



MOS FET  
MTM232230LBF

## MTM232230LBF Silicon N-channel MOS FET

For switching

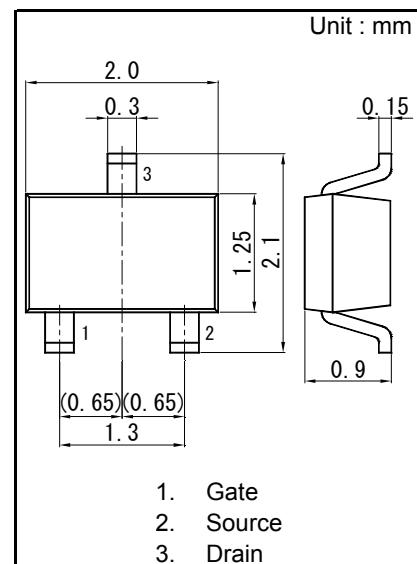
■ Features

- Low drain-source On-state resistance :  $R_{DS(on)}$  typ = 20 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 : BK

■ Packaging

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



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

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$

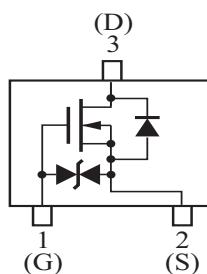
項目	記号	定格	単位
Drain-source Voltage	VDS	20	V
Gate-source Voltage	VGS	$\pm 10$	
Drain current	ID	4.5	A
Peak drain current <sup>*1</sup>	IDp	18	A
Power dissipation <sup>*2</sup>	PD	500	mW
Channel temperature	Tch	150	°C
Operating ambient temperature	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-55 to +150	°C

Note) \*1 Pulse width  $\leq 10 \mu\text{s}$ , Duty cycle  $\leq 1\%$

\*2 Measuring on ceramic board at  $40 \times 38 \times 0.1 \text{ mm}$

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

Internal Connection



Pin Name

- Gate
- Source
- Drain



■ Electrical Characteristics  $T_a = 25 \text{ }^\circ\text{C} \pm 3 \text{ }^\circ\text{C}$

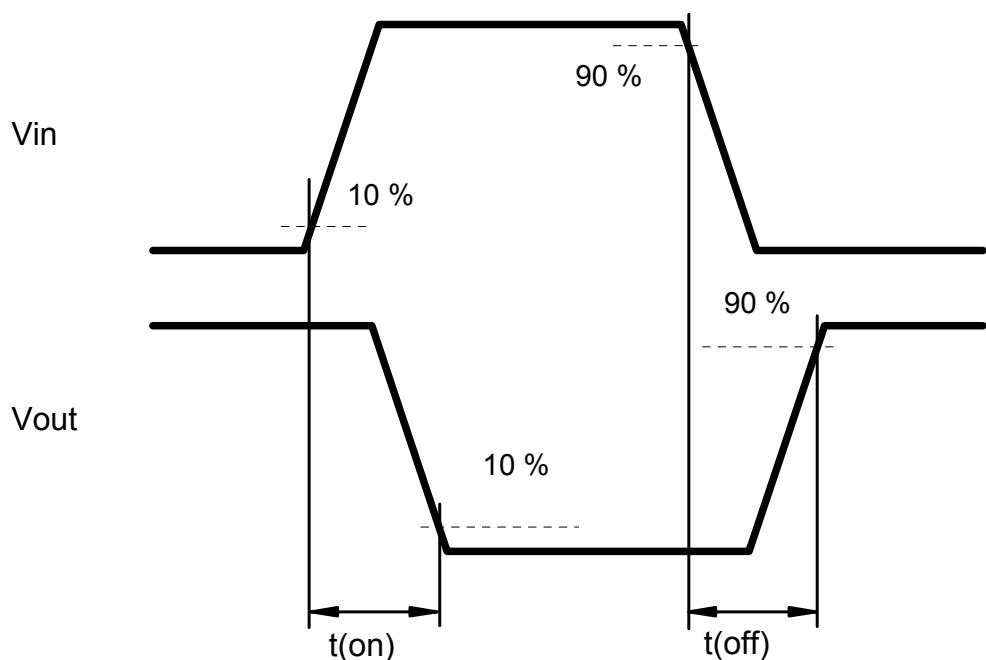
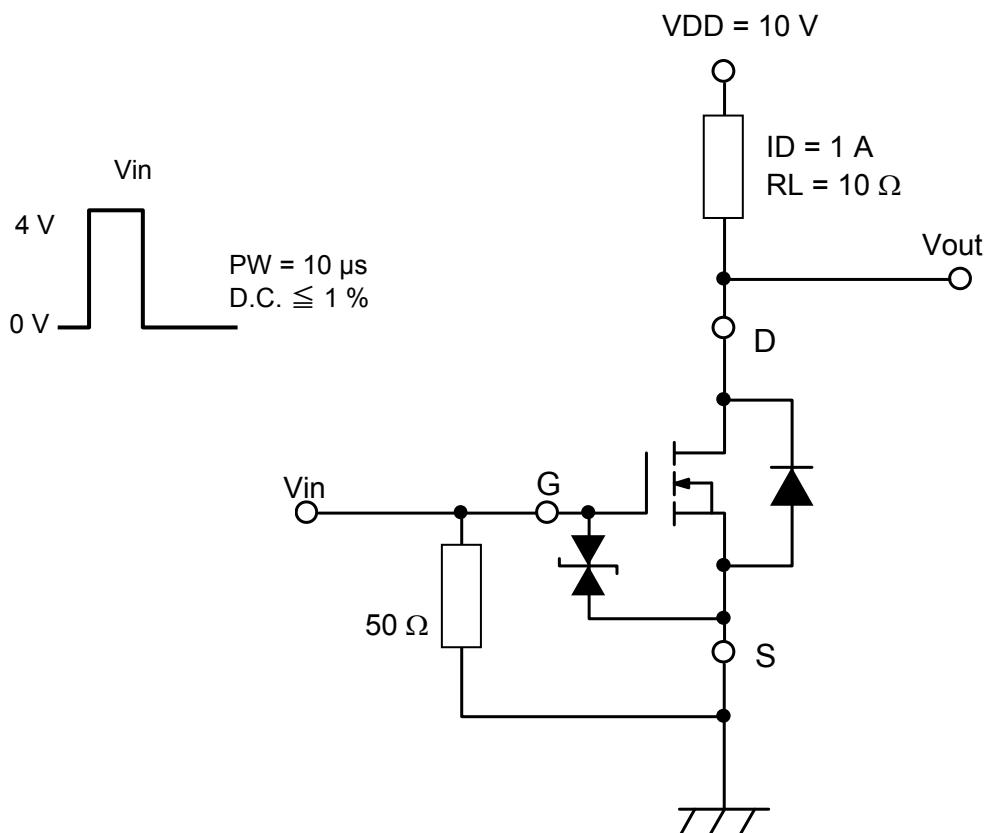
項目	記号	条件	最小	標準	最大	単位
Drain-source surrender voltage	VDSS	ID = 1 mA, VGS = 0 V	20			V
Drain-source cutoff current	IDSS	VDS = 20 V, VGS = 0 V			1.0	$\mu\text{A}$
Gate-source cutoff current	IGSS	VGS = $\pm 8$ V, VDS = 0 V			$\pm 10$	$\mu\text{A}$
Gate threshold voltage	V <sub>th</sub>	ID = 1.0 mA, VDS = 10.0 V	0.4	0.85	1.3	V
Drain-source ON resistance <sup>*1</sup>	RDS(ON)1	ID = 1 A, VGS = 4 V		20	28	$\text{m}\Omega$
	RDS(ON)2	ID = 0.6 A, VGS = 2.5 V		26	40	
Forward transfer admittance <sup>*1</sup>	Y <sub>fs</sub>	ID = 1 A, VDS = 10 V, f = 1 kHz	3.5			S
Short-circuit input capacitance (Common source)	C <sub>iss</sub>	VDS = 10 V, VGS = 0, f = 1 MHz	1 200			$\text{pF}$
Short-circuit output capacitance (Common source)	C <sub>oss</sub>			85		
Reverse transfer capacitance (Common source)	C <sub>rss</sub>			80		
Turn-on Time <sup>*2</sup>	t <sub>on</sub>	VDD = 10 V, VGS = 0 to 4 V ID = 1 A		16		ns
Turn-off Time <sup>*2</sup>	t <sub>off</sub>	VDD = 10 V, VGS = 4 to 0 V ID = 1 A		220		ns

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

2. <sup>\*1</sup> Pulse test : Pulse width < 300  $\mu\text{s}$ , Duty cycle < 2 %

<sup>\*2</sup> Turn-on and Turn-off test circuit

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

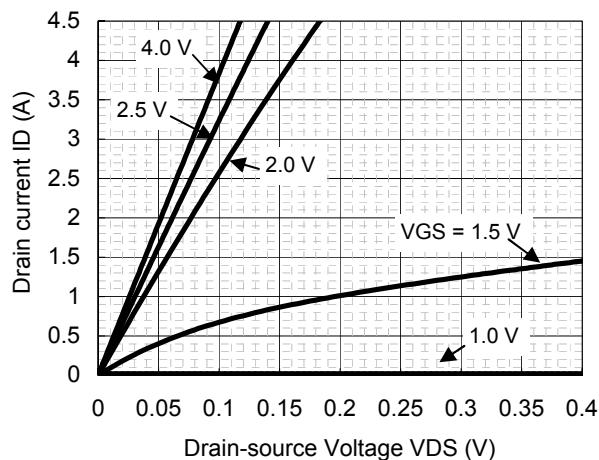




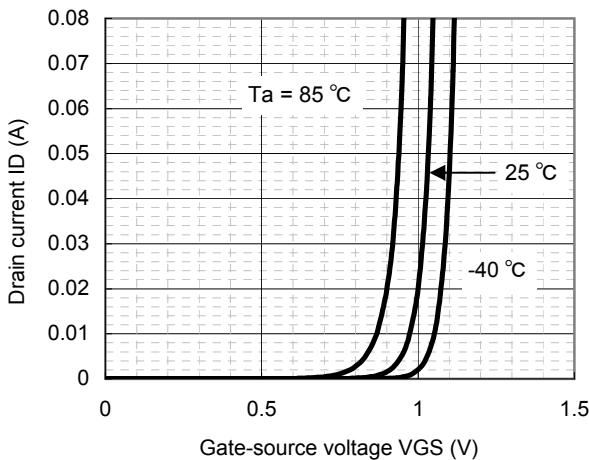
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Technical Data ( reference )

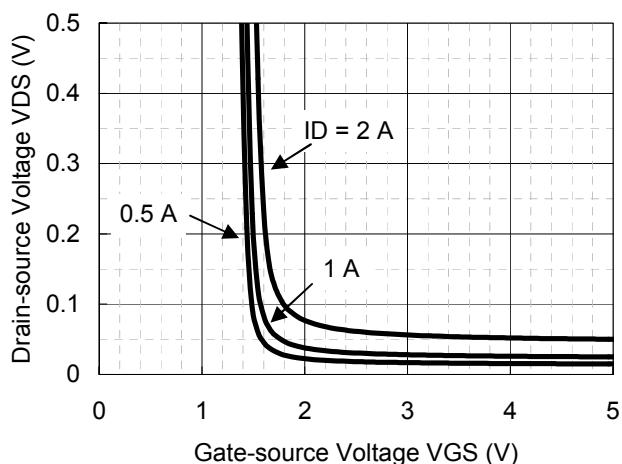
ID - VDS



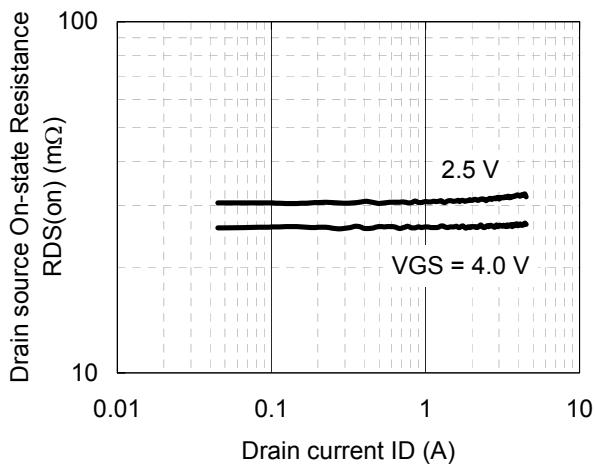
ID - VGS



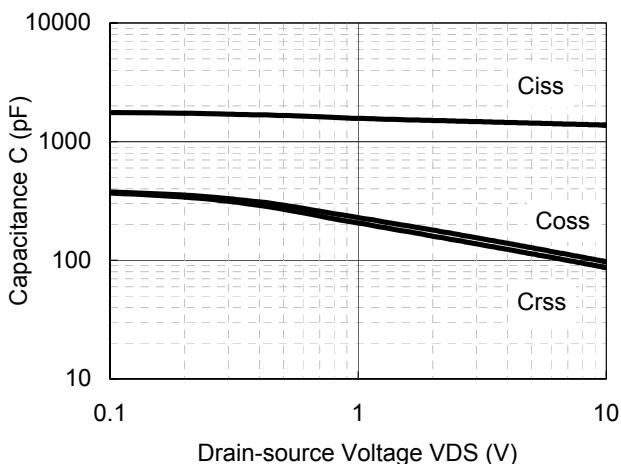
VDS - VGS



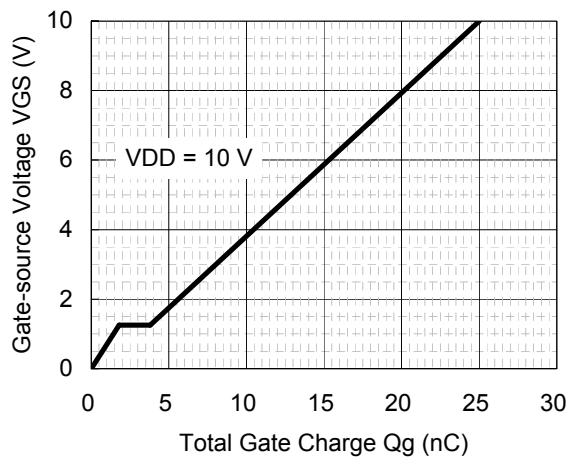
RDS(on) - ID



Capacitance - VDS



Dynamic Input/Output Characteristics

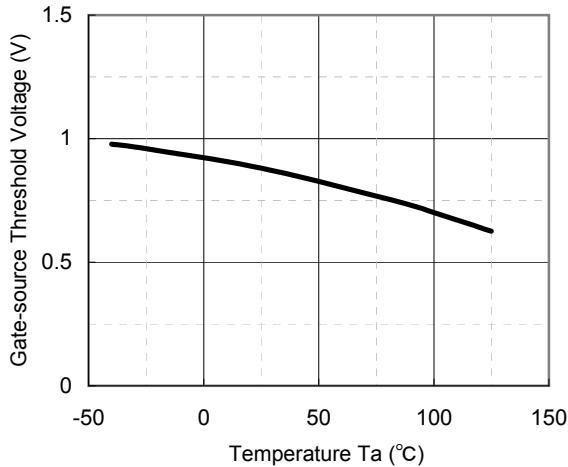




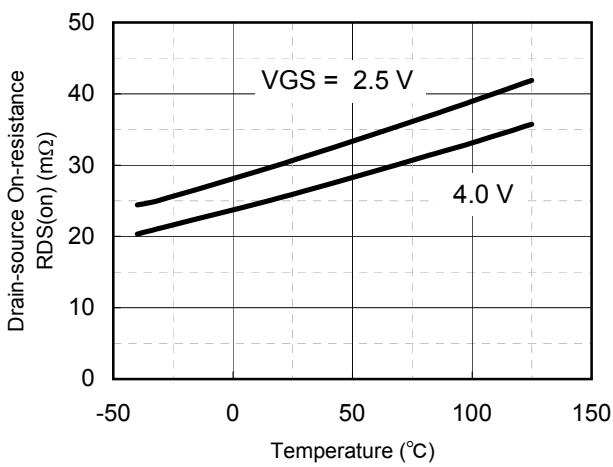
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Technical Data ( reference )

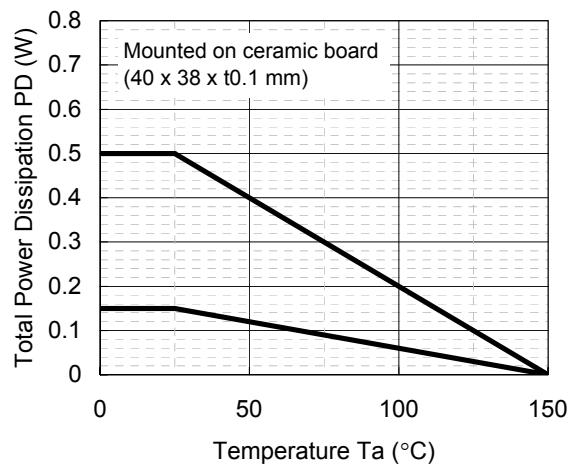
Vth - Ta



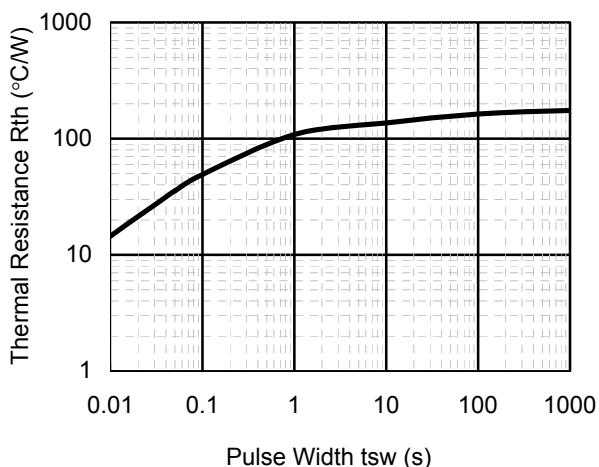
RDS(on) - Ta



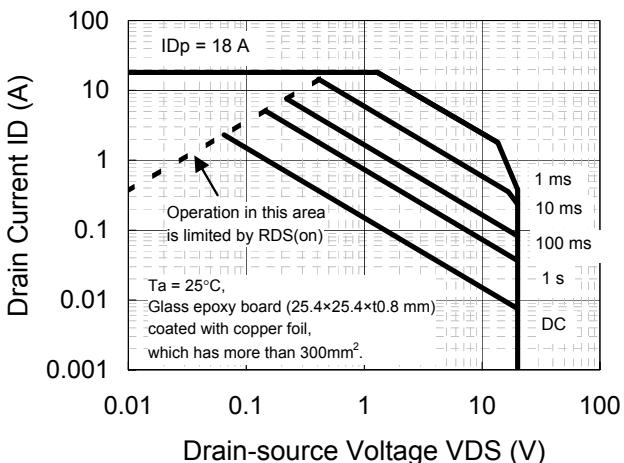
PD - Ta



Rth - tsw



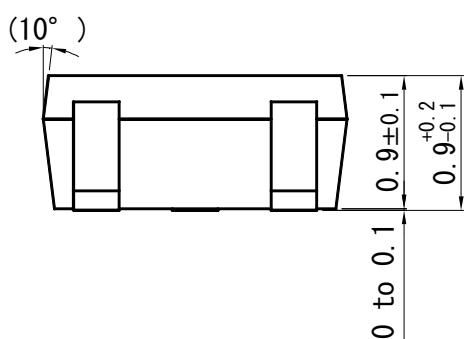
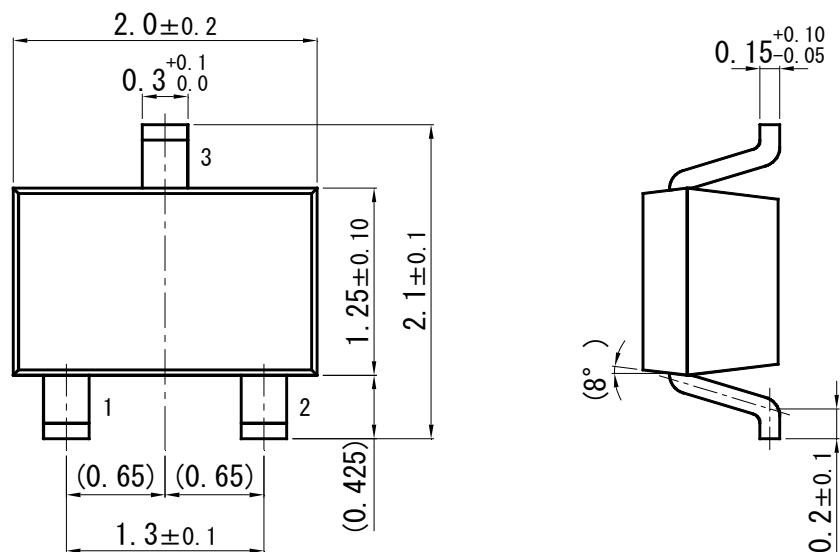
Safe Operating Area



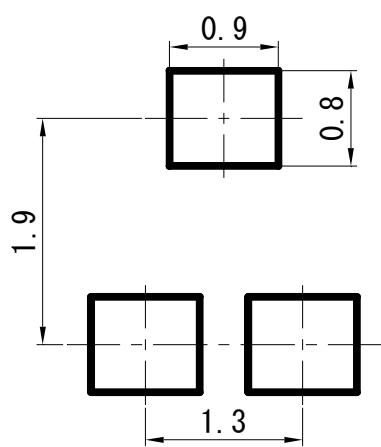
**Panasonic**

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**SMini3-G1-B**



■ Land Pattern (Reference) (Unit : mm)



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