

MTM23123

Silicon P-channel MOSFET

For digital circuits

■ Features

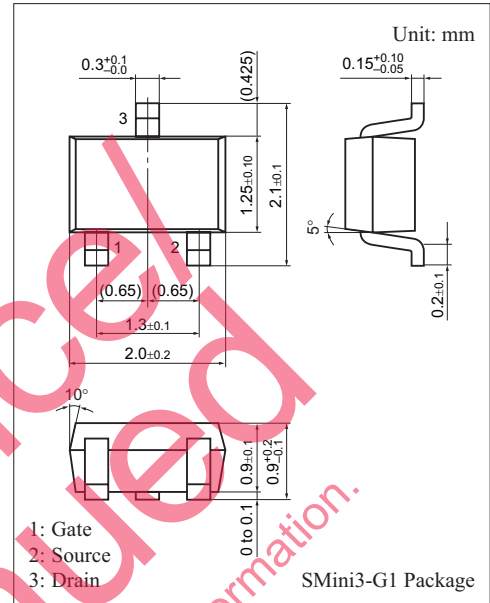
- Low voltage drive (2.5 V, 4 V)
- Realization of low on-resistance, using extremely fine process

■ 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}	-3.0	A
Peak drain current ^{*1}	I_{DP}	-16	A
Power dissipation ^{*2}	P_{D}	500	mW
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

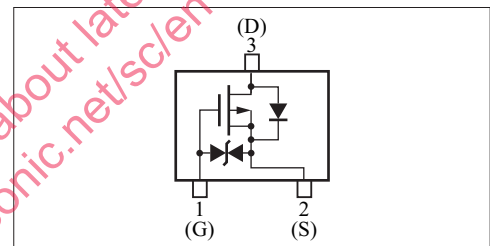
Note) *1: Pulse width $\leq 10 \mu\text{s}$, Duty Cycle $\leq 1\%$

*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



Marking Symbol: BL

Internal Connection



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

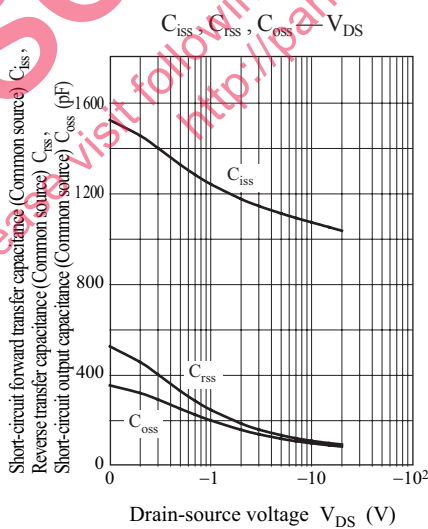
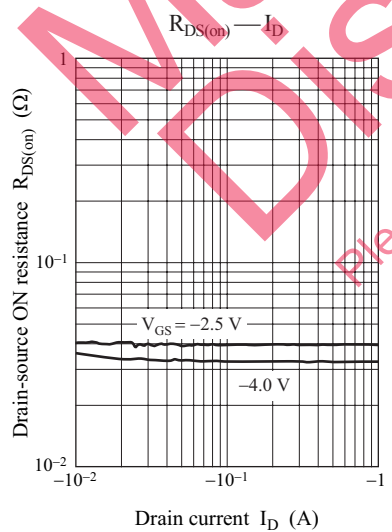
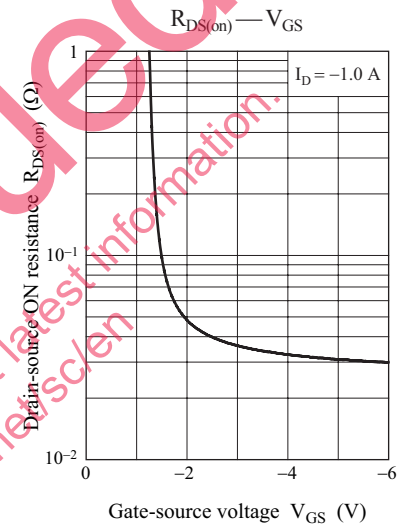
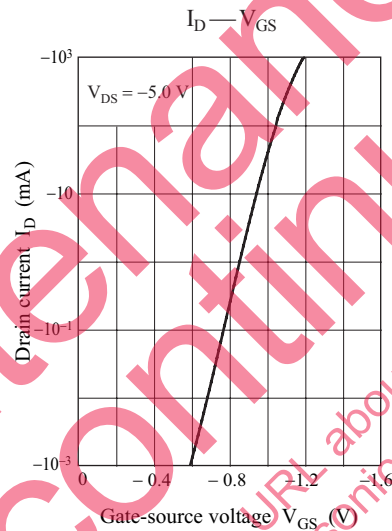
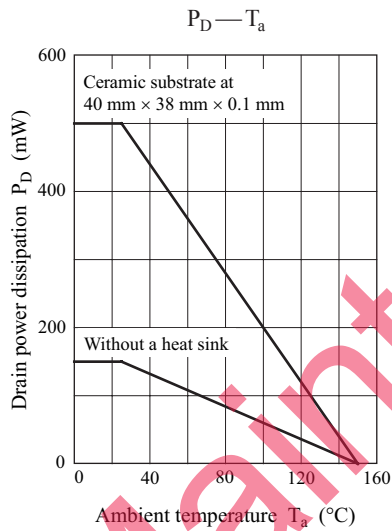
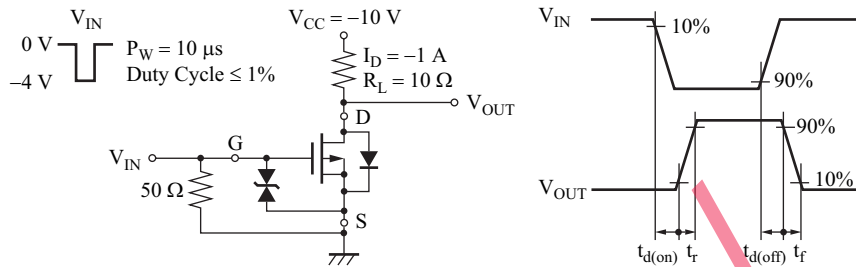
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	$I_{\text{D}} = -1 \text{ mA}$, $V_{\text{GS}} = 0$	-20			V
Drain-source cutoff current	I_{DSS}	$V_{\text{DS}} = -20 \text{ V}$, $V_{\text{GS}} = 0$			-1.0	μA
Gate-source cutoff current	I_{GSS}	$V_{\text{GS}} = \pm 8 \text{ V}$, $V_{\text{DS}} = 0$			± 10	μA
Gate threshold voltage	V_{TH}	$I_{\text{D}} = -1.0 \text{ mA}$, $V_{\text{DS}} = -10.0 \text{ V}$	-0.4	-0.85	-1.3	V
Drain-source ON resistance ^{*1}	$R_{\text{DS(on)}}$	$I_{\text{D}} = -1 \text{ A}$, $V_{\text{GS}} = -4.0 \text{ V}$		40	55	$\text{m}\Omega$
		$I_{\text{D}} = -0.5 \text{ A}$, $V_{\text{GS}} = -2.5 \text{ V}$		45	70	
Forward transfer admittance ^{*1}	$ Y_{\text{fs}} $	$I_{\text{D}} = -1.0 \text{ A}$, $V_{\text{DS}} = -10 \text{ V}$, $f = 1 \text{ kHz}$	3.5			S
Short-circuit forward transfer capacitance (Common source)	C_{iss}	$V_{\text{DS}} = -10 \text{ V}$, $V_{\text{GS}} = 0$, $f = 1 \text{ MHz}$		1000		pF
Short-circuit output capacitance (Common source)	C_{oss}			120		pF
Reverse transfer capacitance (Common source)	C_{rss}			120		pF
Turn-on delay time ^{*2}	$t_{\text{d(on)}}$	$V_{\text{DD}} = -10 \text{ V}$, $V_{\text{GS}} = 0 \text{ V}$ to -4 V , $I_{\text{D}} = -1 \text{ A}$		25		ns
Rise time ^{*2}	t_{r}	$V_{\text{DD}} = -10 \text{ V}$, $V_{\text{GS}} = 0 \text{ V}$ to -4 V , $I_{\text{D}} = -1 \text{ A}$		25		ns
Fall time ^{*2}	t_{f}	$V_{\text{DD}} = -10 \text{ V}$, $V_{\text{GS}} = -4 \text{ V}$ to 0 V , $I_{\text{D}} = -1 \text{ A}$		70		ns
Turn-off delay time ^{*2}	$t_{\text{d(off)}}$	$V_{\text{DD}} = -10 \text{ V}$, $V_{\text{GS}} = -4 \text{ V}$ to 0 V , $I_{\text{D}} = -1 \text{ A}$		120		ns

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

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 $< 2.0\%$

*2: Measurement circuit



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Maintenance
Discontinued

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