

SK8603190L

Silicon N-channel MOS FET

For Load-switching / For DC-DC Converter

■ Features

- Low Drain-source On-state Resistance : $R_{DS(on)}$ typ = 10 m Ω (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)

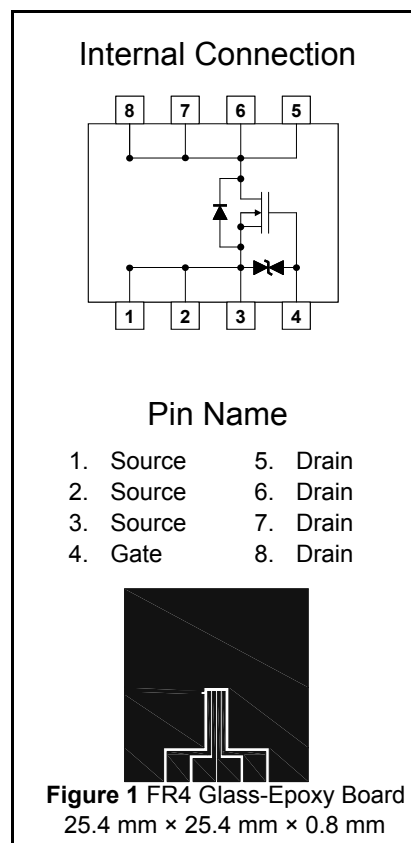
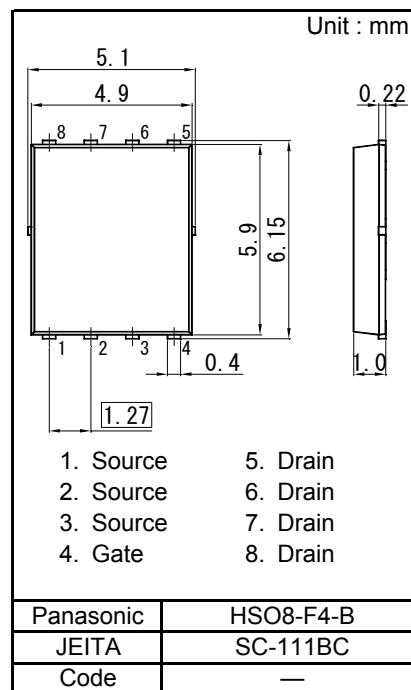
■ Absolute Maximum Ratings $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Rating	Unit	
Drain to Source Voltage	VDS	30	V	
Gate to Source Voltage	VGS	± 20		
Drain Current	ID	$T_a = 25\text{ }^\circ\text{C}$, $t = 10\text{ s}^{-1}$	16	A
		$T_a = 25\text{ }^\circ\text{C}$, DC ^{*1}	12	
		$T_c = 25\text{ }^\circ\text{C}$	19	
		Pulsed, $T_{ch} < 150\text{ }^\circ\text{C}$ ^{*2}	48	
Total Power Dissipation	PD	$T_a = 25\text{ }^\circ\text{C}$, DC ^{*1}	2.7	W
		$T_c = 25\text{ }^\circ\text{C}$	19	
Thermal Resistance	Channel to Ambient	$R_{th(ch-a)}$	45	$^\circ\text{C} / \text{W}$
	Channel to Case	$R_{th(ch-c)}$	6.6	
Channel Temperature	T_{ch}	150	$^\circ\text{C}$	
Operating ambient temperature	T_{opr}	-40 to +85		
Storage Temperature Range	T_{stg}	-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 $^\circ\text{C}$

*3 VDD = 24 V, VGS = 10 to 0 V, L = 0.1 mH, $T_{ch} = 25\text{ }^\circ\text{C}$ (initial)



■ 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

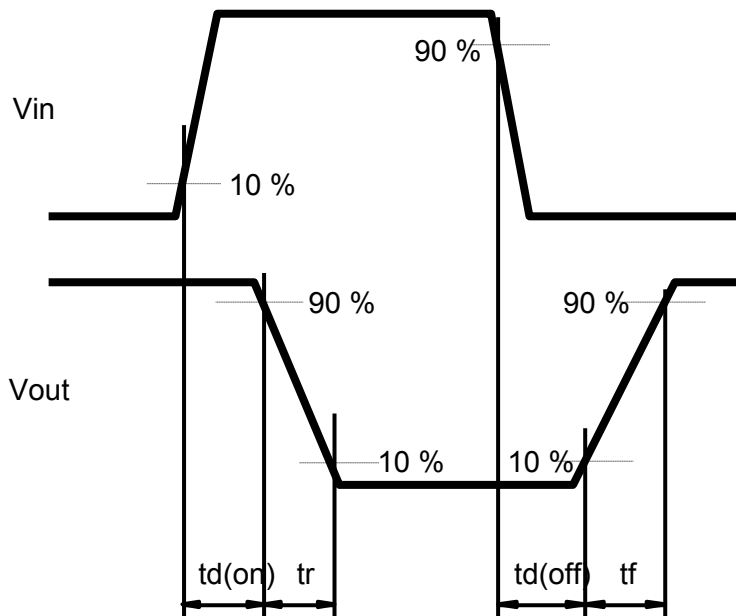
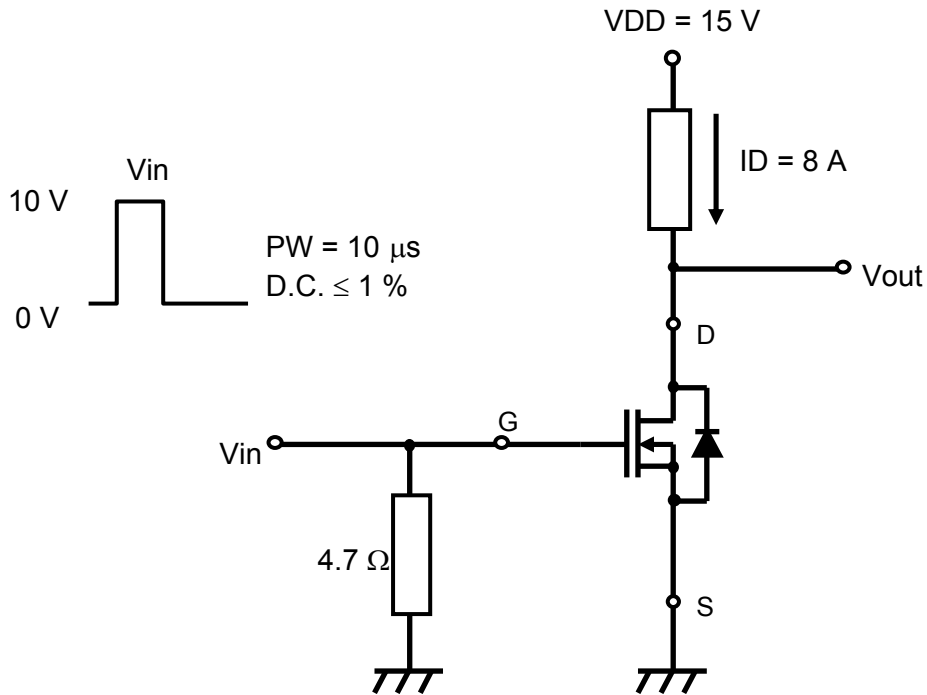
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	Ciss	VDS = 10 V, VGS = 0 V f = 1 MHz		780	1 092	pF
Output Capacitance	Coss			160	224	
Reverse Transfer Capacitance	Crss			61	98	
Turn-on Delay Time ^{*1}	td(on)	VDD = 15 V, VGS = 0 to 10 V		7		ns
Rise Time ^{*1}	tr	ID = 8 A		3		
Turn-off Delay Time ^{*1}	td(off)	VDD = 15 V, VGS = 10 to 0 V		34		ns
Fall Time ^{*1}	tf	ID = 8 A		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

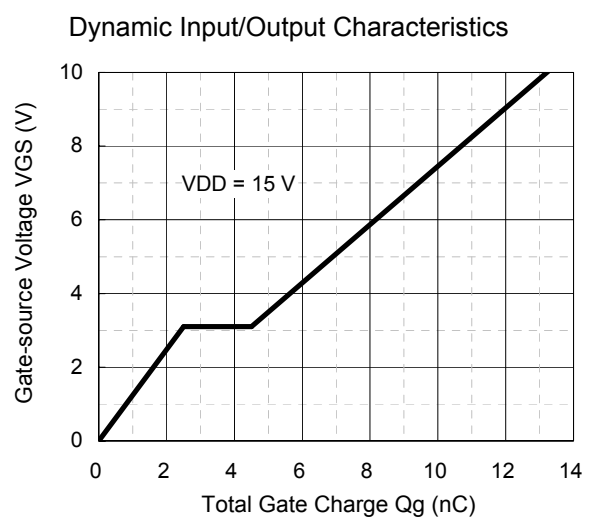
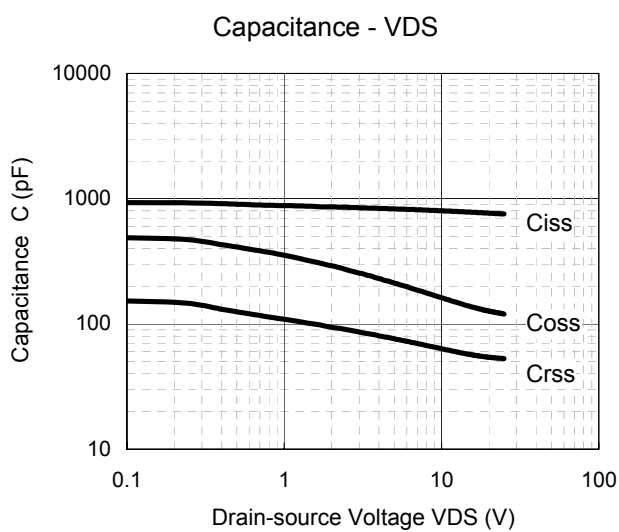
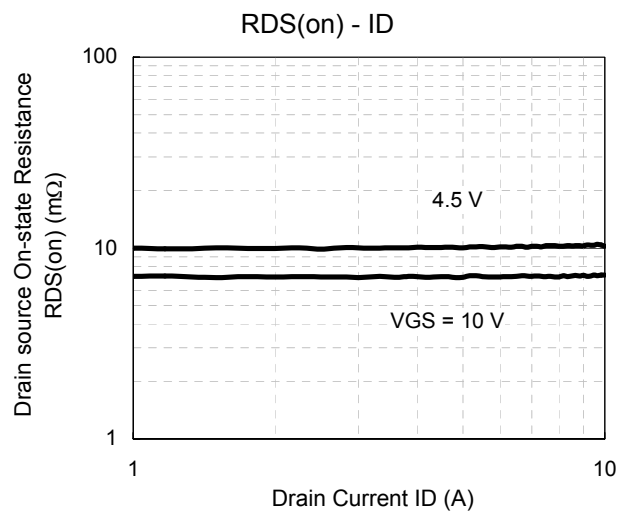
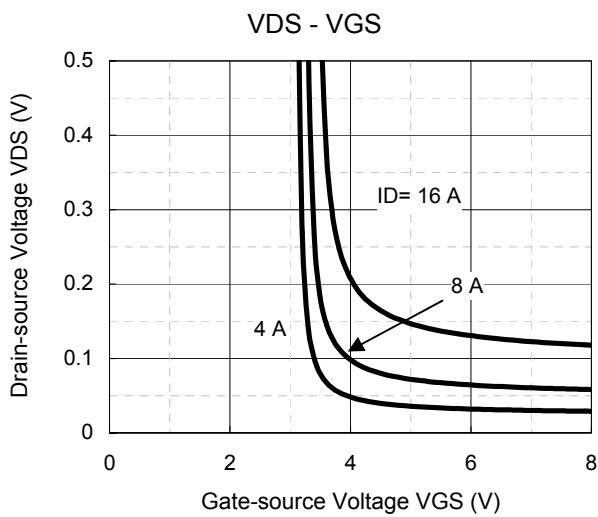
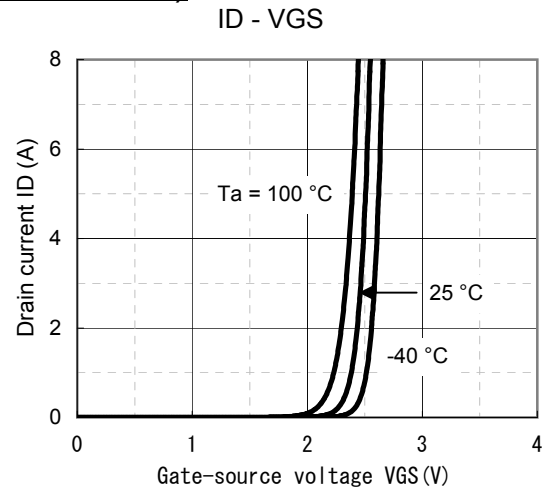
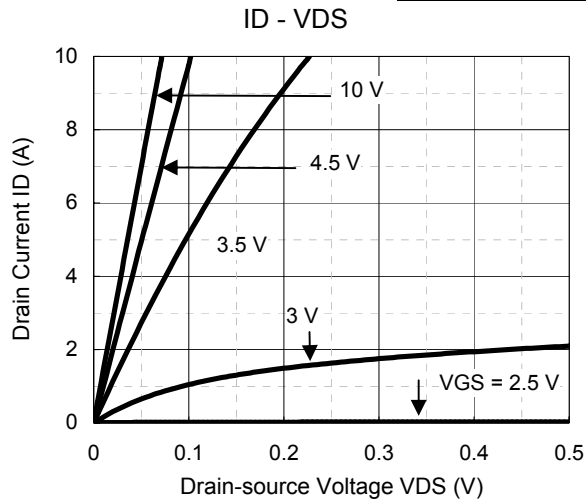
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	VSD	IS = 8 A, VGS = 0 V		0.8	1.2	V

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

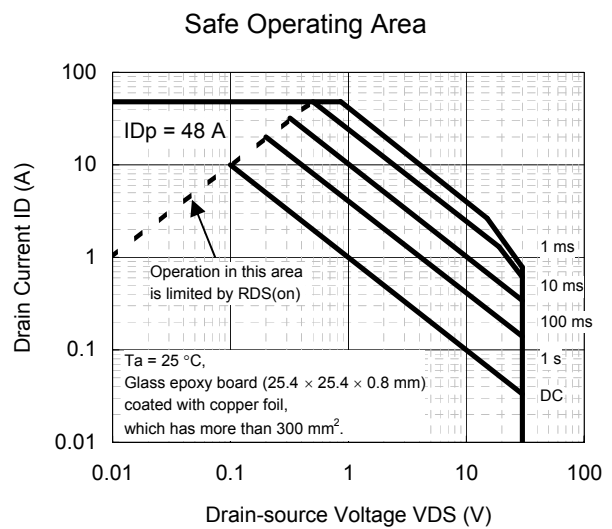
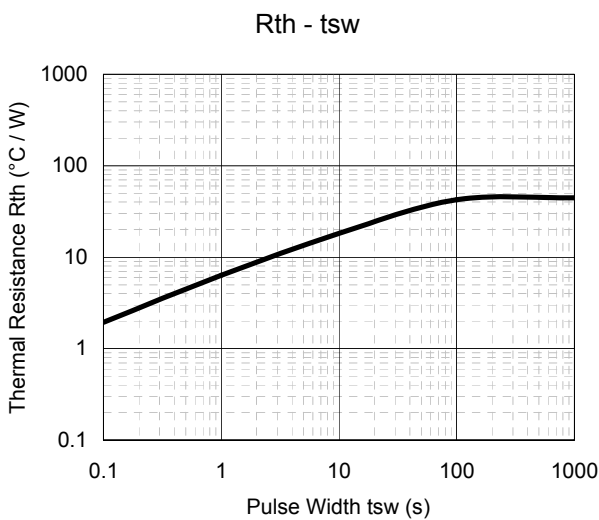
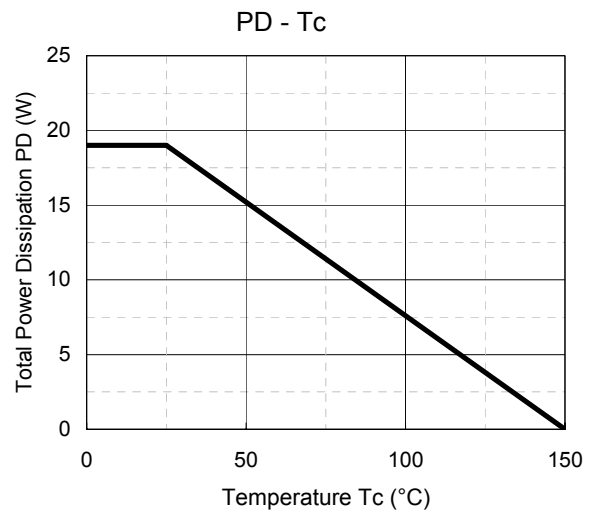
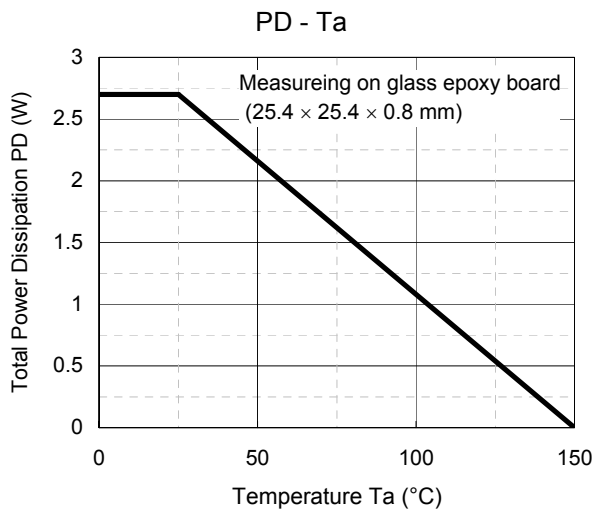
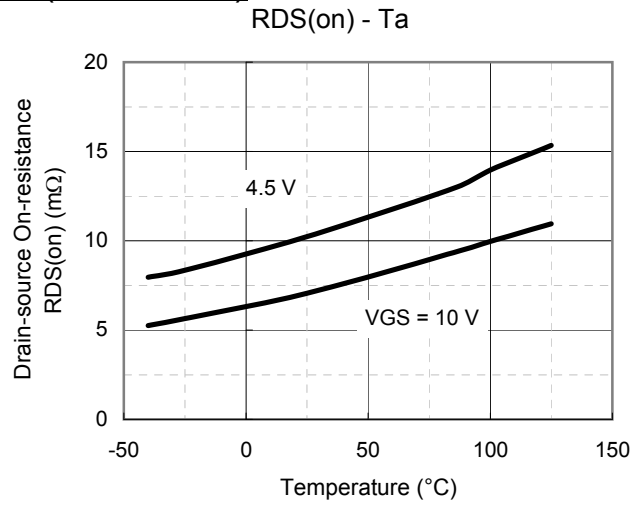
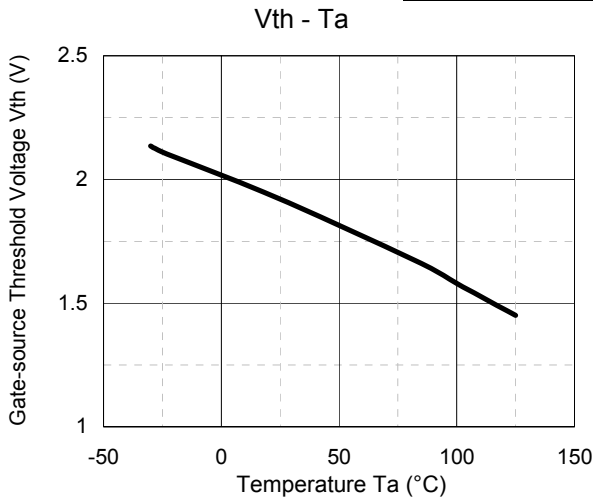
*1 Measurement circuit for Turn-on Delay Time / Rise Time / Turn-off Delay Time / Fall Time



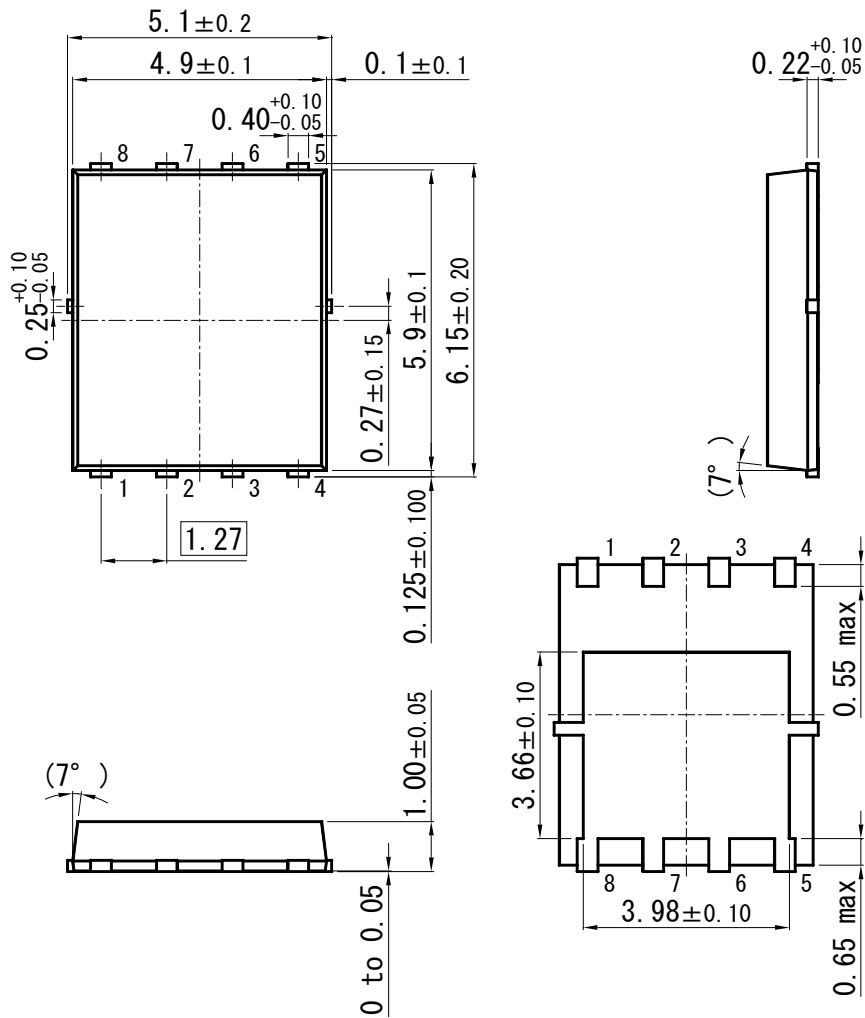
Technical Data (reference)



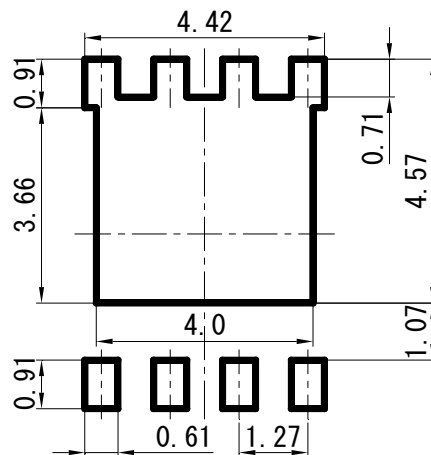
Technical Data (reference)



HSO8-F4-B



■ Land Pattern (Reference) (Unit : mm)



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