

SK8603180L

Silicon N-channel MOSFET

For Load-switching / For DC-DC Converter

■ Features

- Low Drain-source On-state Resistance : $R_{DS(on)}$ typ = 6.7 mΩ (VGS = 4.5 V)
- Halogen-free / RoHS compliant
 (EU RoHS / UL-94 V-0 / MSL : Level 1 compliant)

■ Marking Symbol : 18

■ Packaging

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

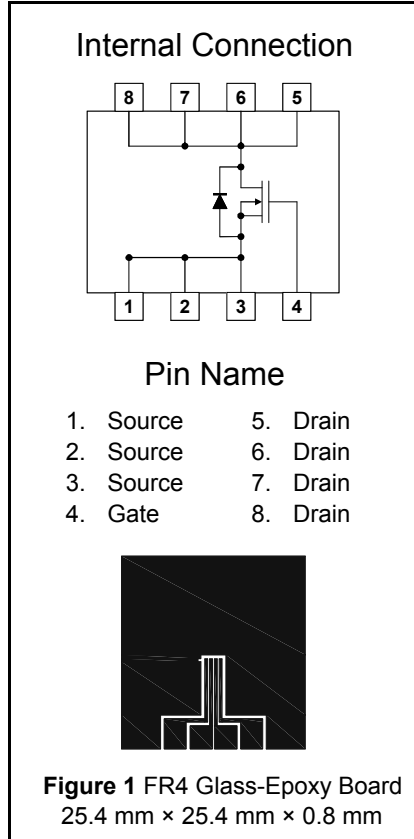
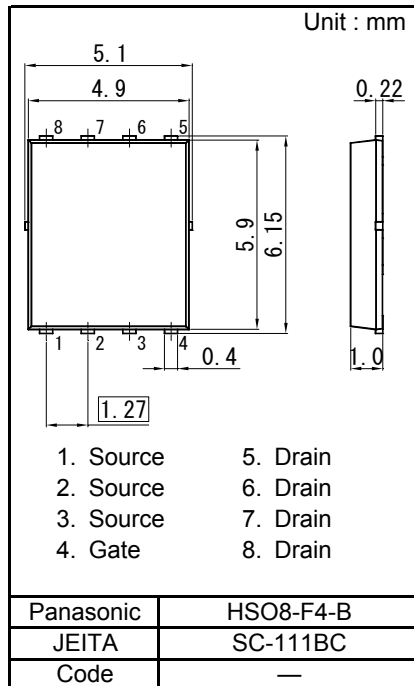
■ Absolute Maximum Ratings Ta = 25 °C

Parameter	Symbol	Rating	Unit	
Drain to Source Voltage	VDS	30	V	
Gate to Source Voltage	VGS	±20		
Drain Current	ID	Ta = 25 °C, t = 10 s ^{*1}	20	A
		Ta = 25 °C, DC ^{*1}	15	
		Tc = 25 °C	39	
		Pulsed, Tch < 150 °C ^{*2}	60	
Total Power Dissipation	PD	Ta = 25 °C, DC ^{*1}	2.4	W
		Tc = 25 °C	19	
Thermal Resistance	Channel to Ambient	Rth(ch-a)	51	°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	10	A	
Avalanche Energy (Single pulse) ^{*3}	EAR	12	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)



■ 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 = 1.45 mA, VDS = 10 V	1.3		3	V
Drain-source On-state Resistance	RDS(on)1	ID = 10 A, VGS = 10 V		5.1	7.1	mΩ
	RDS(on)2	ID = 10 A, VGS = 4.5 V		6.7	9.8	

Dynamic Characteristics

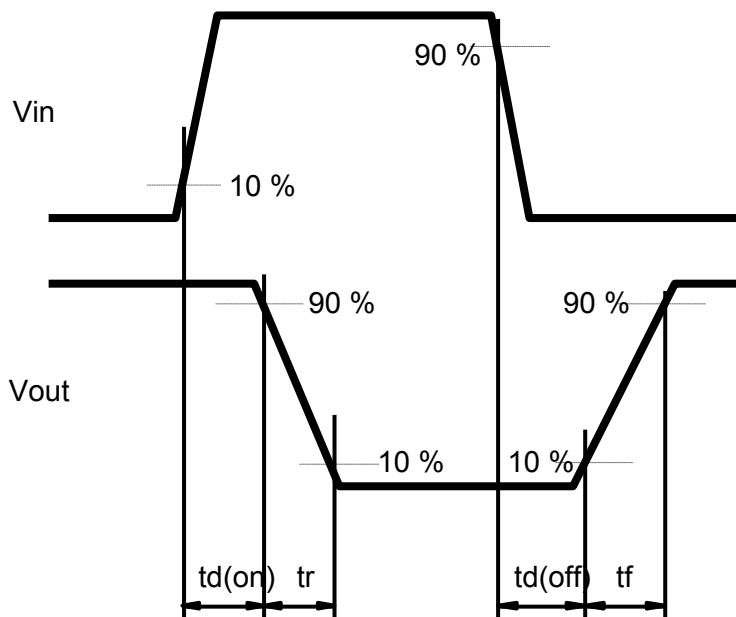
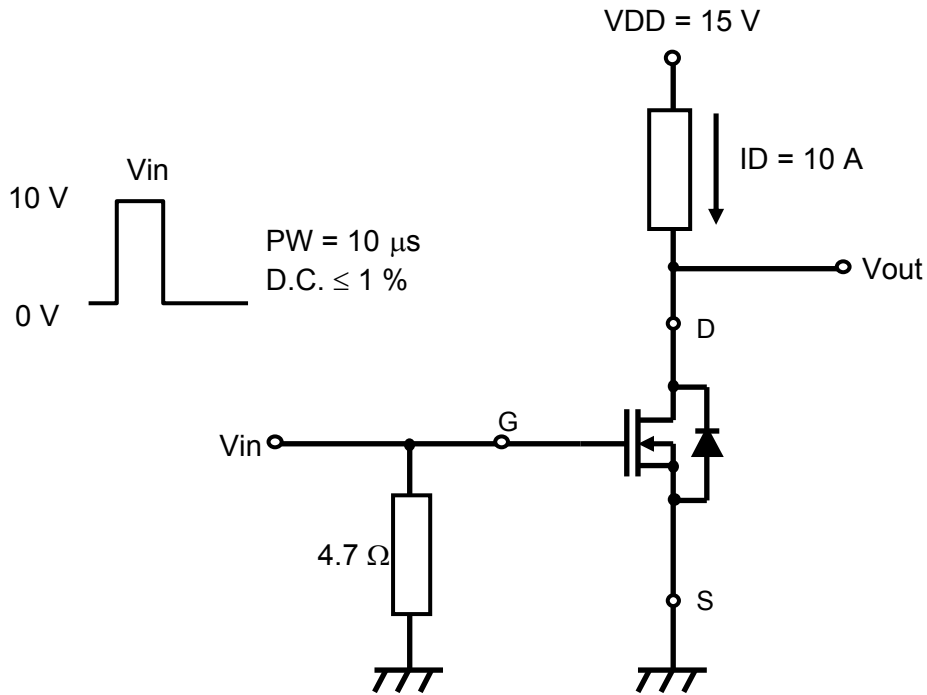
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	Ciss	VDS = 10 V, VGS = 0 V f = 1 MHz		1 200	1 680	pF
Output Capacitance	Coss			140	196	
Reverse Transfer Capacitance	Crss			100	160	
Turn-on Delay Time ^{*1}	td(on)	VDD = 15 V, VGS = 0 to 10 V		8		ns
Rise Time ^{*1}	tr	ID = 10 A		6		
Turn-off Delay Time ^{*1}	td(off)	VDD = 15 V, VGS = 10 to 0 V		39		ns
Fall Time ^{*1}	tf	ID = 10 A		6		
Total Gate Charge	Qg	VDD = 15 V, VGS = 0 to 4.5 V ID = 10 A		9.2		nC
Gate to Source Charge	Qgs			3		
Gate to Drain Charge	Qgd			3.5		
Gate resistance	rg	f = 5 MHz		1.4	3	Ω

Body Diode Characteristic

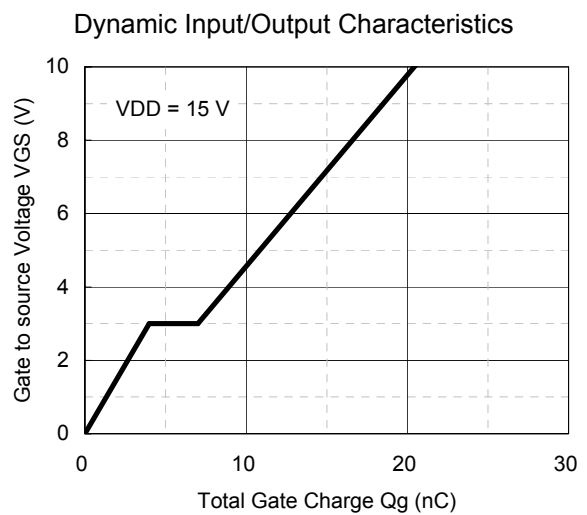
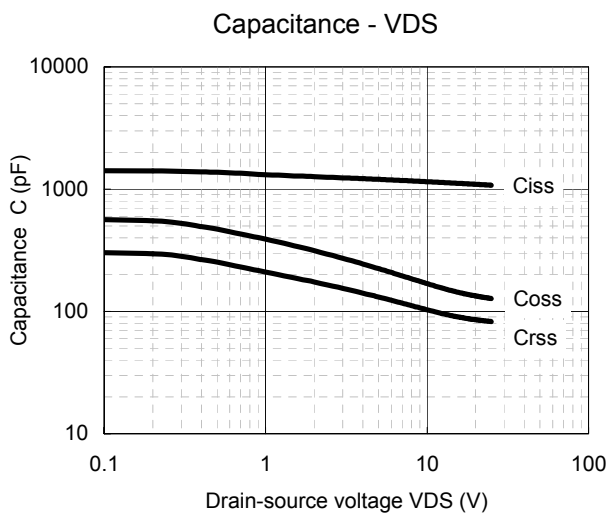
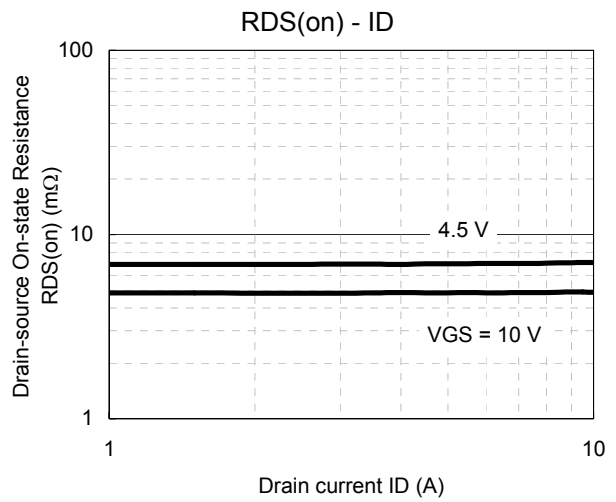
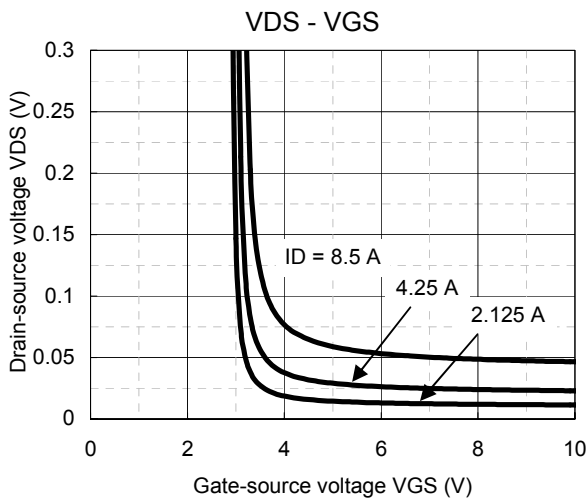
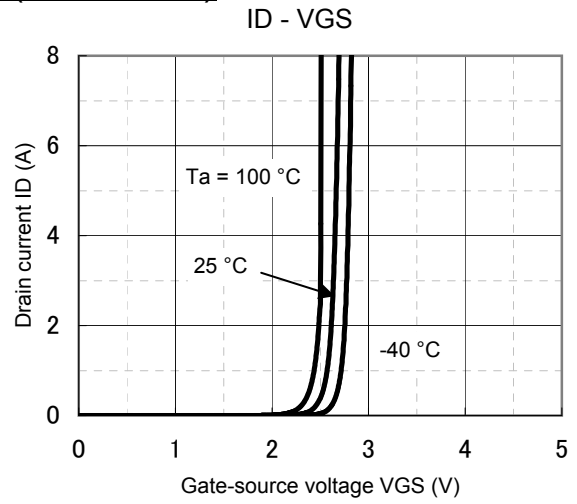
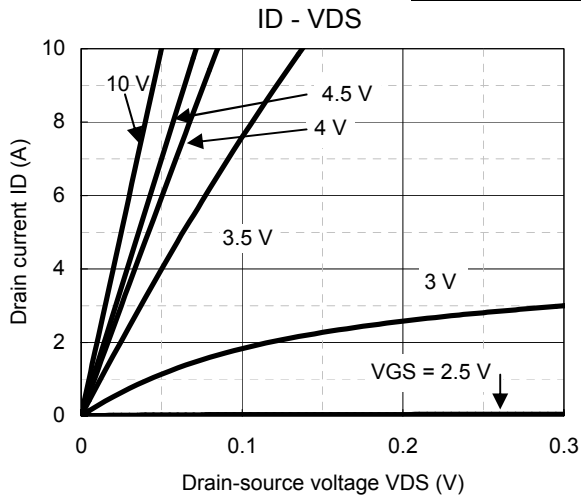
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	VSD	IS = 10 A, VGS = 0 V		0.8	1.2	V

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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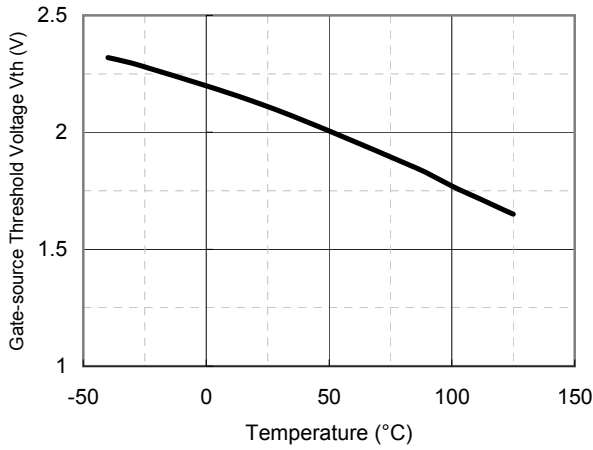


Technical Data (reference)

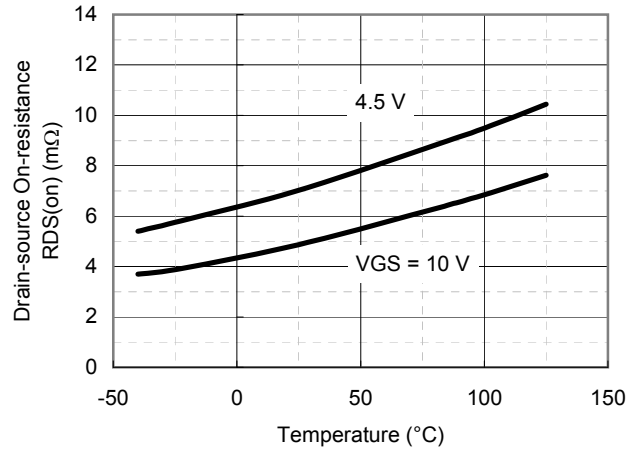


Technical Data (reference)

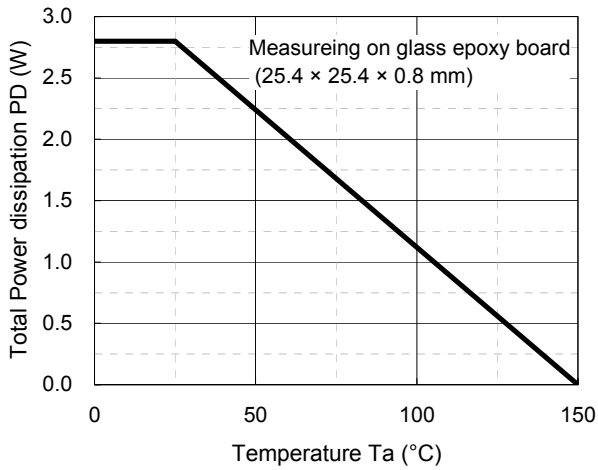
Vth - Ta



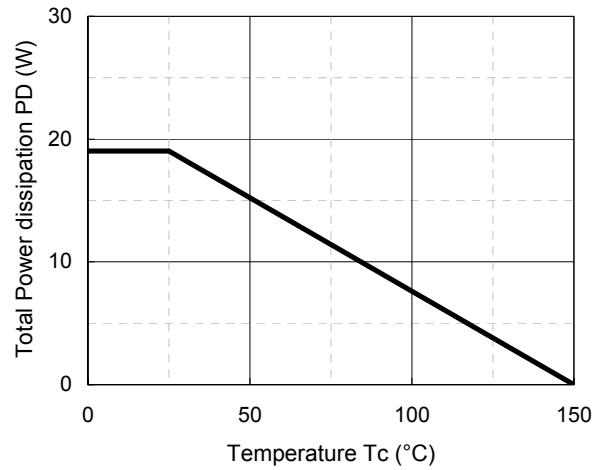
RDS(on) - Ta



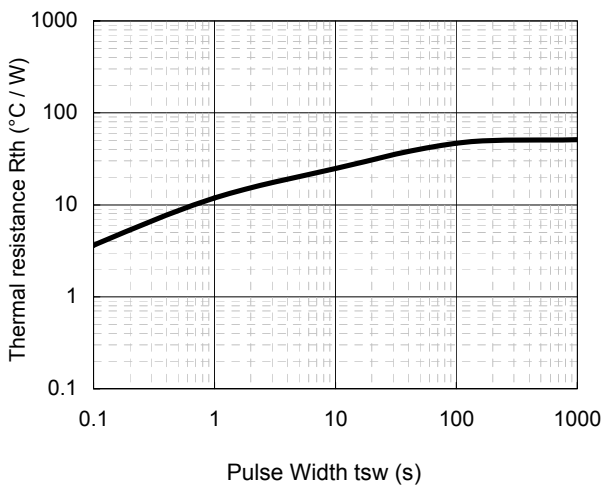
PD - Ta



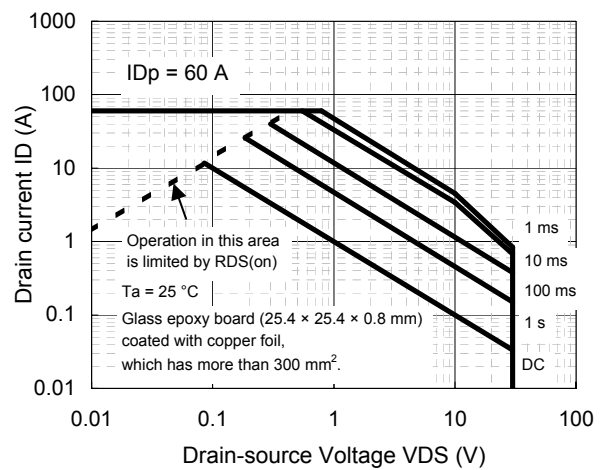
PD - Tc



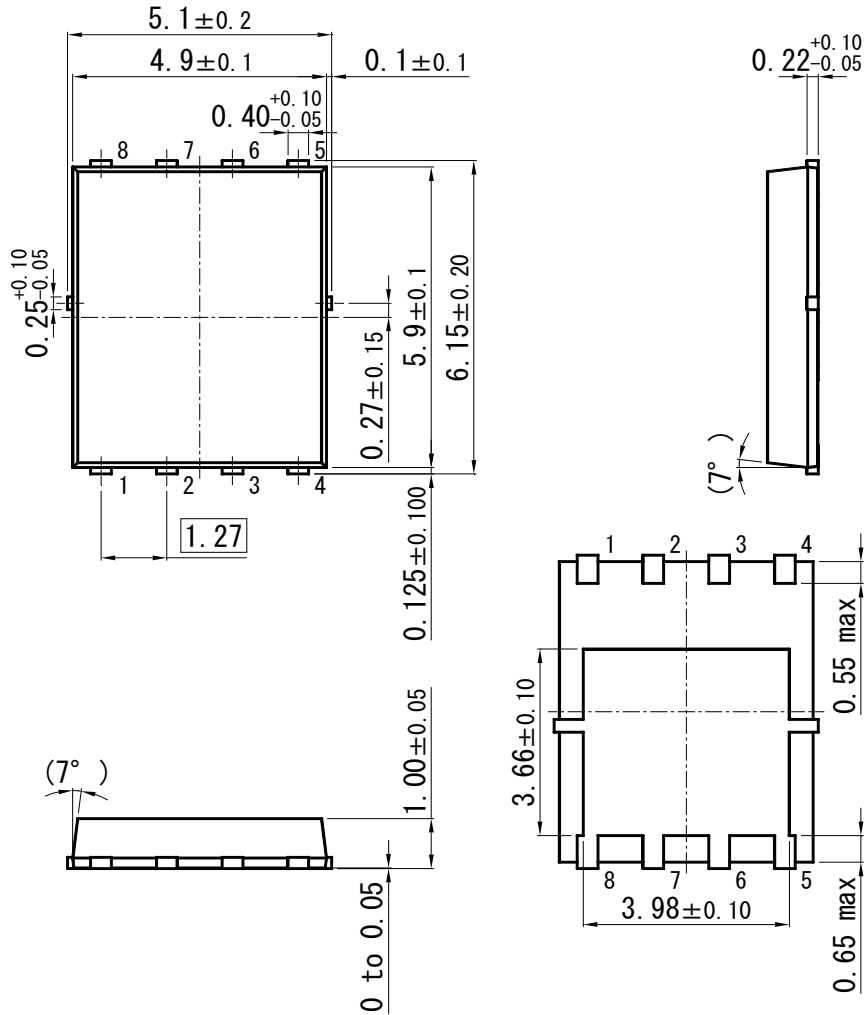
Rth - tsw



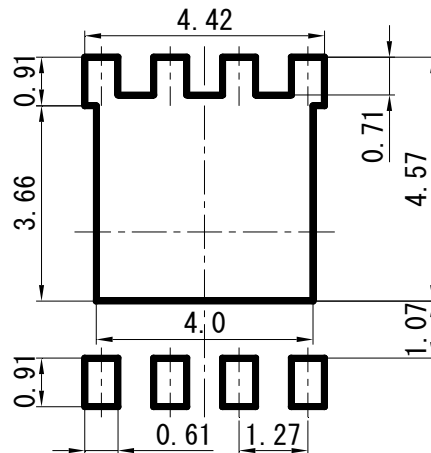
Safe Operating Area



HSO8-F4-B



■ Land Pattern (Reference) (Unit : mm)



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