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

MOS FET

Panasonic

SK8603190L

SK8603190L

Silicon N-channel MOS FET

For Load-switching / For DC-DC Converter

■ Features

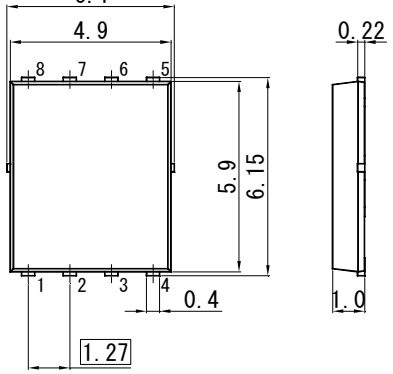
- Low Drain-source On-state Resistance : RDS(on) typ = 10 mΩ (VGS = 4.5 V)
- Halogen-free / RoHS compliant
  (EU RoHS / UL-94 V-0 / MSL : Level 1 compliant)

■ Marking Symbol : 19

■ Packaging

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

Unit : mm



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

Panasonic	HSO8-F4-B
JEITA	SC-111BC
Code	—

■ Absolute Maximum Ratings Ta = 25 °C

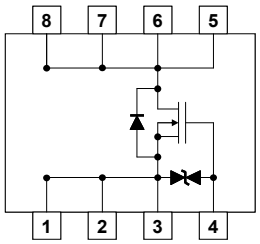
Parameter		Symbol	Rating	Unit
Drain to Source Voltage		VDS	30	V
Gate to Source Voltage		VGS	±20	
Drain Current	Ta = 25 °C, t = 10 s *1	ID	16	A
	Ta = 25 °C, DC *1		12	
	Tc = 25 °C		19	
	Pulsed, Tch < 150 °C *2		48	
Total Power Dissipation	Ta = 25 °C, DC *1	PD	2.7	W
	Tc = 25 °C		19	
Thermal Resistance	Channel to Ambient	Rth(ch-a)	45	°C / W
	Channel to Case	Rth(ch-c)	6.6	
Channel Temperature		Tch	150	°C
Operating ambient temperature		Topr	-40 to +85	
Storage Temperature Range		Tstg	-55 to +150	
Avalanche Current (Single pulse) *3		IAR	8	A
Avalanche Energy (Single pulse) *3		EAR	8	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)

Internal Connection



Pin Name

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

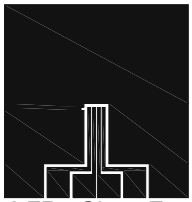


Figure 1 FR4 Glass-Epoxy Board
25.4 mm × 25.4 mm × 0.8 mm

Established : 2012-09-14
Revised : 2013-05-31

■ 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 = 30 V, VGS = 0 V			10	μA
Gate-source Leakage Current	IGSS	VGS = ±16 V, VDS = 0 V			±10	μA
Gate-source Threshold Voltage	Vth	ID = 1.01 mA, VDS = 10 V	1		3	V
Drain-source On-state Resistance	RDS(on)1	ID = 8 A, VGS = 10 V		7	10	mΩ
	RDS(on)2	ID = 8 A, VGS = 4.5 V		10	14	

Dynamic Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	Ciss	VDS = 10 V, VGS = 0 V f = 1 MHz		780	1 092	pF
Output Capacitance	Coss			160	224	
Reverse Transfer Capacitance	Crss			61	98	
Turn-on Delay Time *1	td(on)	VDD = 15 V, VGS = 0 to 10 V ID = 8 A		7		ns
Rise Time *1	tr			3		
Turn-off Delay Time *1	td(off)	VDD = 15 V, VGS = 10 to 0 V ID = 8 A		34		ns
Fall Time *1	tf			4		
Total Gate Charge	Qg	VDD = 15 V, VGS = 0 to 4.5 V ID = 8 A		6.3		nC
Gate to Source Charge	Qgs			2.5		
Gate to Drain Charge	Qgd			2.1		
Gate resistance	rg	f = 5 MHz		1.2	3	Ω

Body Diode Characteristic

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	VSD	IS = 8 A, VGS = 0 V		0.8	1.2	V

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

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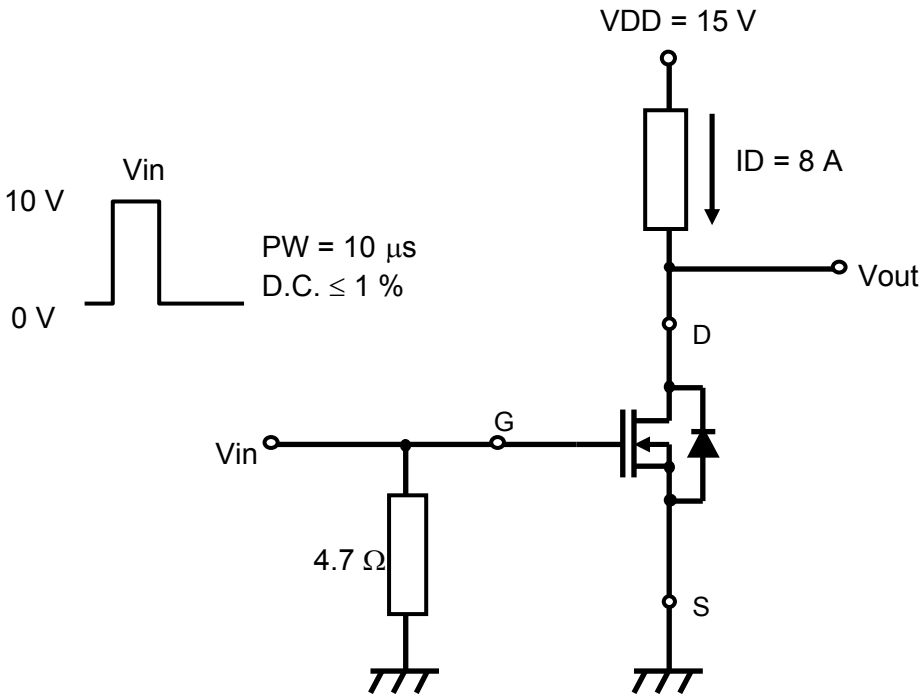
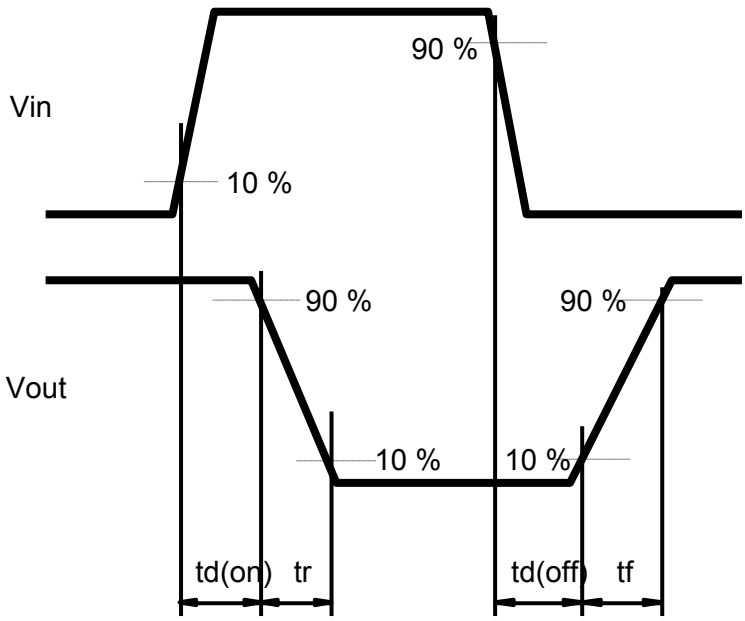
Revised : 2013-05-31

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





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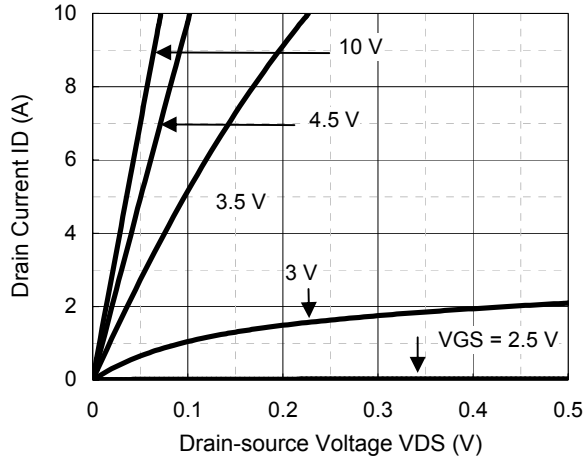
MOS FET

Panasonic

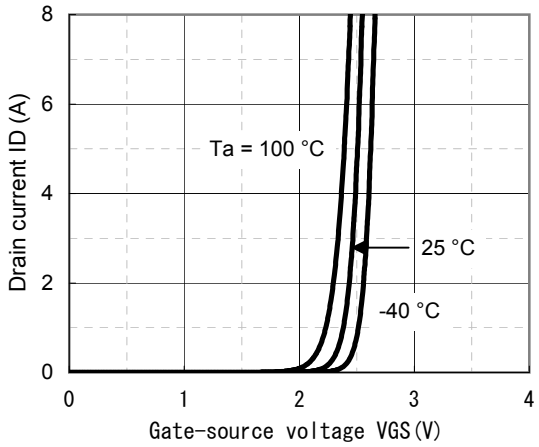
SK8603190L

Technical Data (reference)

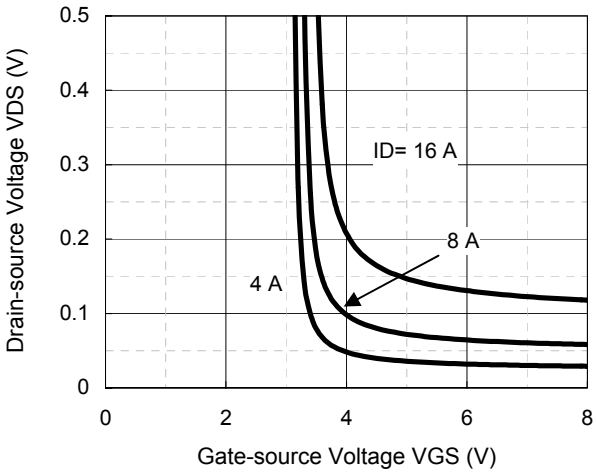
ID - VDS



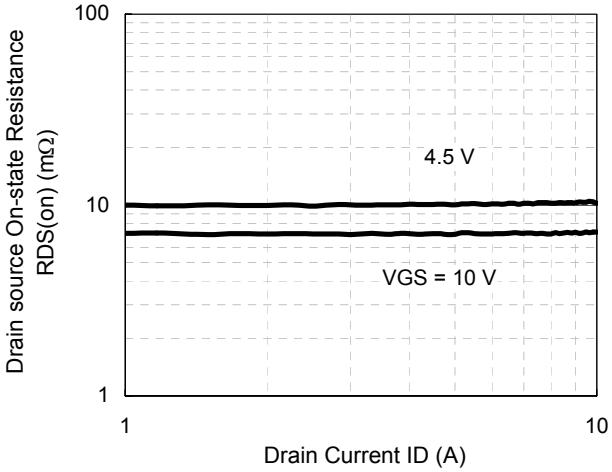
ID - VGS



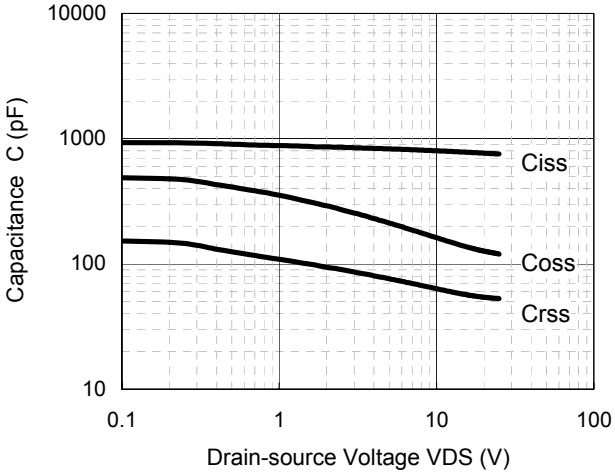
VDS - VGS



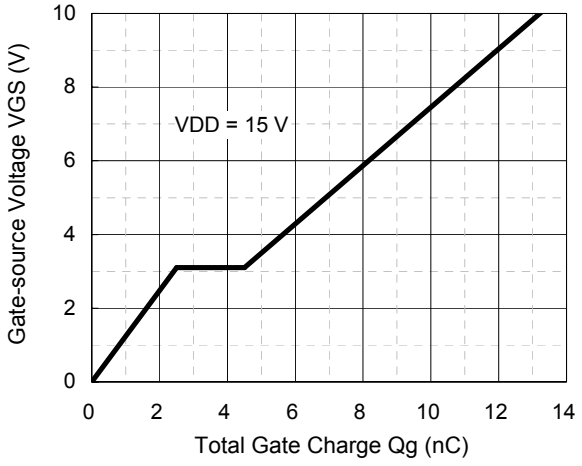
RDS(on) - ID



Capacitance - VDS



Dynamic Input/Output Characteristics



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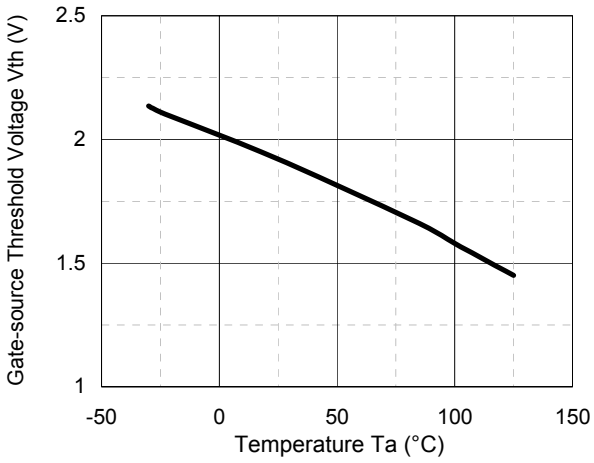
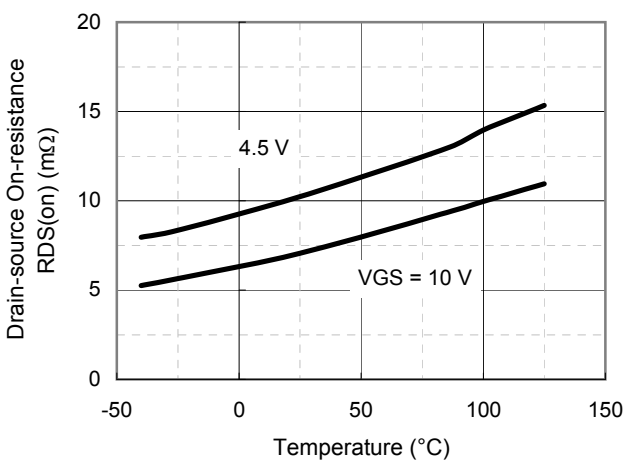
Technical Data (reference)

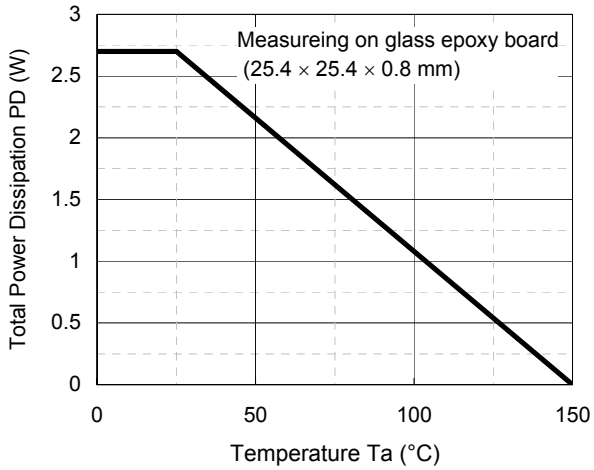
Vth - Ta



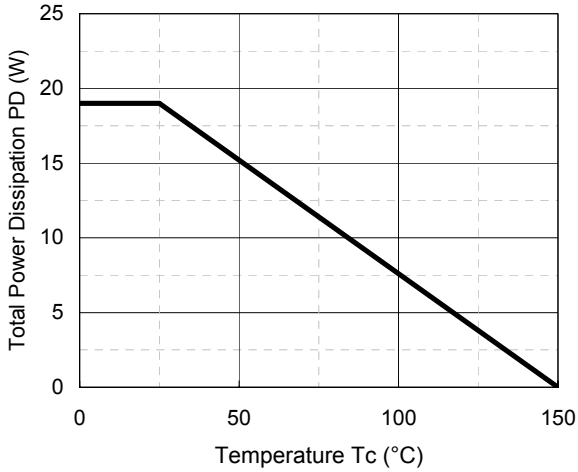
RDS(on) - Ta



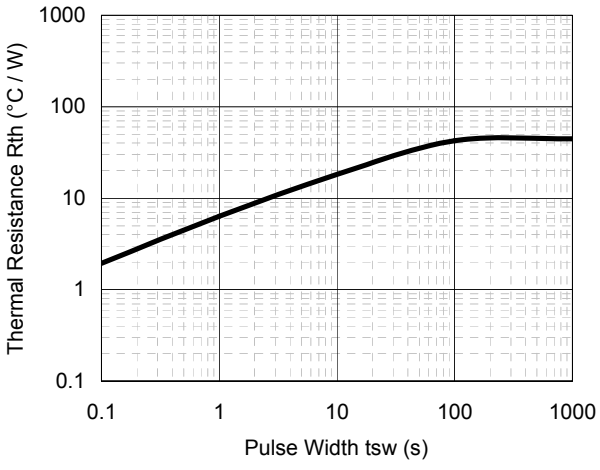
PD - Ta



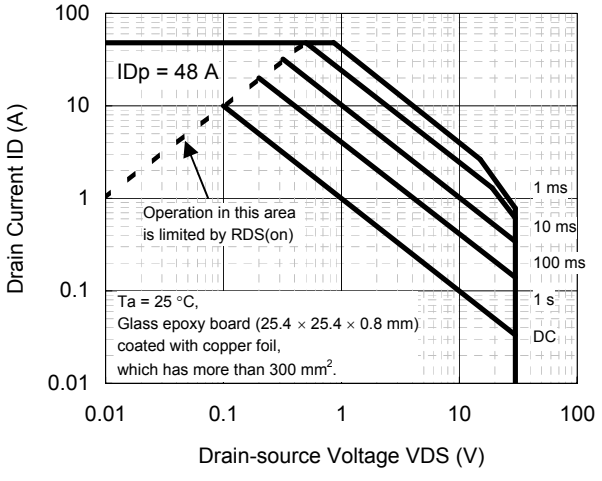
PD - Tc



Rth - tsw



Safe Operating Area



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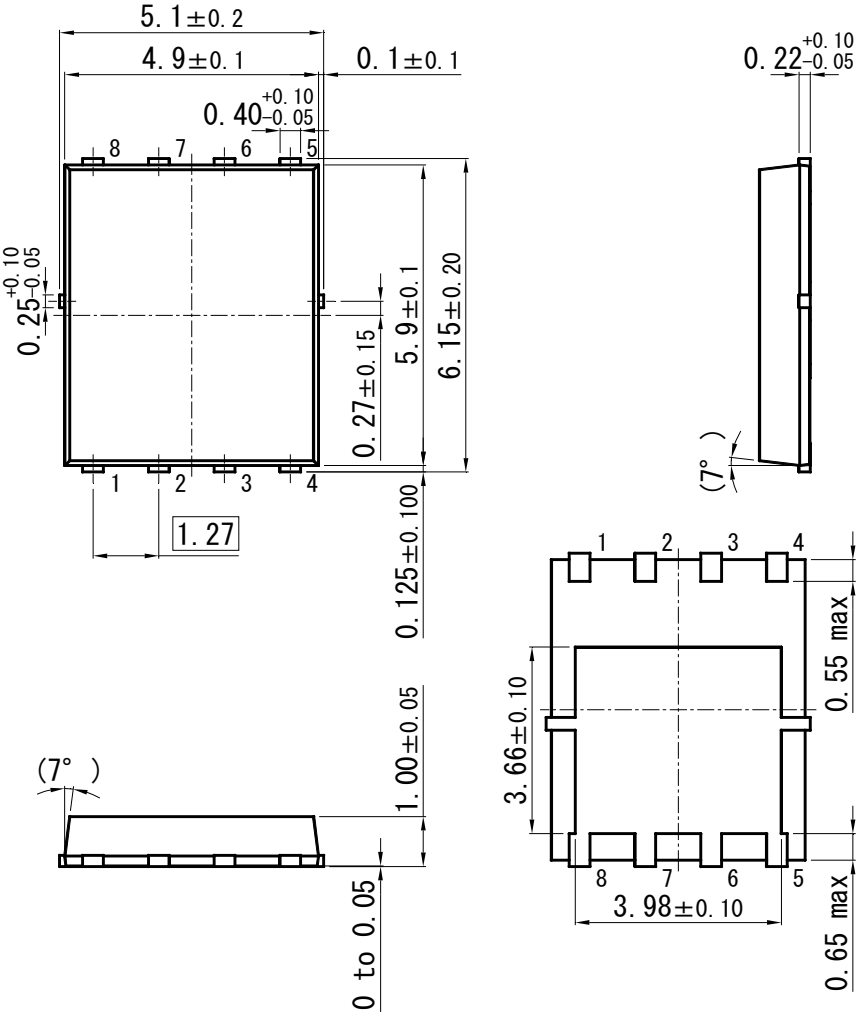
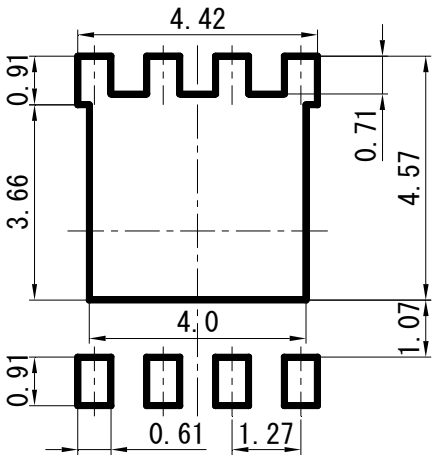


■ Land Pattern (Reference) (Unit : mm)



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