

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



MTM131230BBF

Silicon P-channel MOSFET

For switching

■ Features

- Low drain-source ON resistance : $R_{DS(on)typ.} = 40 \text{ m}\Omega$ ($V_{GS} = -4.0 \text{ V}$)
- Halogen-free / RoHS compliant
 (EU RoHS / UL-94 V-0 / MSL:Level 1 compliant)

■ Marking Symbol: BL

■ Packaging

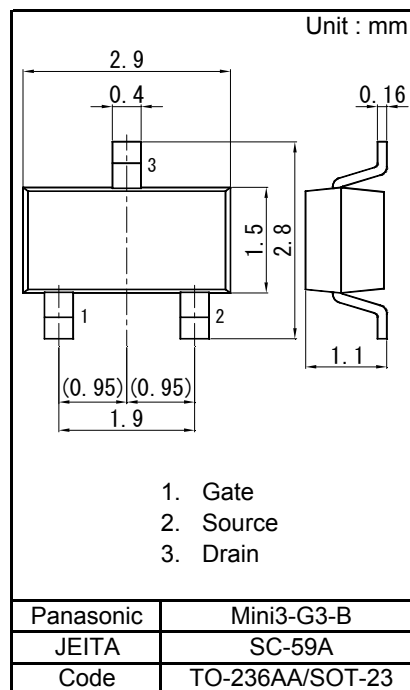
Embossed type (Thermo-compression sealing) : 3 000 pcs / reel (standard)

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

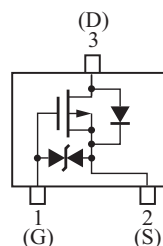
Parameter	Symbol	Rating	Unit
Drain-source voltage	VDS	-20	V
Gate-source voltage	VGS	± 10	V
Drain current	ID	-3.0	A
Drain current (pulsed) ^{*1}	IDp	-12	A
Total power dissipation ^{*2}	PD	700	mW
Channel temperature	Tch	150	$^\circ\text{C}$
Storage temperature	Tstg	-55 to +150	$^\circ\text{C}$

Note) ^{*1} Pulse width = 10 μs , Duty Cycle $\leq 1\%$

^{*2} Measuring on ceramic board (40 mm \times 38 mm \times 0.1 mm)



Internal Connection



Pin Name

1. Gate
2. Source
3. Drain



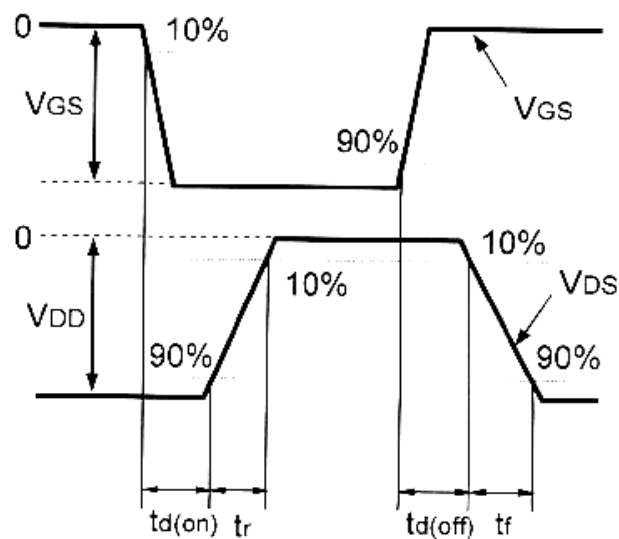
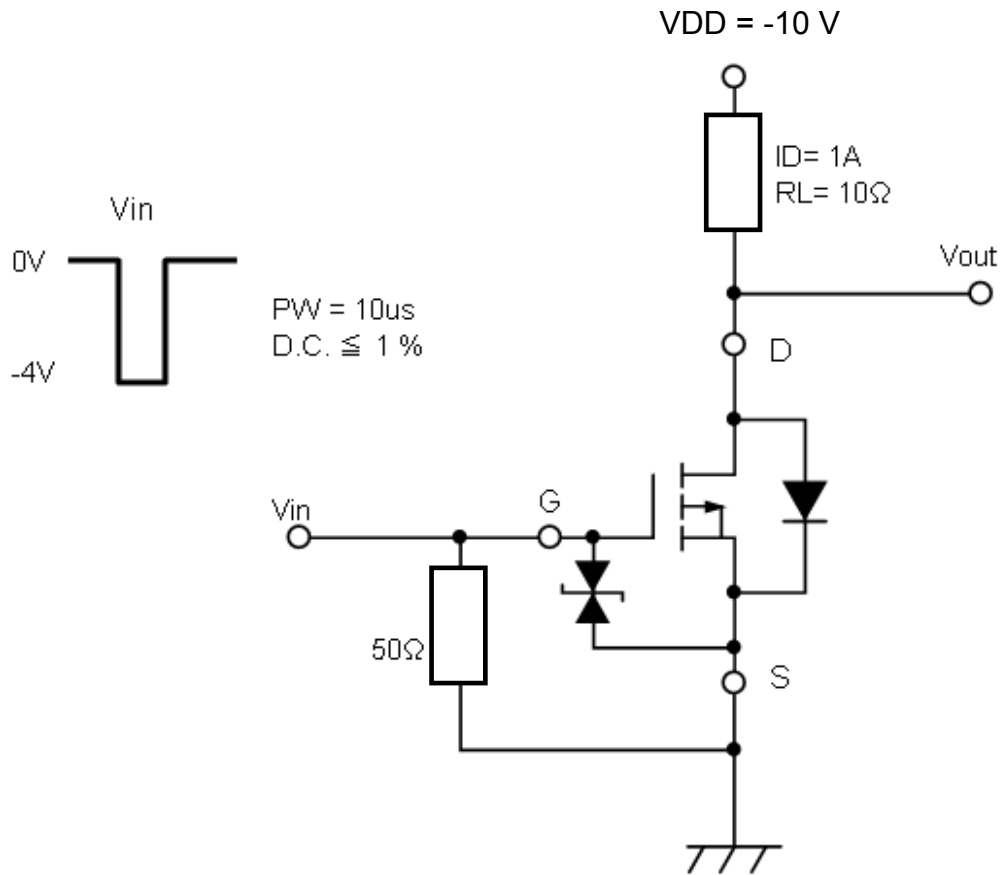
■ Electrical Characteristics Ta = 25 °C ± 3 °C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	VDSS	ID = -1.0mA, VGS = 0 V	-20			V
Drain-source cutoff current	IDSS	VDS = -20 V, VGS = 0 V			-1.0	μA
Gate-source leakage current	IGSS	VGS = ±8.0V, VDS = 0 V			±10	μA
Gate-source threshold voltage	Vth	ID = -1.0 mA, VDS = -10.0 V	-0.35	-0.85	-1.4	V
Drain-source on-state resistance	RDS(ON)1	ID = -1.0A, VGS = -4.0 V		40	56	mΩ
	RDS(ON)2	ID = -0.5A, VGS = -2.5 V		45	70	
Forward transfer admittance	Yfs	ID = -1.0 A, VDS = -10 V, f = 1 kHz	3.5			S
Input capacitance (Common source)	Ciss	VDS = -10 V, VGS = 0, f = 1 MHz		900		pF
Output capacitance (Common source)	Coss			95		pF
Reverse transfer capacitance (Common source)	Crss			95		pF
Turn-on delay time ^{*1}	td(on)	VDD = -10 V, VGS = 0 to -4 V		10		ns
Rise time ^{*1}	tr	ID = -1.0A		10		ns
Turn-off delay time ^{*1}	td(off)	VDD = -10 V, VGS = -4 to 0 V		150		ns
Fall time ^{*1}	tf	ID = -1.0 A		70		ns

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.
2. *1 Measurement circuit for Turn-on delay time / Rise time / Turn-off delay time / Fall time

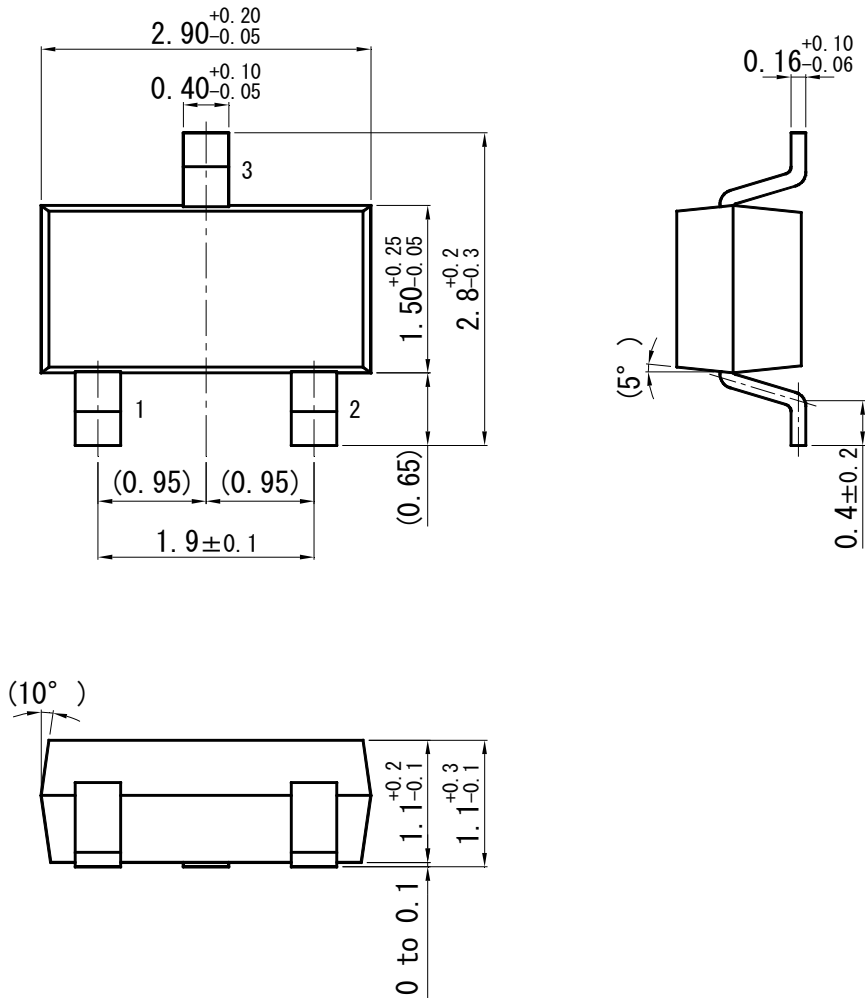


*1 Measurement circuit for Turn-on delay time / Rise time / Turn-off delay time / Fall time

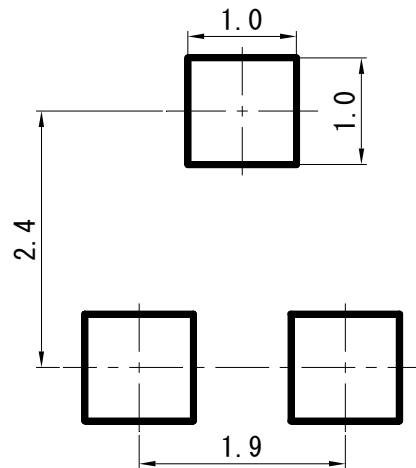




Mini3-G3-B



■ Land Pattern (Reference) (Unit: mn)



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