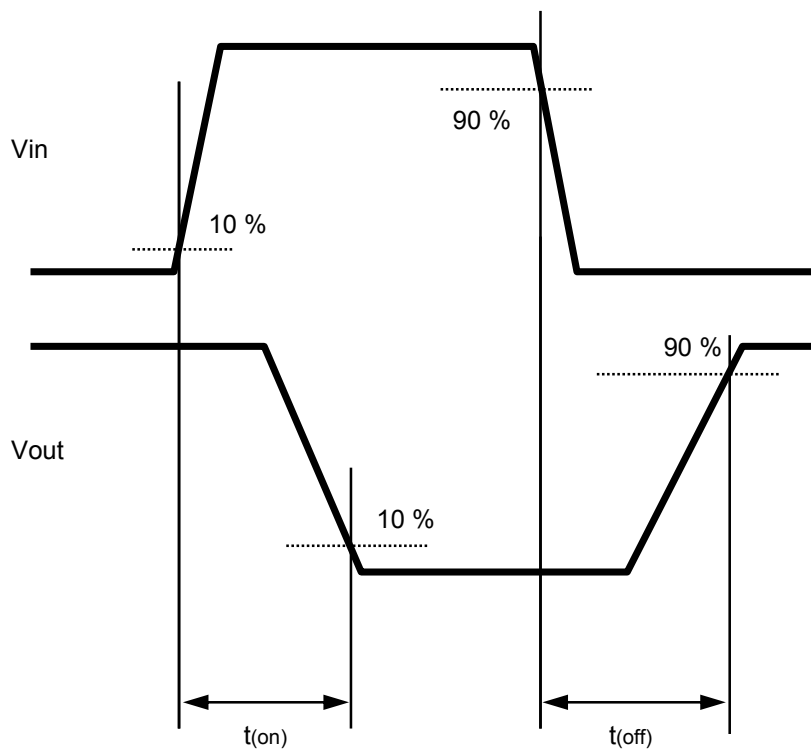
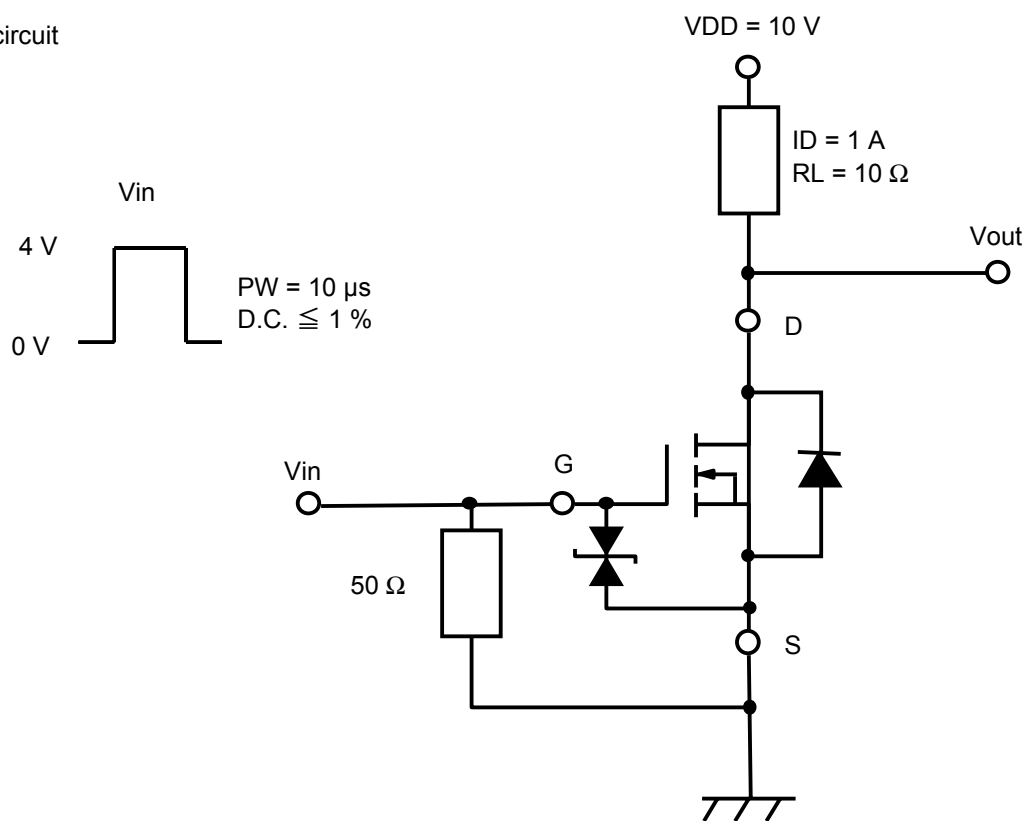
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	VDSS	ID = 1 mA, VGS = 0 V	20			V
Zero Gate Voltage Drain Current	IDSS	VDS = 20 V, VGS = 0 V			10	μA
Gate-source Leakage Current	IGSS	VGS = ±8 V, VDS = 0 V			±10	μA
Gate-source Threshold Voltage	Vth	ID = 1.0 mA, VDS = 10 V	0.4	0.85	1.3	V
Drain to Source On-State 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
Input Capacitance	Ciss	VDS = 10 V, VGS = 0, f = 1 MHz		290		pF
Output Capacitance	Coss			26		
Reverse Transfer Capacitance	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

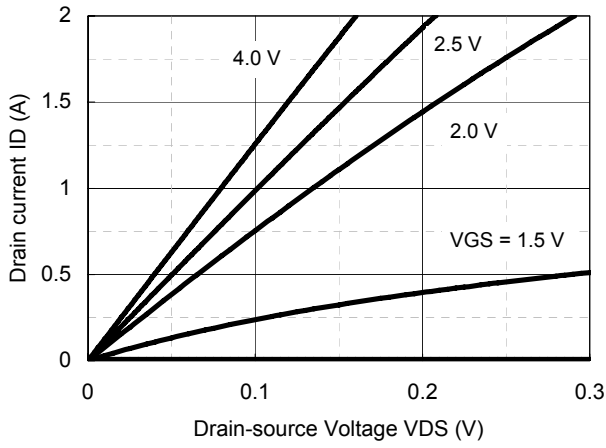
Note: Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.

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

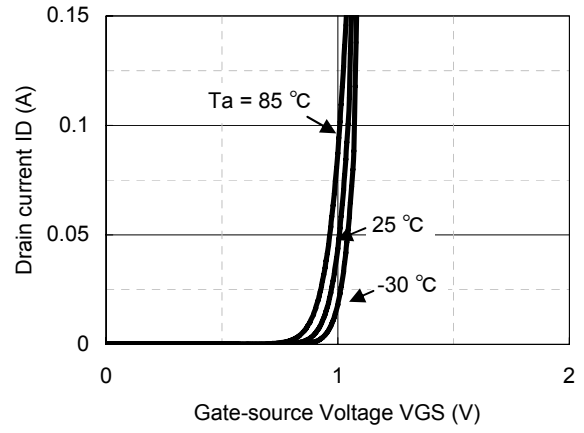
*2 See test circuit

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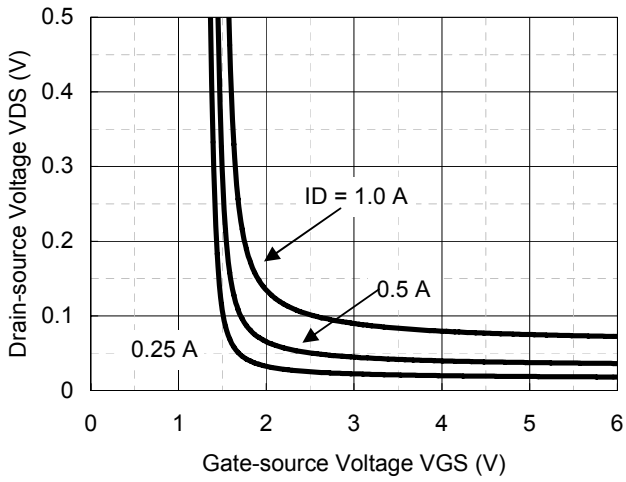




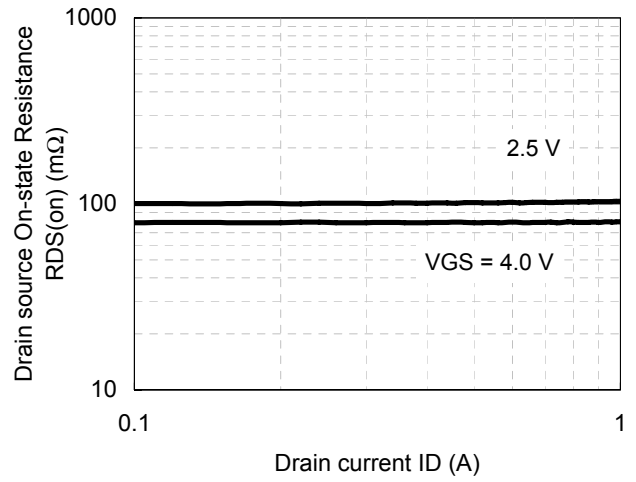
ID - VDS



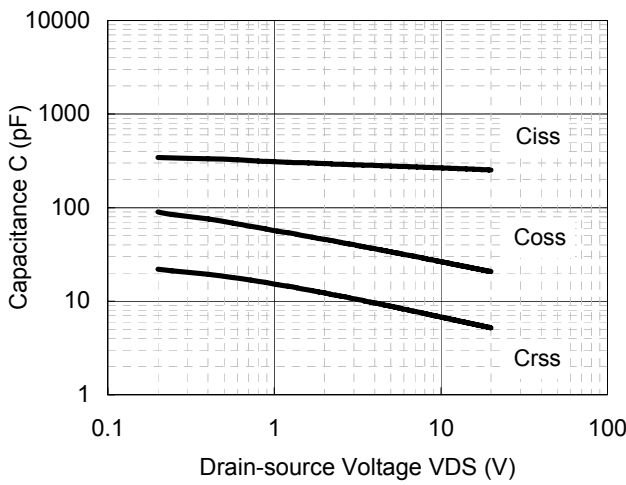
ID - VGS



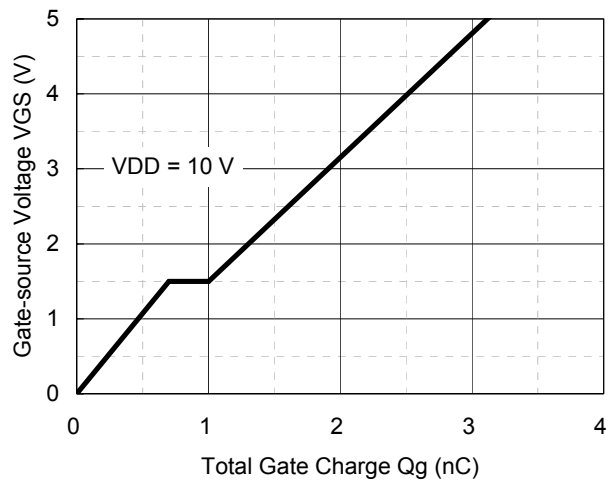
VDS - VGS



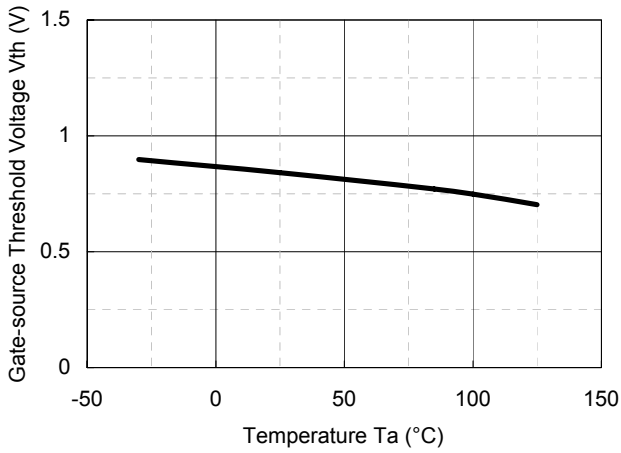
RDS(on) - ID



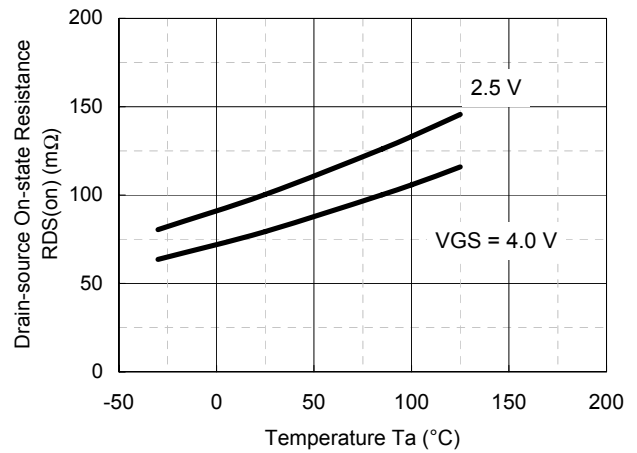
Capacitance - VDS



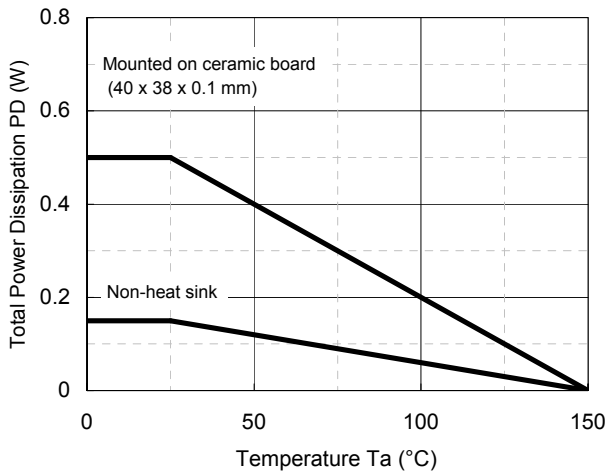
Dynamic Input/Output Characteristics



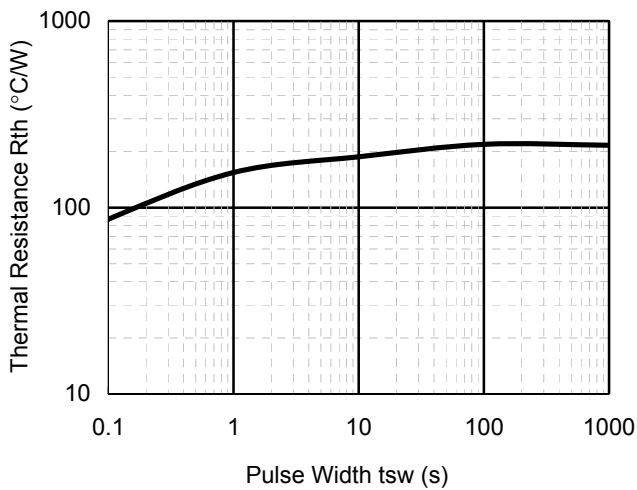
V_{th} - T_a



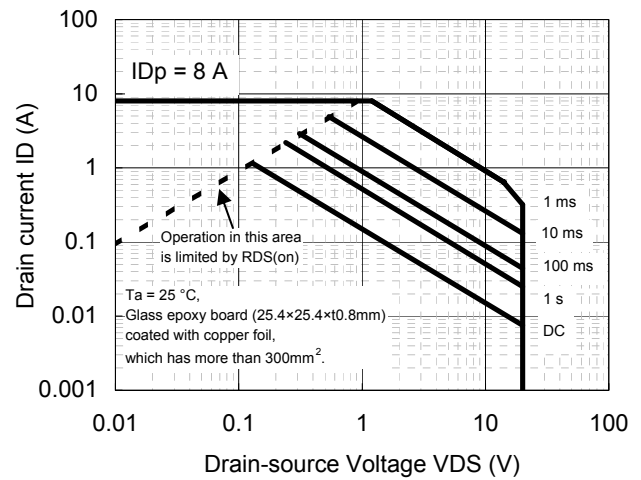
$R_{DS(on)}$ - T_a



P_D - T_a



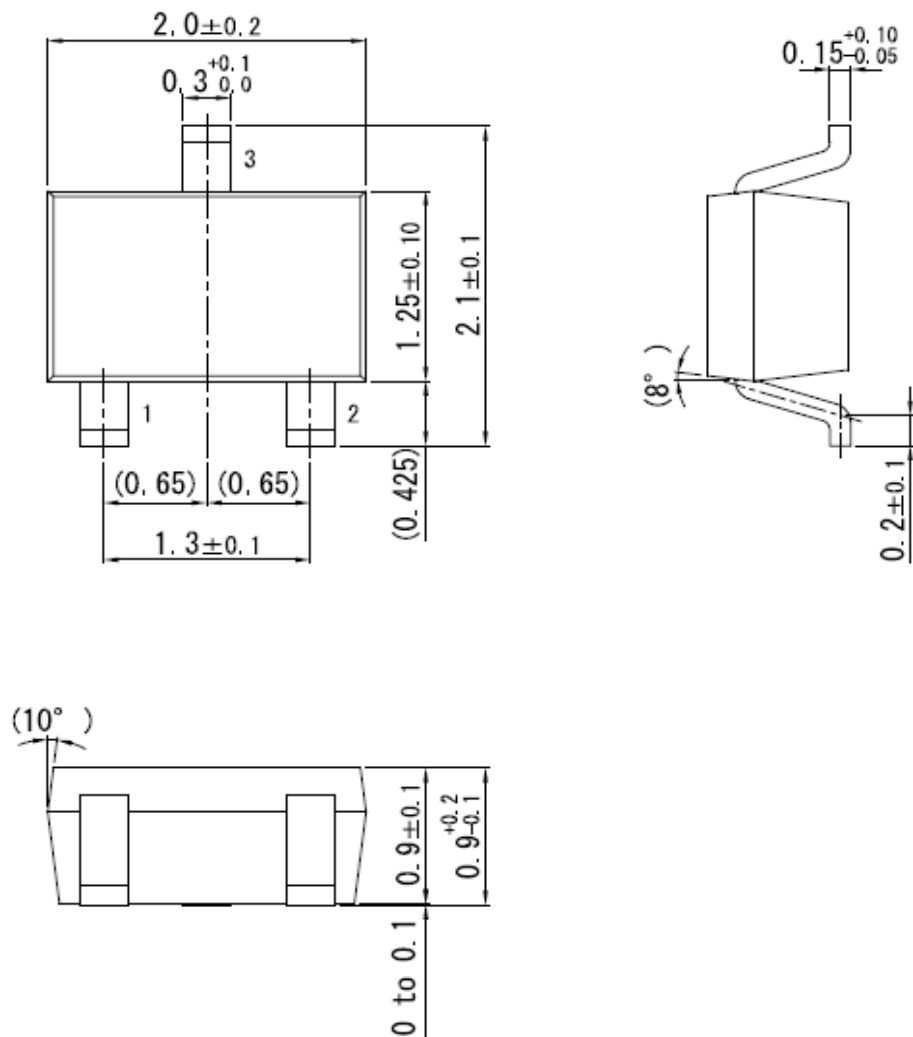
R_{th} - t_{sw}



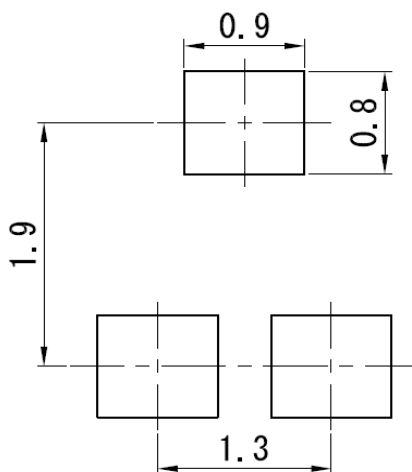
Safe Operating Area

SMini3-G1-B

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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