

Notification about the transfer of the semiconductor business

The semiconductor business of Panasonic Corporation was transferred on September 1, 2020 to Nuvoton Technology Corporation (hereinafter referred to as "Nuvoton"). Accordingly, Panasonic Semiconductor Solutions Co., Ltd. became under the umbrella of the Nuvoton Group, with the new name of Nuvoton Technology Corporation Japan (hereinafter referred to as "NTCJ").

In accordance with this transfer, semiconductor products will be handled as NTCJ-made products after September 1, 2020. However, such products will be continuously sold through Panasonic Corporation.

Publisher of this Document is NTCJ.

If you would find description "Panasonic" or "Panasonic semiconductor solutions", please replace it with NTCJ.

※ Except below description page

"Request for your special attention and precautions in using the technical information and semiconductors described in this book"

Nuvoton Technology Corporation Japan



MTM232270LBF

Silicon N-channel MOS FET

For switching
 MTM13227 in SMini3 type package

■ Features

- Low drain-source On-state resistance : RDS(on) typ = 85 mΩ (VGS = 4.0 V)
- Low drive voltage: 2.5 V drive
 Halogen-free / RoHS compliant
 (EU RoHS / UL-94 V-0 / MSL : Level 1 compliant)

■ Marking Symbol : ET

■ Packaging

Embossed type (Thermo-compression sealing) : 3 000 pcs / reel (standard)

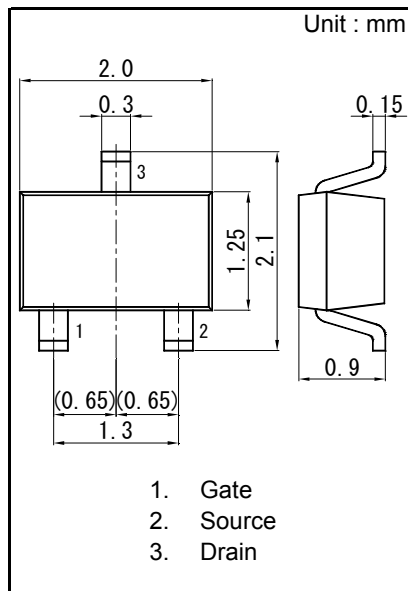
■ Absolute Maximum Ratings Ta = 25 °C

項目	記号	定格	単位
Drain-source Voltage	VDS	20	V
Gate-source Voltage	VGS	±10	
Drain current	ID	2.0	A
Peak drain current *1	IDp	8	A
Power dissipation *2	PD	500	mW
Channel temperature	Tch	150	°C
Operating ambient temperature	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-55 to +150	°C

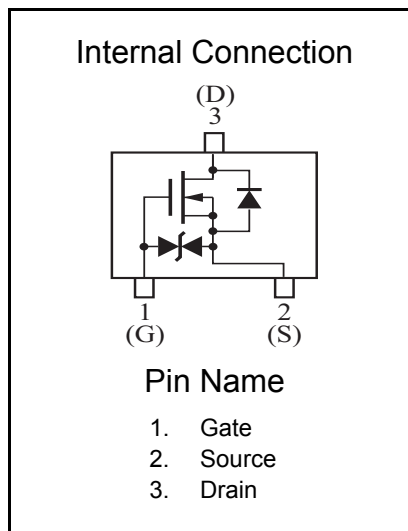
Note) *1 Pulse width ≤ 10 μs, Duty cycle ≤ 1 %

*2 Measuring on ceramic board at 40 × 38 × 0.1 mm

Absolute maximum rating PD without heat sink shall be made 150 mW.



Panasonic	SMini3-G1-B
JEITA	SC-70
Code	SOT-323



■ Electrical Characteristics Ta = 25 °C ± 3 °C

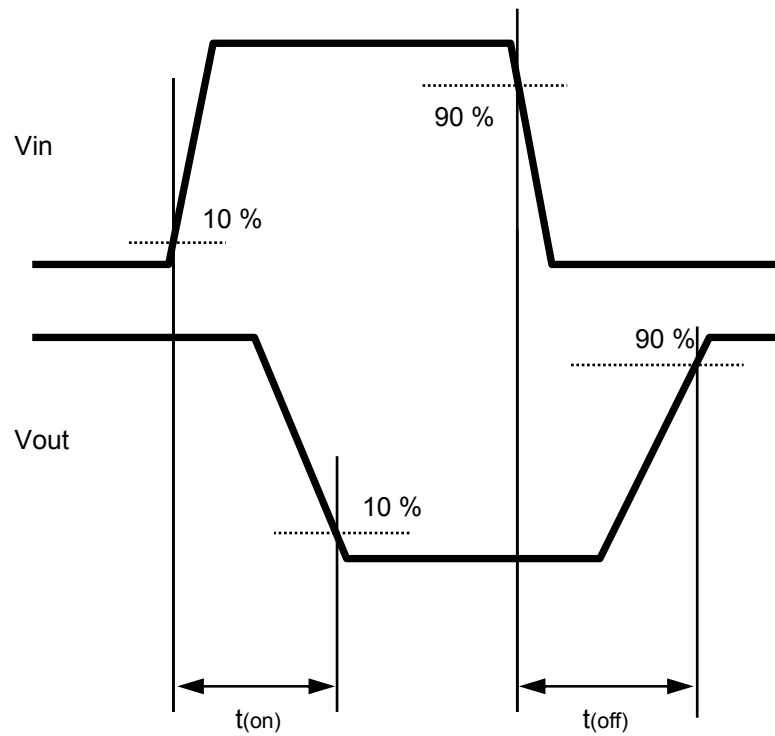
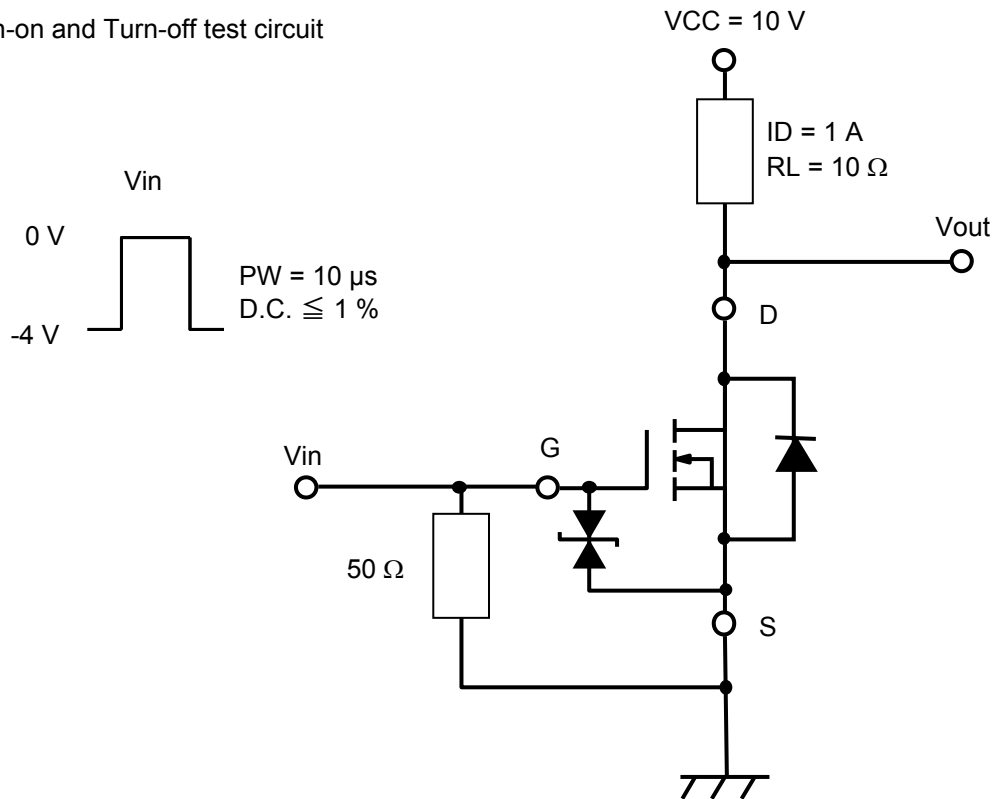
項目	記号	条件	最小	標準	最大	単位
Drain-source surrender voltage	VDSS	ID = 1 mA, VGS = 0 V	20			V
Drain-source cutoff current	IDSS	VDS = 20 V, VGS = 0 V			10	μA
Gate-source cutoff current	IGSS	VGS = ±8 V, VDS = 0 V			±10	μA
Gate threshold voltage	Vth	ID = 1.0 mA, VDS = 10 V	0.4	0.85	1.3	V
Drain-source ON resistance *1	RDS(ON)1	ID = 1 A, VGS = 4 V		85	110	mΩ
	RDS(ON)2	ID = 0.5 A, VGS = 2.5 V		100	150	
Forward transfer admittance *1	Yfs	ID = 1 A, VDS = 10 V, f = 1 kHz	3.0			S
Short-circuit input capacitance (Common source)	Ciss	VDS = 10 V, VGS = 0, f = 1 MHz		290		pF
Short-circuit output capacitance (Common source)	Coss			26		
Reverse transfer capacitance (Common source)	Crss			20		
Turn-on Time *2	ton	VDD = 10 V, VGS = 0 to 4 V ID = 1 A		12		ns
Turn-off Time *2	toff	VDD = 10 V, VGS = -4 to 0 V ID = 1 A		60		ns

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

2. *1 Pulse test : Pulse width ≤ 10 μs, Duty cycle ≤ 1 %

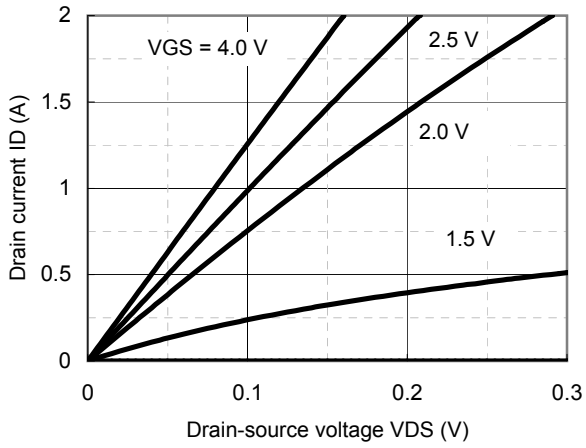
*2 Turn-on and Turn-off test circuit

*2 Turn-on and Turn-off test circuit

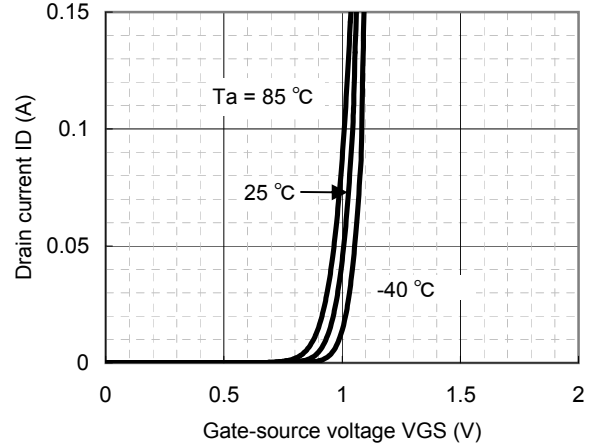


Technical Data (reference)

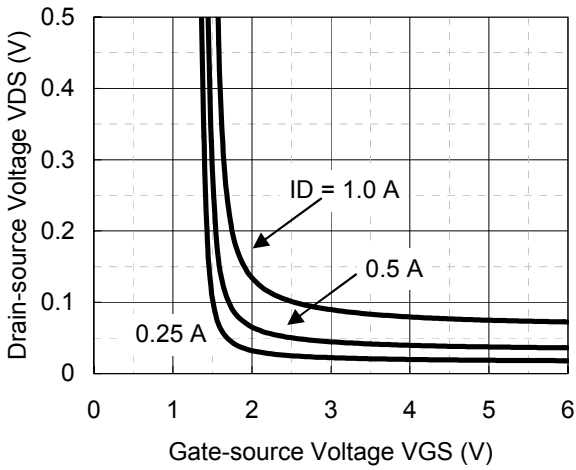
ID - VDS



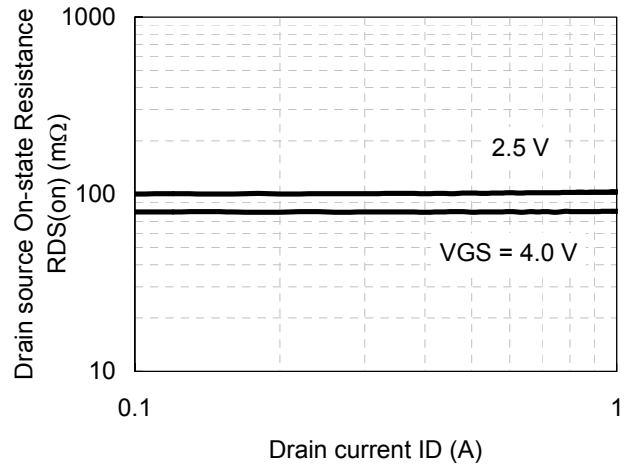
ID - VGS



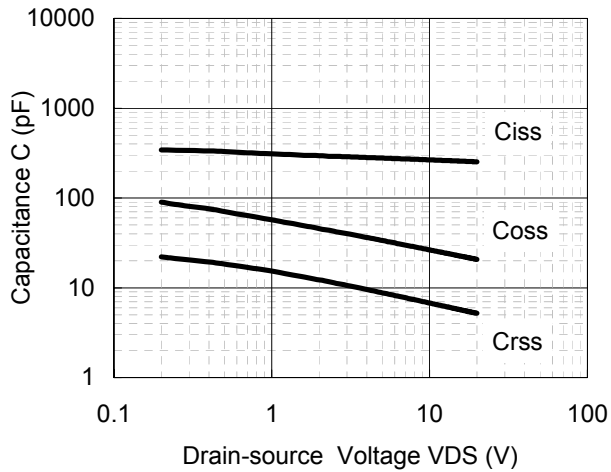
VDS - VGS



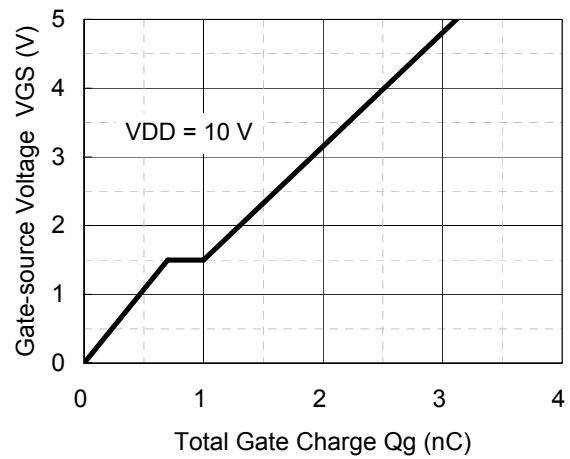
RDS(on) - ID



Capacitance - VDS

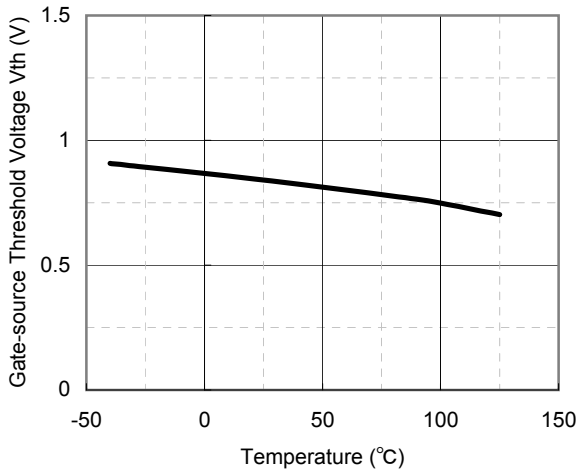


Dynamic Input/Output Characteristics

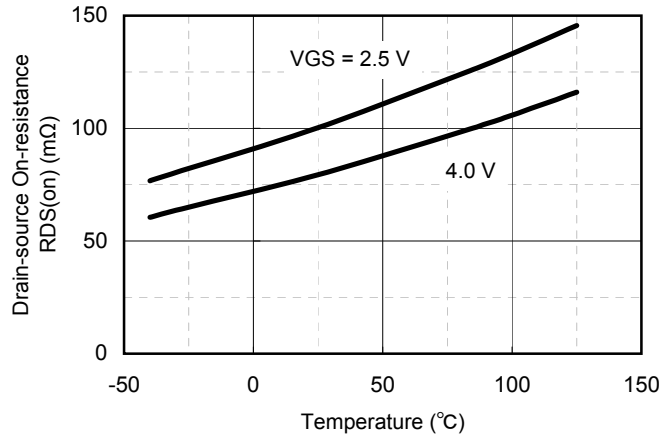


Technical Data (reference)

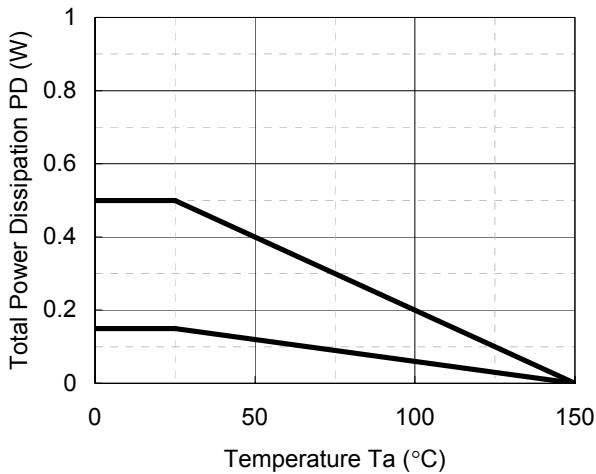
Vth - Ta



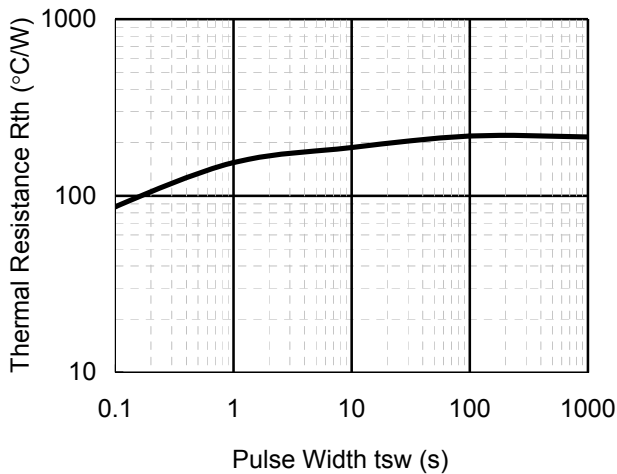
RDS(on) - Ta



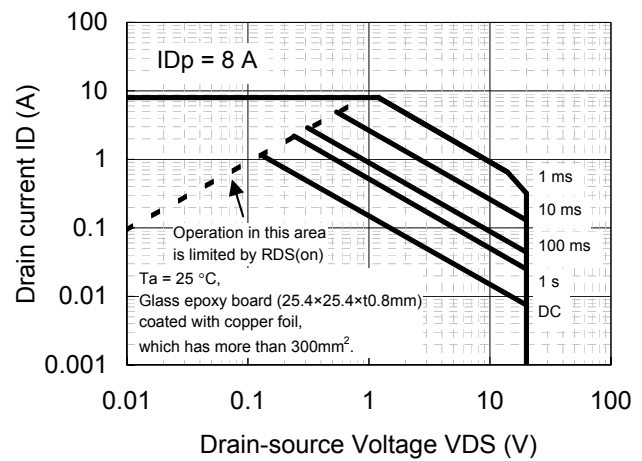
PD - Ta



Rth - tsw

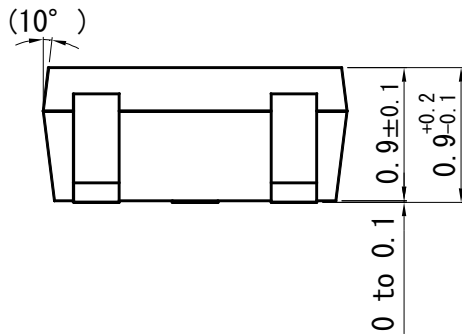
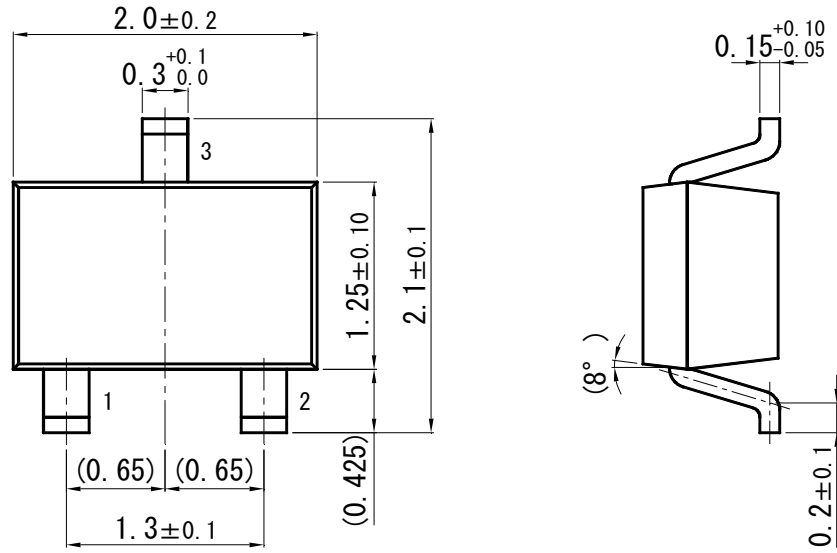


Safe Operating Area

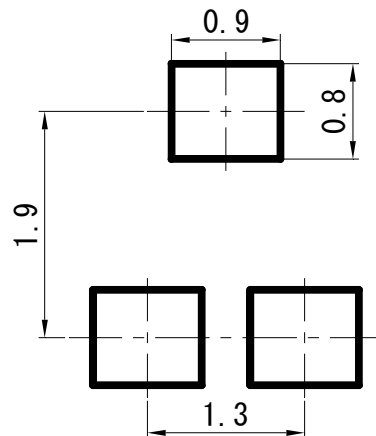




SMini3-G1-B



■ Land Pattern (Reference) (Unit : mm)



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