MTM23223

Silicon N-channel MOSFET

For switching circuits

■ Features

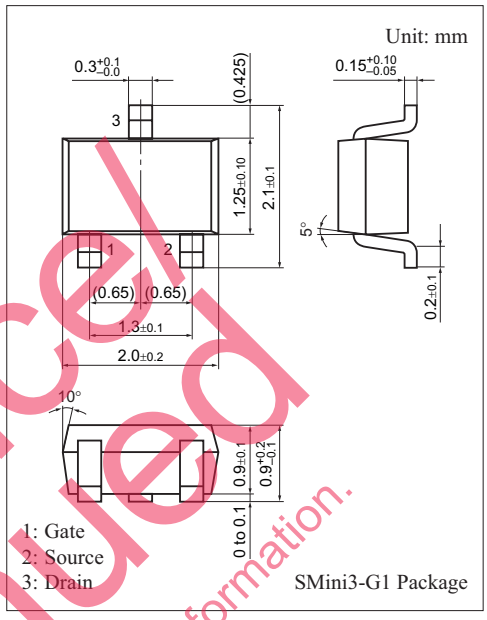
- Low voltage drive (2.5 V, 4 V)
- Realization of low on-resistance, using extremely fine process

■ Absolute Maximum Ratings $T_a = 25°C$

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	°C
Storage temperature	T_{stg}	–55 to +150	°C

Note) *1: Pulse width ≤ 10 µs, Duty Cycle ≤ 1%

*2: Measuring on ceramic substrate at 40 mm × 38 mm × 0.1 mm
Absolute maximum rating without heat sink for P_D is 150 mW



Marking Symbol: BK

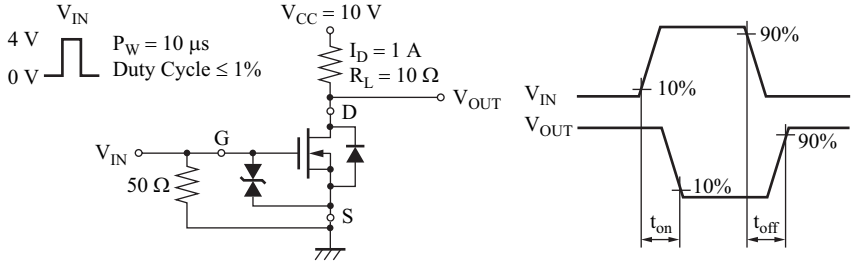
■ Electrical Characteristics $T_a = 25°C \pm 3°C$

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

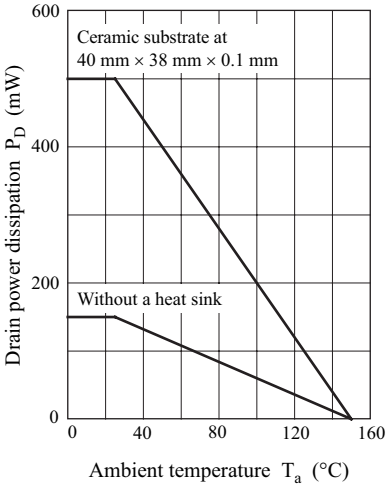
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *1: Pulse measurement: Pulse width < 300 µs, Duty Cycle < 2%

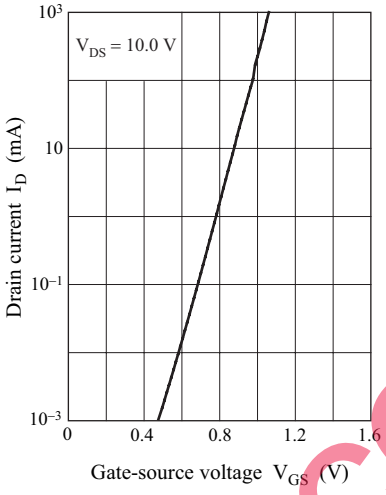
*2: t_{on} , t_{off} measurement circuit



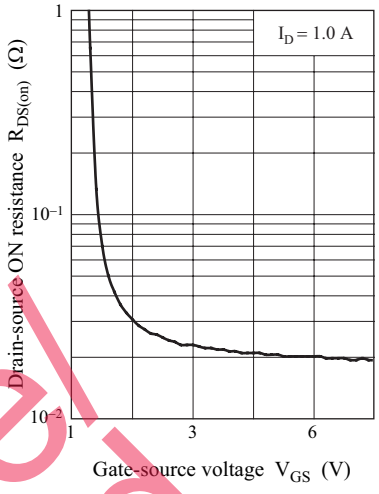
P_D — T_a



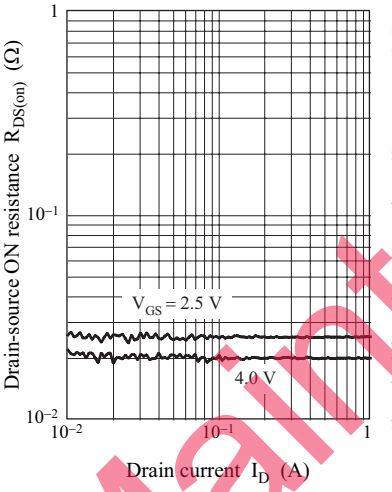
I_D — V_{GS}



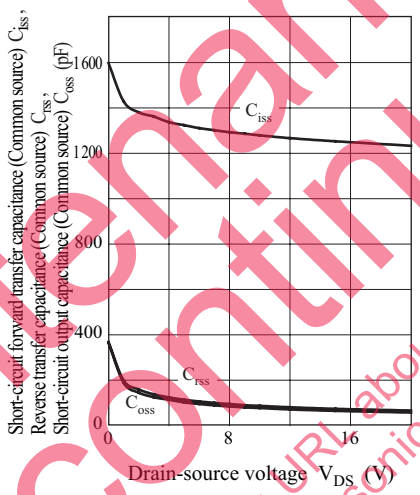
$R_{DS(on)}$ — V_{GS}



$R_{DS(on)}$ — I_D



C_{iss} , C_{rss} , C_{oss} — V_{DS}



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