

## **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**

**SK8603300L**

Silicon N-channel MOSFET  
 with Schottky Barrier Diode

For Load-switching / For DC-DC Converter

■ Features

- Low Drain-source On-state Resistance :  $R_{DS(on)}$  typ = 1.6 mΩ (VGS = 4.5 V)
- Halogen-free / RoHS compliant  
 (EU RoHS / UL-94 V-0 / MSL : Level 1 compliant)

■ Marking Symbol : 30

■ Packaging

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

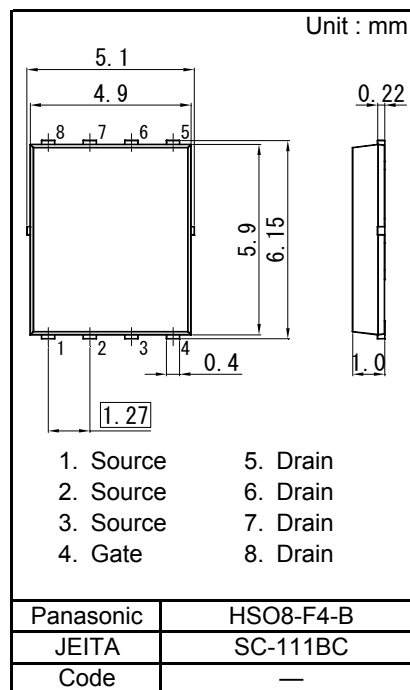
■ Absolute Maximum Ratings Ta = 25 °C

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	VDS	30	V
Gate to Source Voltage	VGS	±20	V
Drain Current	Ta = 25 °C, t = 10 s <sup>*1</sup>	ID1	48
	Ta = 25 °C, DC <sup>*1</sup>	ID2	27
	Tc = 25 °C	ID3	113
Drain current (Pulsed) <sup>*1 *2</sup>	IDp	144	A
Total Power Dissipation	Ta = 25 °C, DC <sup>*1</sup>	PD1	2.5
	Tc = 25 °C	PD2	42
Thermal Resistance	Channel to Ambient	Rth(ch-a)	50
	Channel to Case	Rth(ch-c)	3
Channel Temperature	Tch	150	°C
Storage Temperature Range	Tstg	-55 to +150	°C
Avalanche Current (Single pulse) <sup>*3</sup>	IAR	24	A
Avalanche Energy (Single pulse) <sup>*3</sup>	EAR	72	mJ

Note \*1 Device mounted on a glass-epoxy board in Figure 1

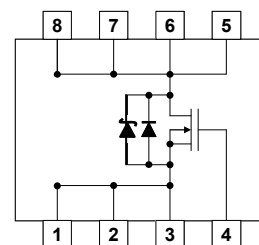
\*2 Pulse test: Ensure that the channel temperature does not exceed 150 °C

\*3 VDD = 24 V, VGS = 10 to 0 V, L = 0.1 mH, Tch = 25 °C (initial)



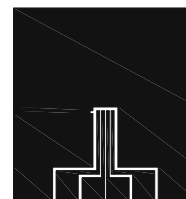
- |           |          |
|-----------|----------|
| 1. Source | 5. Drain |
| 2. Source | 6. Drain |
| 3. Source | 7. Drain |
| 4. Gate   | 8. Drain |

Internal Connection



Pin Name

- |           |          |
|-----------|----------|
| 1. Source | 5. Drain |
| 2. Source | 6. Drain |
| 3. Source | 7. Drain |
| 4. Gate   | 8. Drain |



**Figure 1** FR4 Glass-Epoxy Board  
 25.4 mm × 25.4 mm × 0.8 mm

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

Static Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	VDSS	ID = 1 mA, VGS = 0 V	30			V
Zero Gate Voltage Drain Current	IDSS	VDS = 24 V, VGS = 0 V			1	mA
Gate-source Leakage Current	IGSS	VGS = ±16 V, VDS = 0 V			±10	μA
Gate-source Threshold Voltage	Vth	ID = 5.96 mA, VDS = 10 V	1.3		3	V
Drain-source On-state Resistance	RDS(on)1	ID = 24 A, VGS = 10 V		1.3	1.9	mΩ
	RDS(on)2	ID = 24 A, VGS = 4.5 V		1.6	2.2	

Dynamic Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	Ciss	VDS = 10 V, VGS = 0 V f = 1 MHz		5 000	7 000	pF
Output Capacitance	Coss		600	840		
Reverse Transfer Capacitance	Crss		420	680		
Turn-on Delay Time <sup>*1</sup>	td(on)	VDD = 15 V, VGS = 0 to 10 V		16		ns
Rise Time <sup>*1</sup>	tr	ID = 24 A		22		
Turn-off Delay Time <sup>*1</sup>	td(off)	VDD = 15 V, VGS = 10 to 0 V		61		ns
Fall Time <sup>*1</sup>	tf	ID = 24 A		12		
Total Gate Charge	Qg	VDD = 15 V, VGS = 0 to 4.5 V ID = 24 A		38		nC
Gate to Source Charge	Qgs		13			
Gate to Drain Charge	Qgd		15			
Gate resistance	rg	f = 5 MHz		1.4	3	Ω

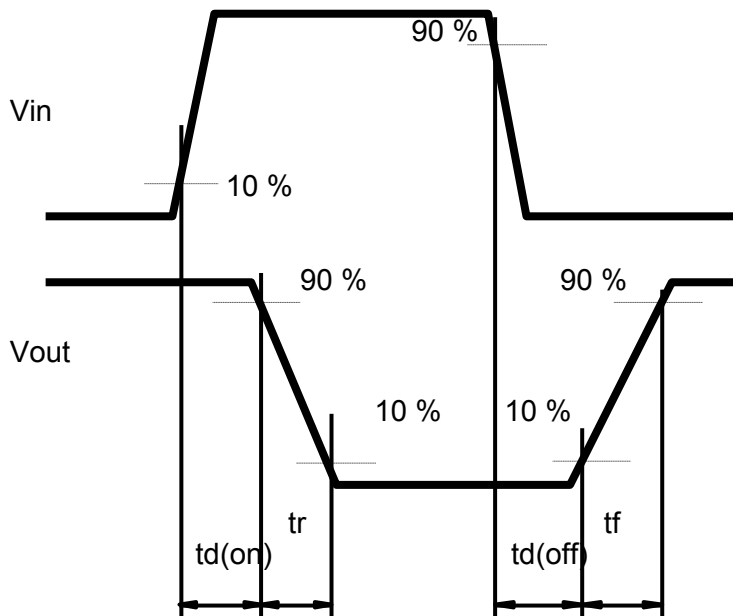
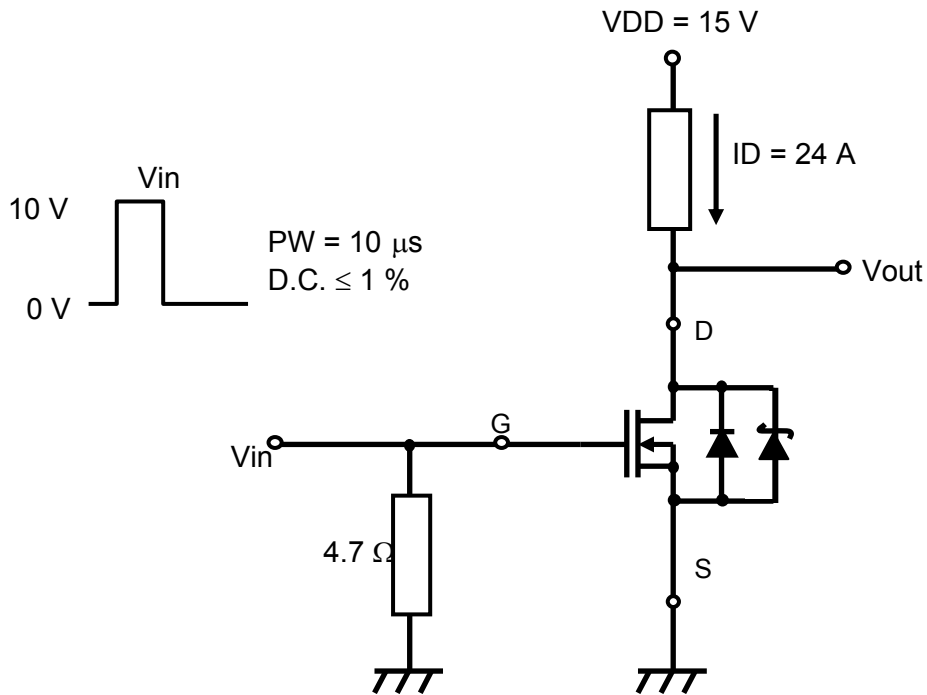
Body Diode Characteristic

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	VSD1	IS = 24 A, VGS = 0 V		0.8	1.2	V
	VSD2	IS = 2 A, VGS = 0 V		0.5	1.2	

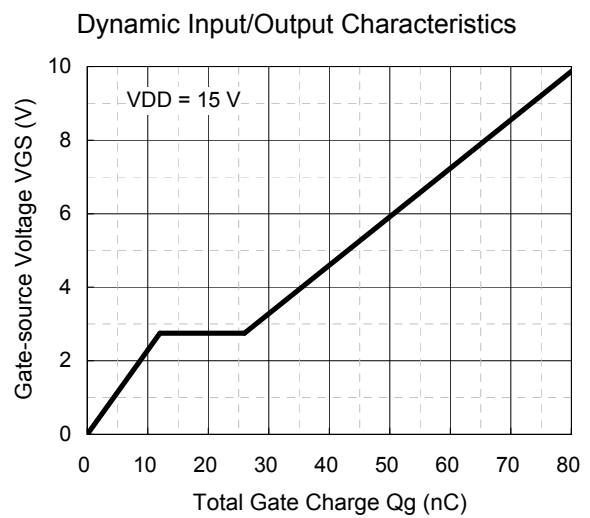
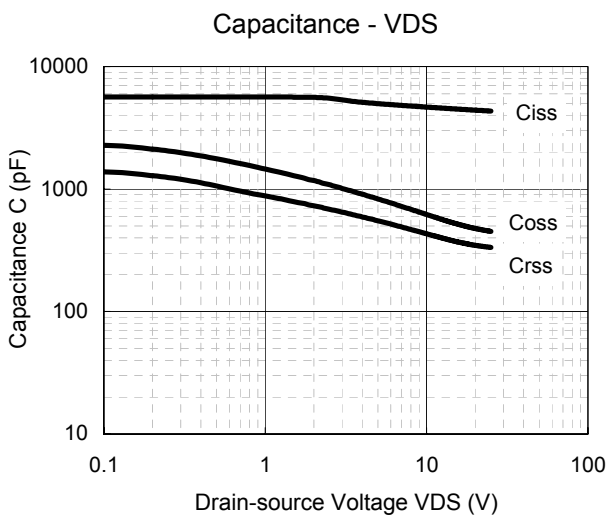
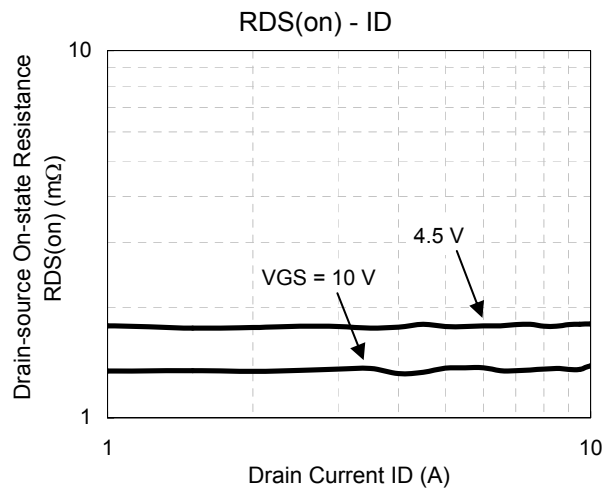
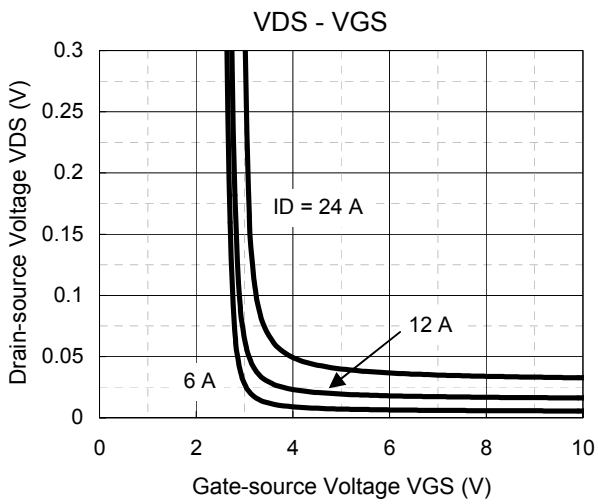
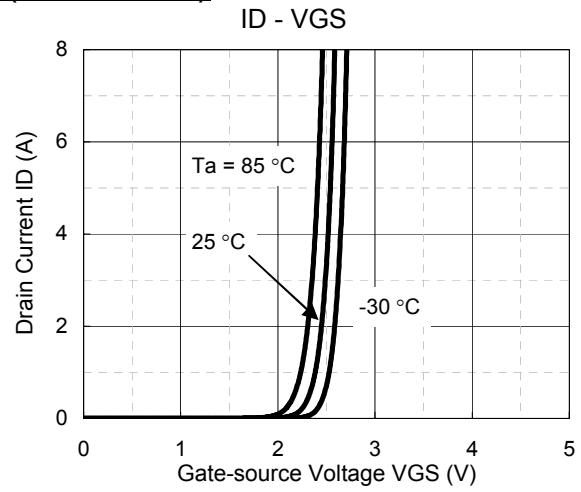
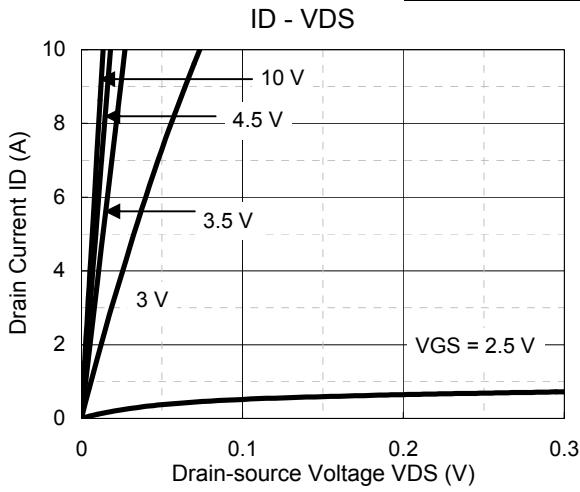
Note : 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.

2. \*1 Measurement circuit for Turn-on Delay Time / Rise Time / Turn-off Delay Time / Fall Time

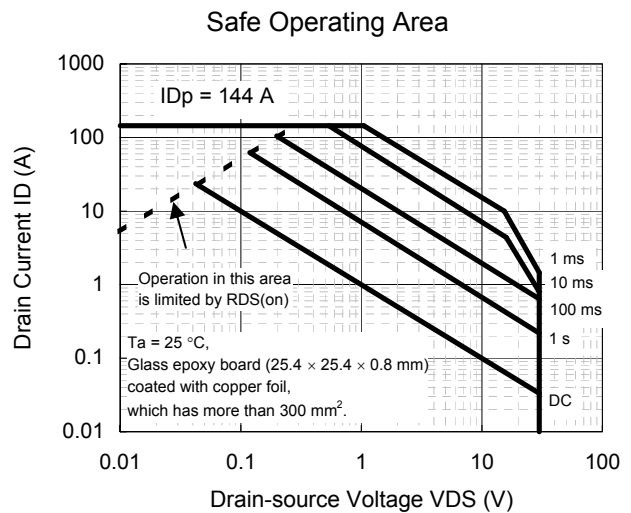
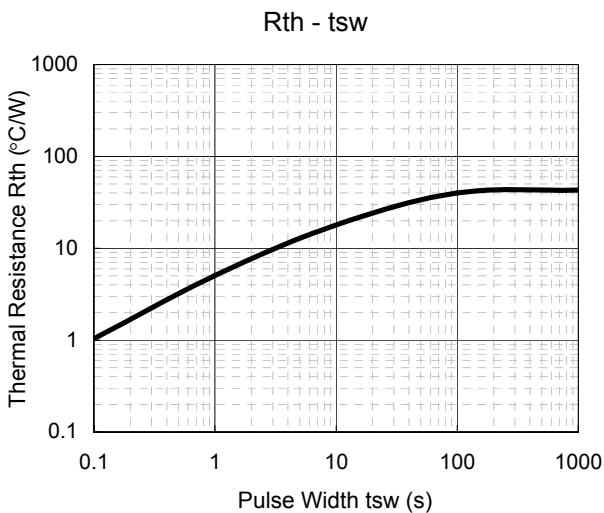
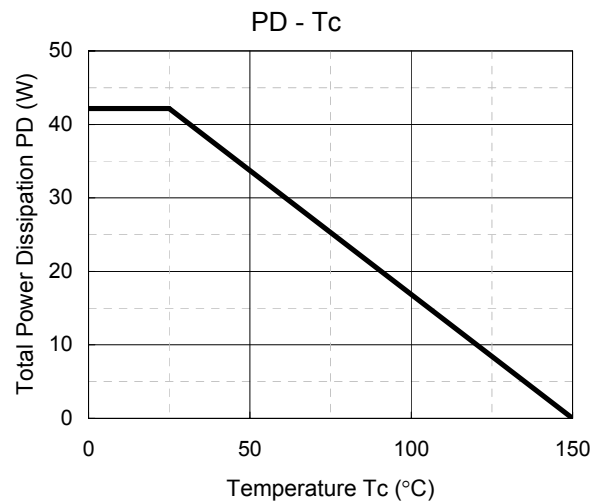
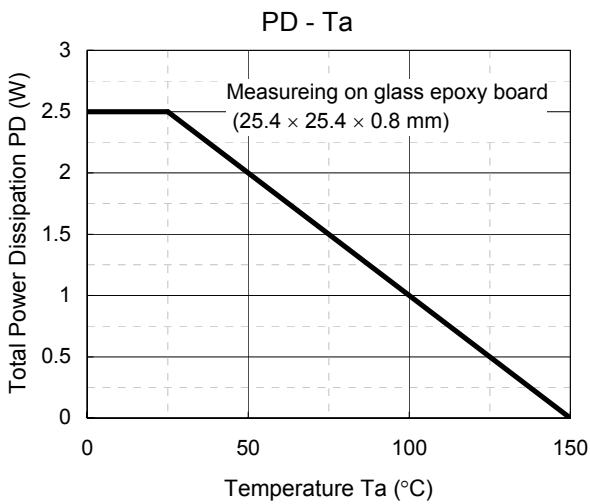
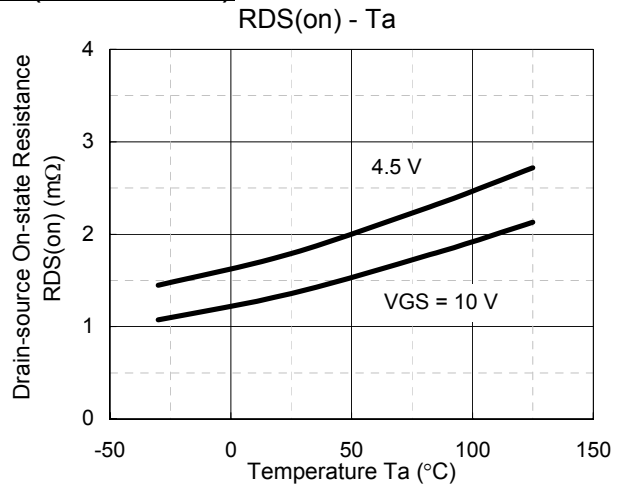
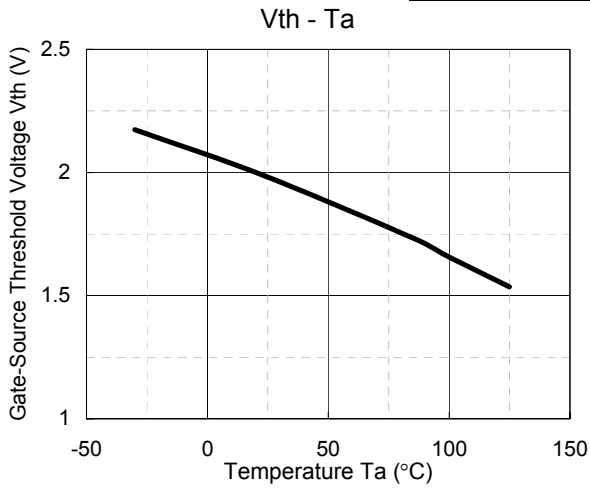
\*1 Measurement circuit for Turn-on Delay Time / Rise Time / Turn-off Delay Time / Fall Time



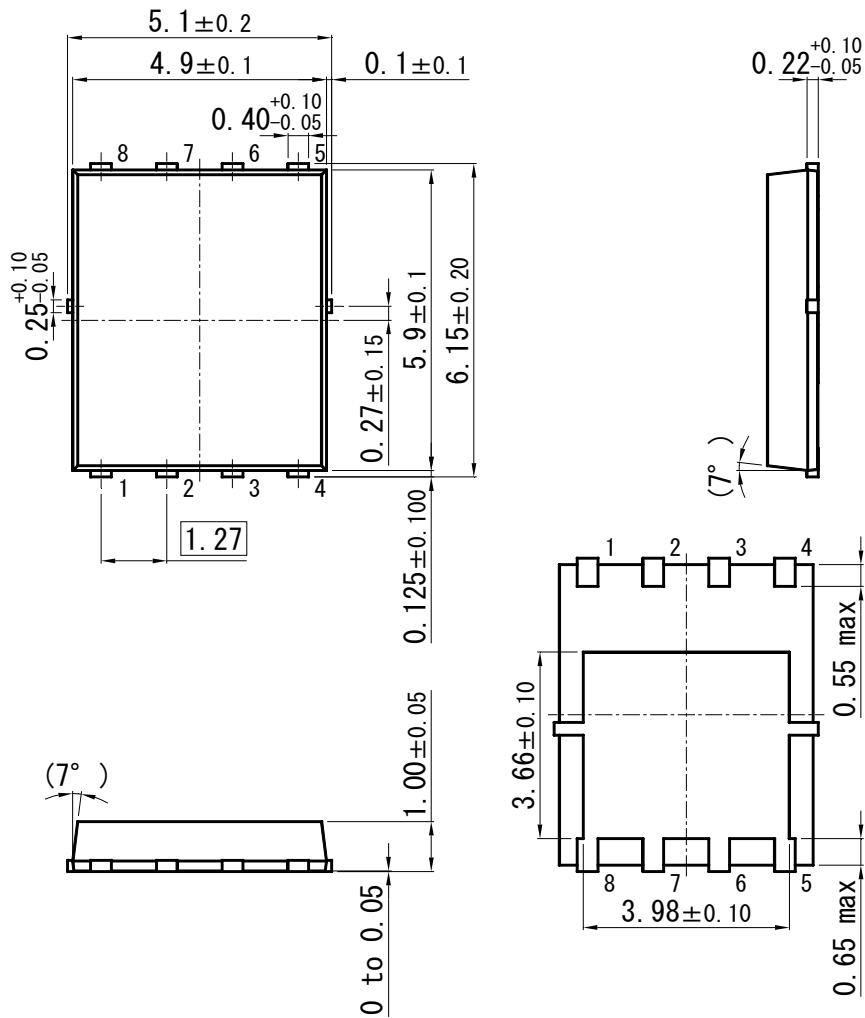
Technical Data ( reference )



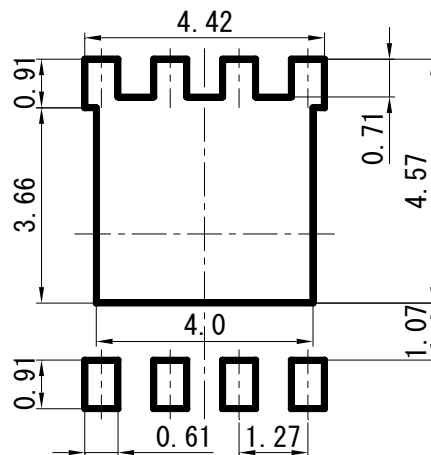
Technical Data ( reference )



HSO8-F4-B



■ Land Pattern (Reference) (Unit : mm)



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