

MTM23223

Silicon N-channel MOSFET

For switching circuits

■ Features

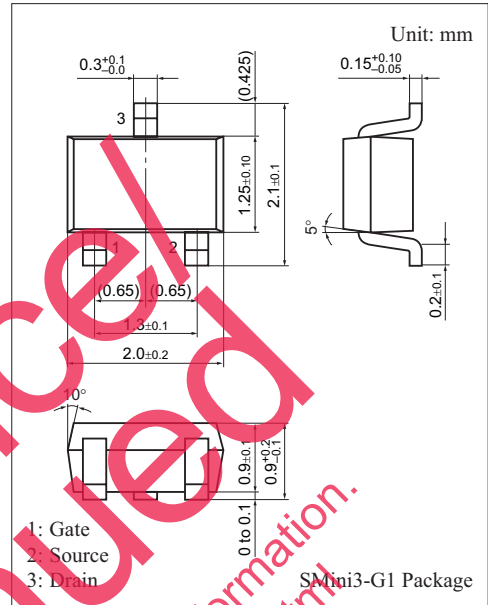
- Low voltage drive (2.5 V, 4 V)
- Realization of low on-resistance, using extremely fine process

■ 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}	± 10	V
Drain current	I_D	4.5	A
Peak drain current *1	I_{DP}	18	A
Power dissipation *2	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



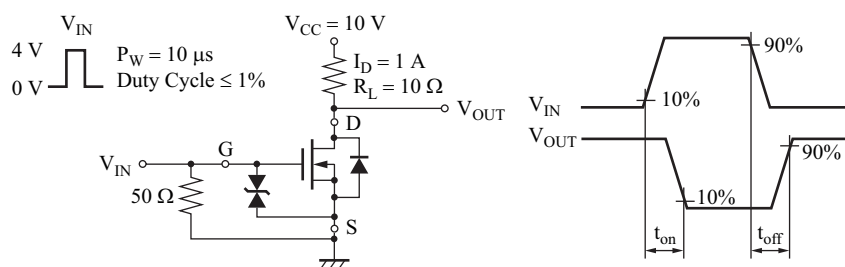
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

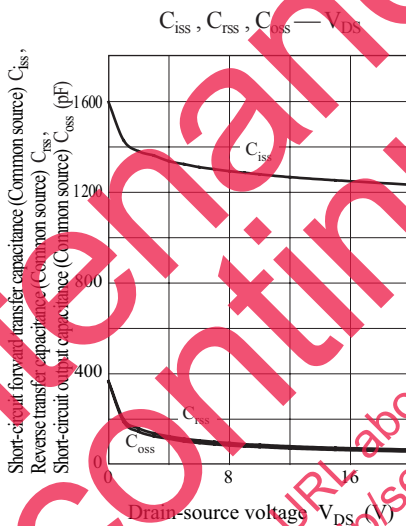
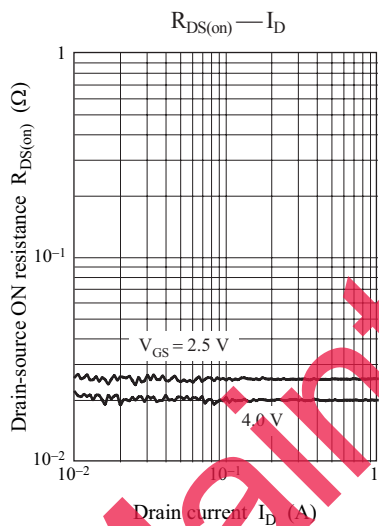
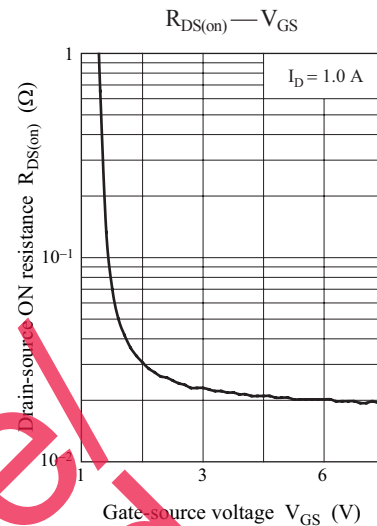
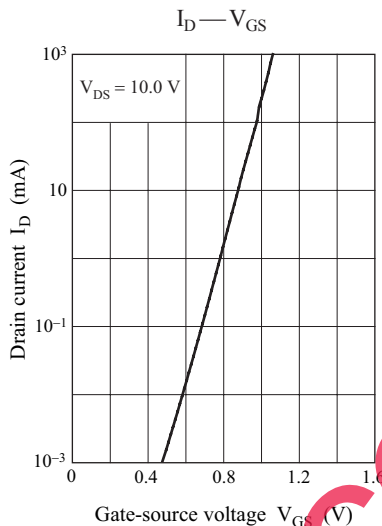
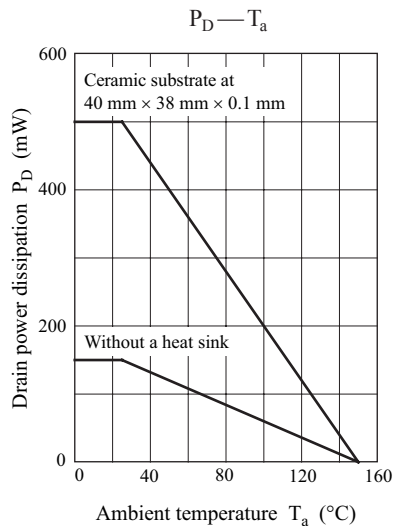
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	$I_D = 1 \text{ mA}, V_{GS} = 0$	20			V
Drain-source cutoff current	I_{DSS}	$V_{DS} = 20 \text{ V}, V_{GS} = 0$			1.0	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 8 \text{ V}, V_{DS} = 0$			± 10	μA
Gate threshold 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 Ω
		$I_D = 0.6 \text{ A}, V_{GS} = 2.5 \text{ V}$		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 forward transfer 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





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