

# MTM23223

## Silicon N-channel MOSFET

For switching

### ■ Overview

MTM23223 is N-channel MOS FET for load switch circuits.

### ■ Features

- Low voltage drive (2.5 V, 4 V)
- Realization of low on-resistance, using extremely fine process
- Contributes to miniaturization of sets, reduction of component count.
- Eco-friendly Halogen-free package

### ■ Packaging

Embossed type (Thermo-compression sealing): 3000 pcs / reel (standard)

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

Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	$V_{DSS}$	20	V
Gate-source surrender voltage	$V_{GSS}$	$\pm 10$	V
Drain current	$I_D$	4.5	A
Peak drain current <sup>*1</sup>	$I_{DP}$	18	A
Power dissipation <sup>*2</sup>	$P_D$	500	mW
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

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

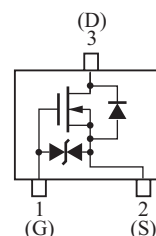
Absolute maximum rating without heat sink for  $P_D$  is 150 mW

### ■ Package

- Code  
SMini3-G1-B
- Pin Name  
1: Gate  
2: Source  
3: Drain

### ■ Marking Symbol: BK

### ■ Internal Connection



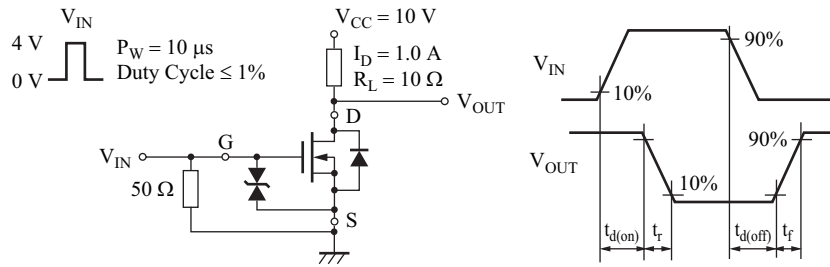
■ Electrical Characteristics  $T_a = 25^{\circ}\text{C} \pm 3^{\circ}\text{C}$

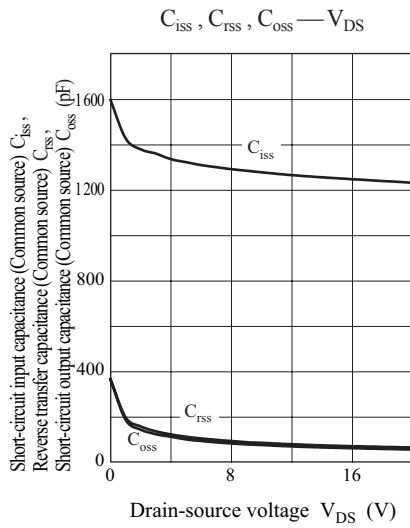
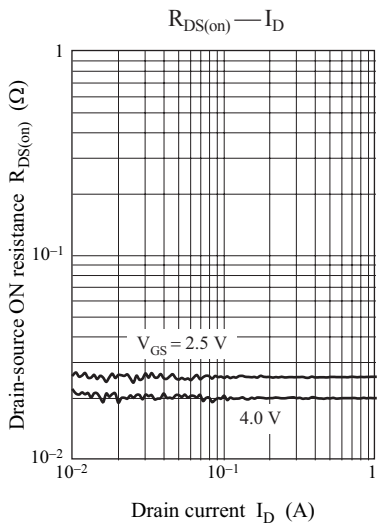
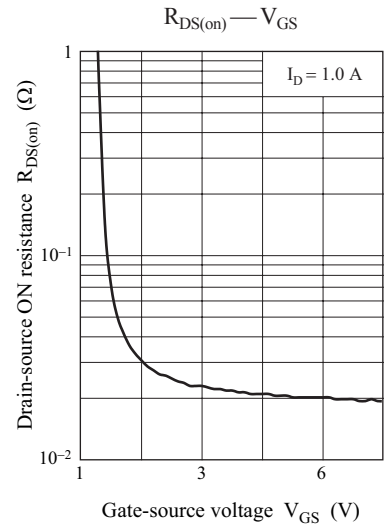
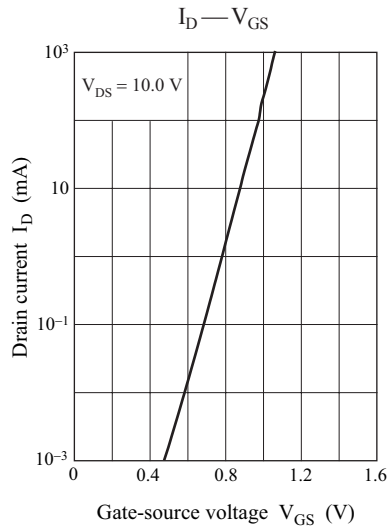
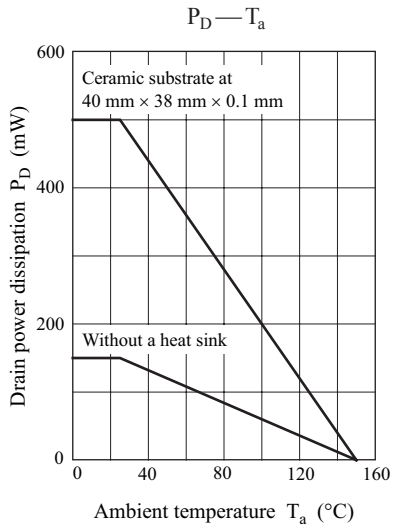
Parameter	Symbol	Conditions	Min	Typ	Max	Unit	
Drain-source surrender voltage	$V_{DSS}$	$I_D = 1 \text{ mA}, V_{GS} = 0$	20			V	
Drain-source cutoff current	$I_{DSS}$	$V_{DS} = 20 \text{ V}, V_{GS} = 0$			1.0	$\mu\text{A}$	
Gate-source cutoff current	$I_{GSS}$	$V_{GS} = \pm 8 \text{ V}, V_{DS} = 0$			$\pm 10$	$\mu\text{A}$	
Gate threshold voltage	$V_{TH}$	$I_D = 1.0 \text{ mA}, V_{DS} = 10.0 \text{ V}$	0.4	0.85	1.3	V	
Drain-source ON resistance *1	$R_{DS(on)}$	$I_D = 1.0 \text{ A}, V_{GS} = 4.0 \text{ V}$		20	28	m $\Omega$	
		$I_D = 0.6 \text{ A}, V_{GS} = 2.5 \text{ V}$		26	40		
Forward transfer admittance *1	$ Y_{fs} $	$I_D = 1.0 \text{ A}, V_{DS} = 10 \text{ V}, f = 1 \text{ kHz}$	3.5			S	
Short-circuit input capacitance (Common source)	$C_{iss}$	$V_{DS} = 10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$		1200		pF	
Short-circuit output capacitance (Common source)	$C_{oss}$				85		pF
Reverse transfer capacitance (Common source)	$C_{rss}$				80		pF
Turn-on time *2	$t_{on}$	$V_{DD} = 10 \text{ V}, V_{GS} = 0 \text{ V to } 4 \text{ V}, I_D = 1 \text{ A}$		16		ns	
Turn-off time *2	$t_{off}$	$V_{DD} = 10 \text{ V}, V_{GS} = 4 \text{ V to } 0 \text{ V}, I_D = 1 \text{ A}$		220		ns	

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

2. \*1: Pulse measurement: Pulse width < 300  $\mu\text{s}$ , Duty Cycle < 2%

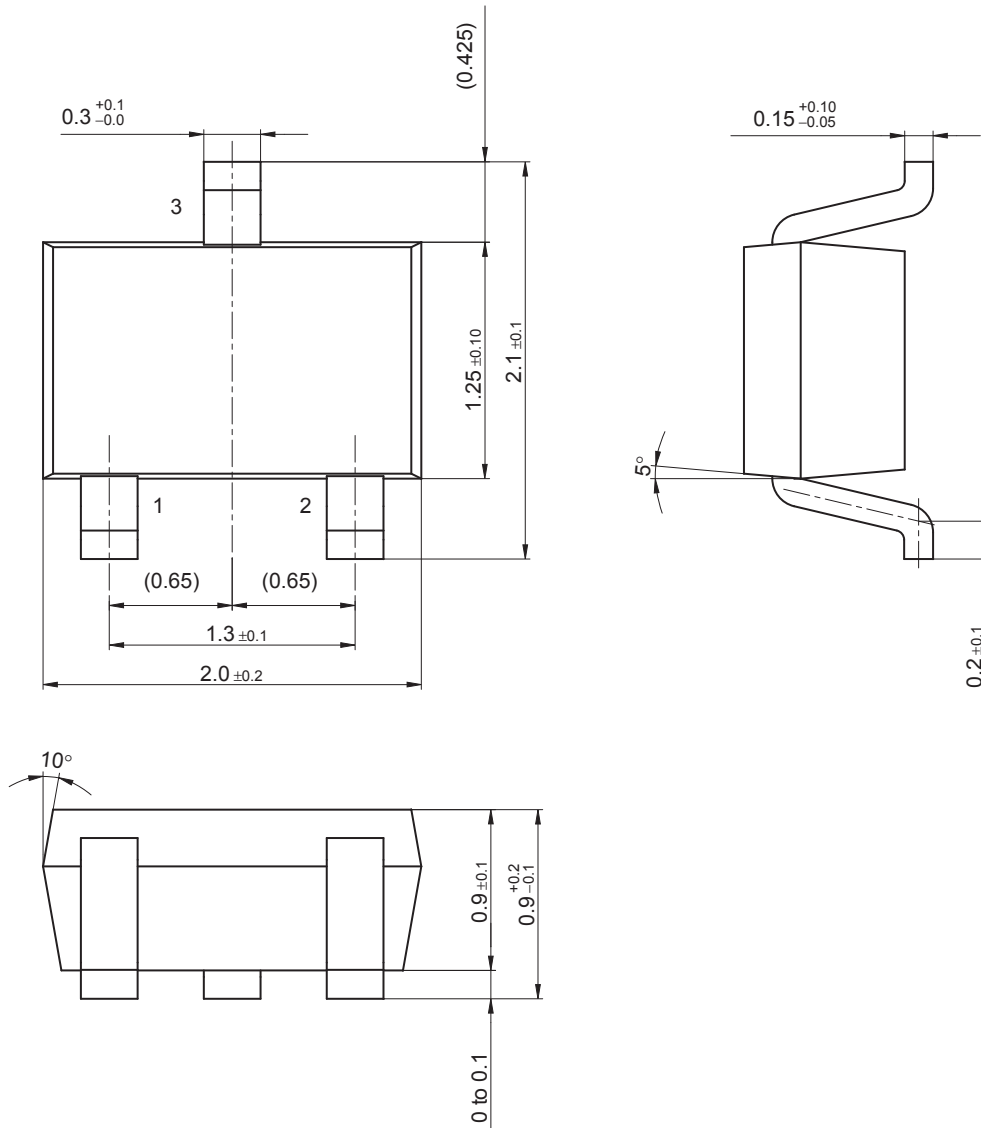
\*2:  $t_{on}$ ,  $t_{off}$  measurement circuit





SMini3-G1-B

Unit: mm



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