

MTM23110

Silicon P-channel MOSFET

For switching circuits

■ Features

- Low voltage drive (1.8 V, 2.5 V, 4 V)
- Realization of low on-resistance, using extremely fine process

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

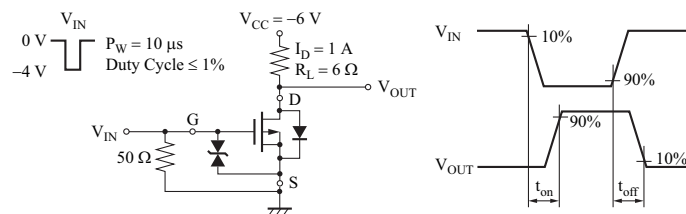
Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	V_{DSS}	-12	V
Gate-source surrender voltage	V_{GSS}	± 8	V
Drain current	I_{D}	-4.0	A
Peak drain current *1	I_{DP}	-16	A
Power dissipation *2	P_{D}	500	mW
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

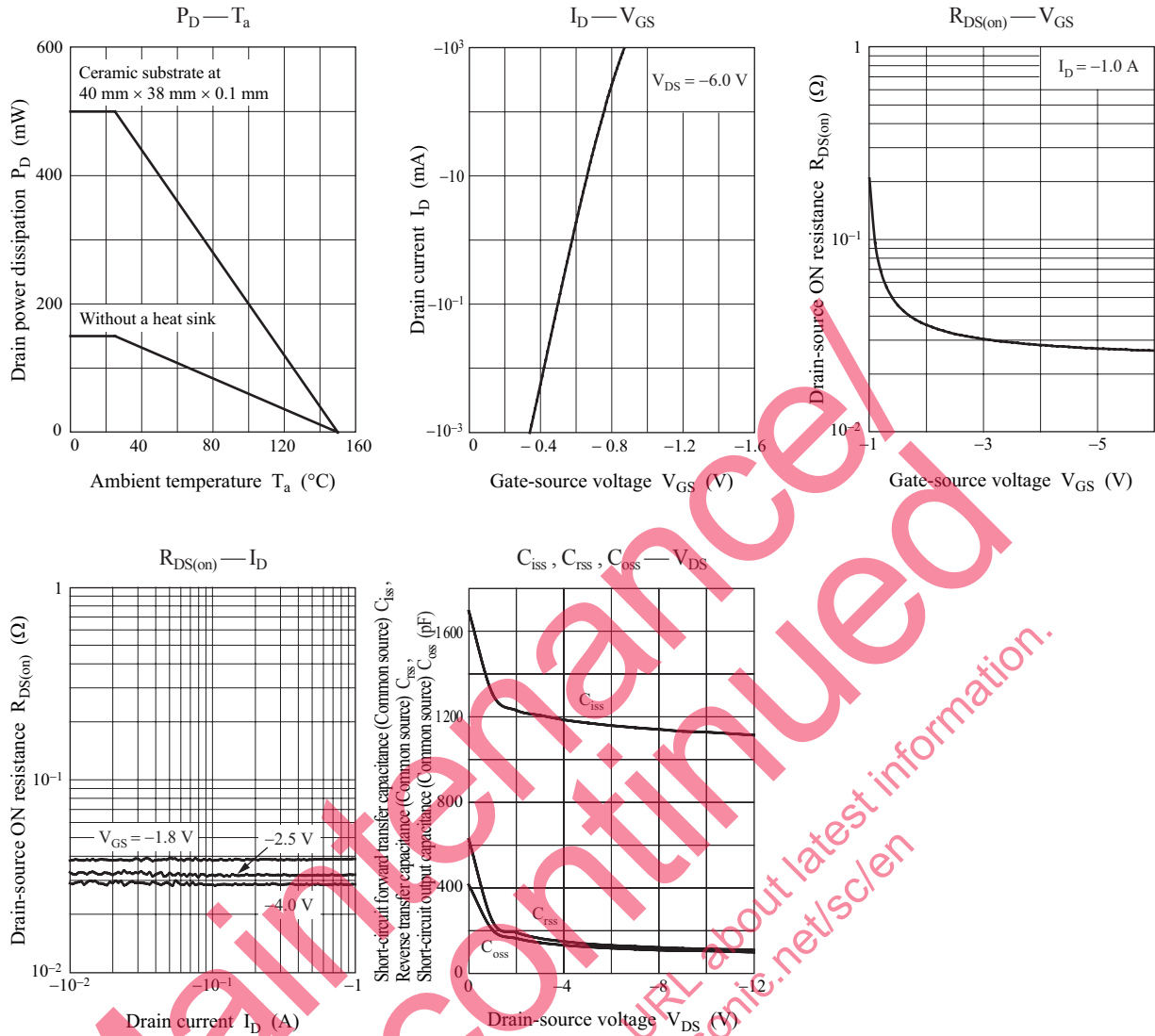
Note) *1: Pulse width $\leq 10 \mu\text{s}$, Duty Cycle $\leq 1\%$ *2: Measuring on ceramic substrate at $40 \text{ mm} \times 38 \text{ mm} \times 0.1 \text{ mm}$ Absolute maximum rating without heat sink for P_{D} is 150 mW

■ 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}	$I_{\text{D}} = -1 \text{ mA}$, $V_{\text{GS}} = 0$	-12			V
Drain-source cutoff current	I_{DSS}	$V_{\text{DS}} = -12 \text{ V}$, $V_{\text{GS}} = 0$			-1.0	μA
Gate-source cutoff current	I_{GSS}	$V_{\text{GS}} = \pm 6.4 \text{ V}$, $V_{\text{DS}} = 0$			± 10	μA
Gate threshold voltage	V_{TH}	$I_{\text{D}} = -1.0 \text{ mA}$, $V_{\text{DS}} = -6.0 \text{ V}$	-0.3	-0.65	-1.0	V
Drain-source ON resistance *1	$R_{\text{DS(on)}}$	$I_{\text{D}} = -1 \text{ A}$, $V_{\text{GS}} = -4.0 \text{ V}$		30	40	$\text{m}\Omega$
		$I_{\text{D}} = -0.5 \text{ A}$, $V_{\text{GS}} = -2.5 \text{ V}$		35	55	
		$I_{\text{D}} = -0.2 \text{ A}$, $V_{\text{GS}} = -1.8 \text{ V}$		50	75	
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}	$V_{\text{DS}} = -10 \text{ V}$, $V_{\text{GS}} = 0$, $f = 1 \text{ MHz}$		1200		pF
Short-circuit output capacitance (Common source)	C_{oss}			110		pF
Reverse transfer capacitance (Common source)	C_{rss}			110		pF
Turn-on time *2	t_{on}	$V_{\text{DD}} = -6 \text{ V}$, $V_{\text{GS}} = 0 \text{ V to } -4 \text{ V}$, $I_{\text{D}} = -1 \text{ A}$		50		ns
Turn-off time *2	t_{off}	$V_{\text{DD}} = -6 \text{ V}$, $V_{\text{GS}} = -4 \text{ V to } 0 \text{ V}$, $I_{\text{D}} = -1 \text{ A}$		300		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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