

SK830321KL

Silicon N-channel MOS FET

For Load-switching / For DC-DC Converter

■ Features

- Low Drain-source On-state Resistance: $R_{DS(on)}$ typ = 24 m Ω (VGS = 4.5 V)
- Halogen-free / RoHS compliant
(EU RoHS / UL-94 V-0 / MSL:Level 1 compliant)

■ Marking Symbol: 21

■ Packaging

Embossed type (Thermo-compression sealing) : 5 000 pcs / reel (standard)

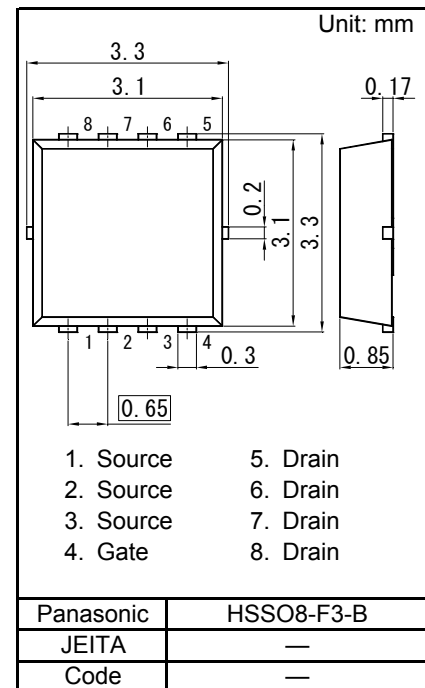
■ Absolute Maximum Ratings Ta = 25 °C

Parameter		Symbol	Rating	Unit
Drain to Source Voltage		VDS	30	V
Gate to Source Voltage		VGS	±20	
Drain Current	Ta=25 °C, t =10 s ^{*1}	ID	9	A
	Ta=25 °C, DC ^{*1}		7	
	Tc=25 °C		18	
	Pulsed, Tch<150 °C ^{*2}		27	
Total Power Dissipation	Ta=25 °C, DC ^{*1}	PD	2	W
	Tc=25 °C		13	
Thermal Resistance	Channel to Ambient	Rth(ch-a)	62.5	°C / W
	Channel to Case	Rth(ch-c)	9.2	
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	4.5	A
Avalanche Energy (Single pulse) ^{*3}		EAR	2.5	mJ

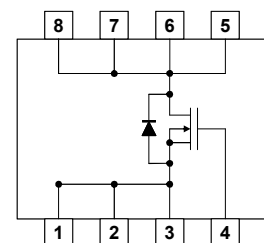
Note *1 Device mounted on a glass-epoxy board in Figure 1

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

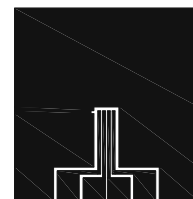


Figure 1 FR4 Glass-Epoxy Board
25.4 mm × 25.4 mm × 0.8 mm

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

Static Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	VDSS	ID = 1.0 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 = 519 μA, VDS = 10 V	1.3		3	V
Drain-source On-state Resistance	RDS(on)1	ID = 4.5 A, VGS = 10 V		17	24	mΩ
	RDS(on)2	ID = 4.5 A, VGS = 4.5 V		24	30	

Dynamic Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	Ciss	VDS = 10 V, VGS = 0 V, f = 1 MHz		470	658	pF
Output Capacitance	Coss			69	97	
Reverse Transfer Capacitance	Crss			38	61	
Turn-on Delay Time ^{*1}	td(on)	VDD = 15 V, VGS = 0 to 10 V		4		ns
Rise Time ^{*1}	tr	ID = 4.5 A		3		
Turn-off Delay Time ^{*1}	td(off)	VDD = 15 V, VGS = 10 to 0 V		31		ns
Fall Time ^{*1}	tf	ID = 4.5 A		5		
Total Gate Charge	Qg	VDD = 15 V, VGS = 0 to 4.5 V ID = 4.5 A		3.9		nC
Gate to Source Charge	Qgs			1.4		
Gate to Drain Charge	Qgd			1.7		
Gate Resistance	rg	f = 5 MHz		1.9	3	Ω

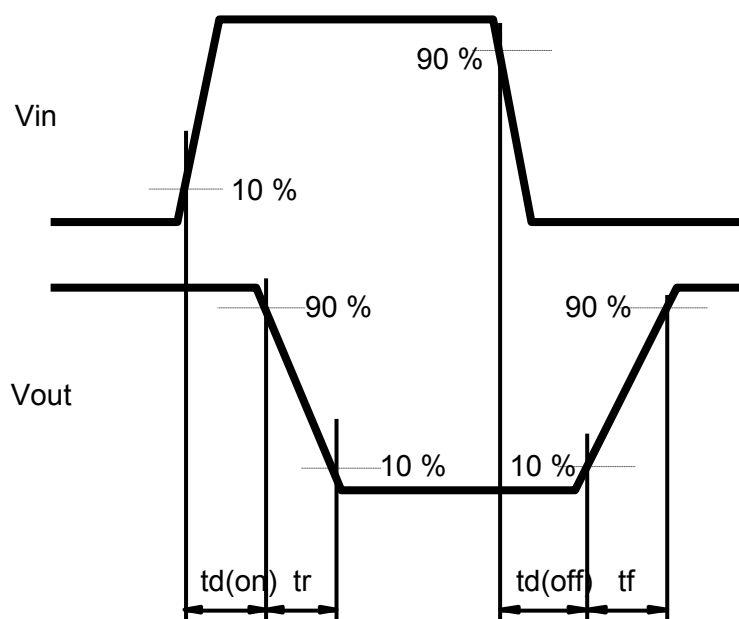
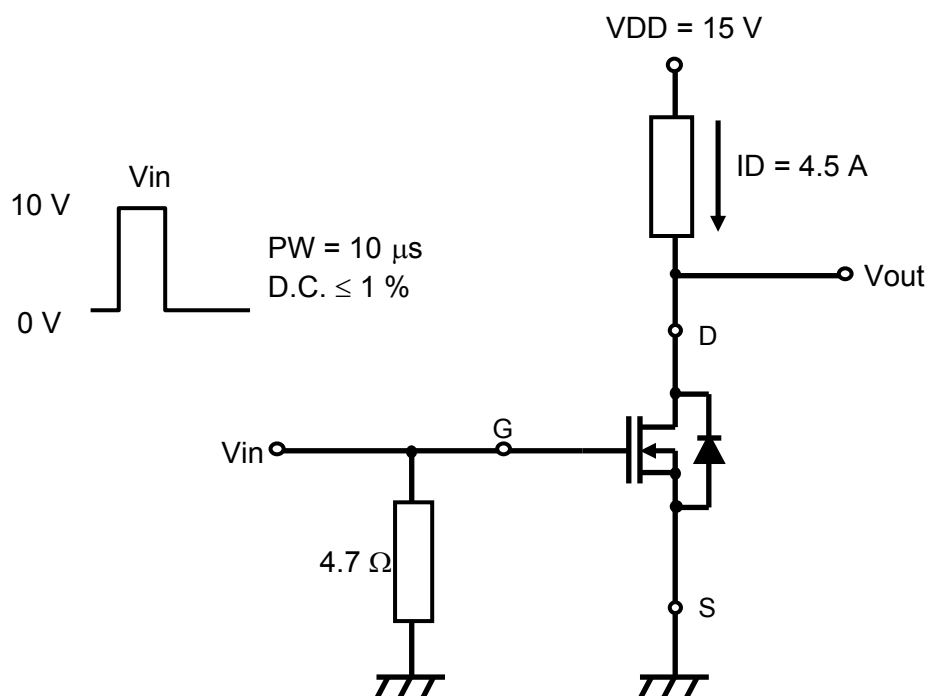
Body Diode Characteristic

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	VSD	IS = 4.5 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.

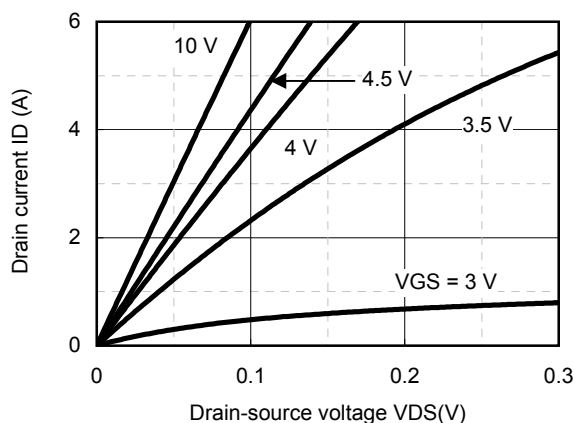
2. ^{*1} Measurement circuit for Turn-on Delay Time/Rise Time/Turn-off Delay Time/Fall Time

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

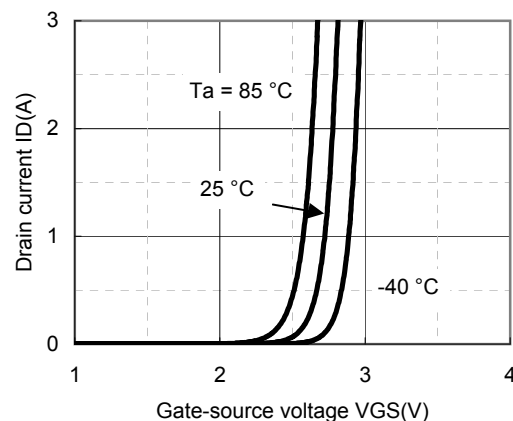


Technical Data (reference)

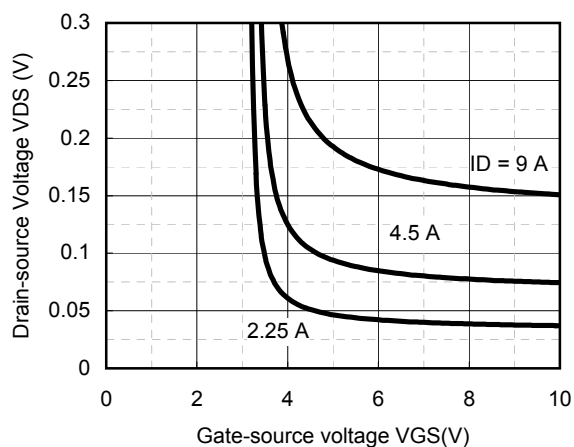
ID - VDS



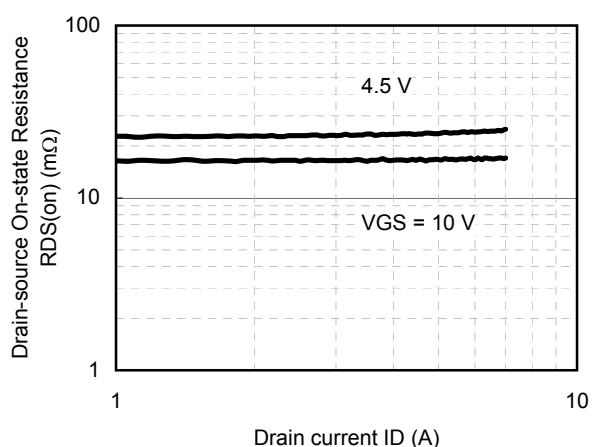
ID - VGS



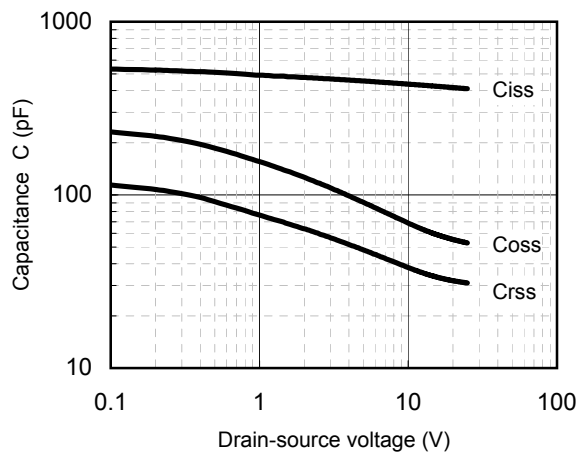
VDS - VGS



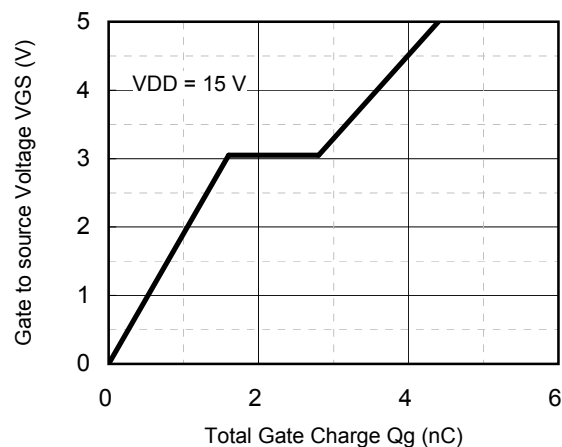
RDS(on) - ID



Capacitance - VDS

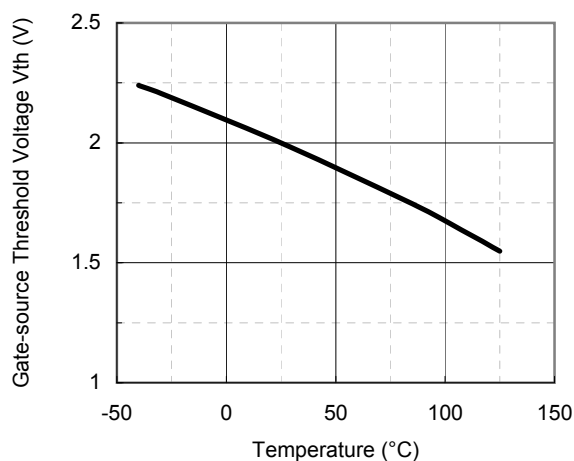


Dynamic Input/Output Characteristics

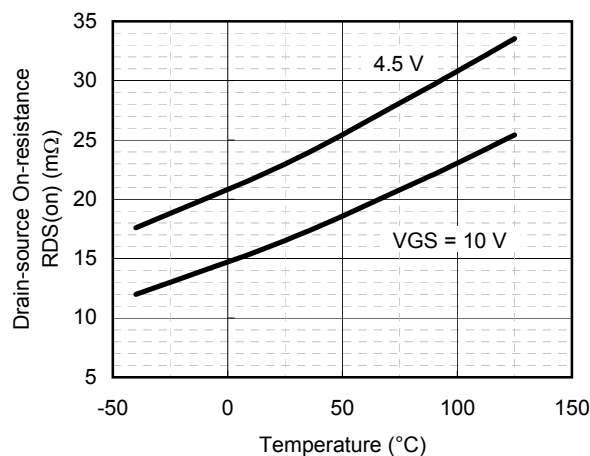


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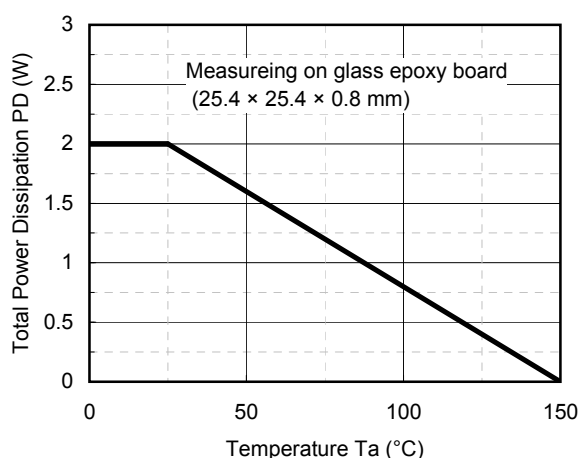
V_{th} - T_a



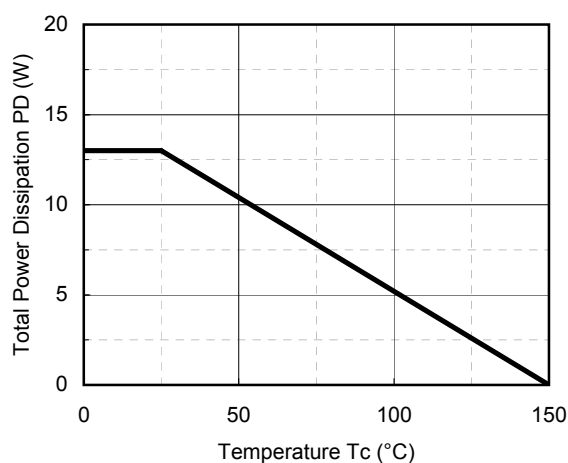
R_{DS(on)} - T_a



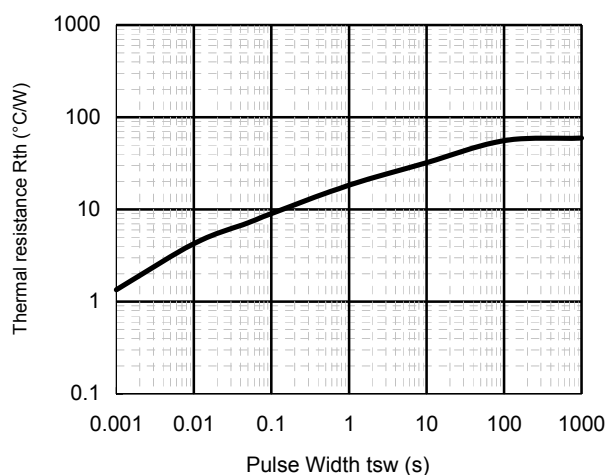
PD - T_a



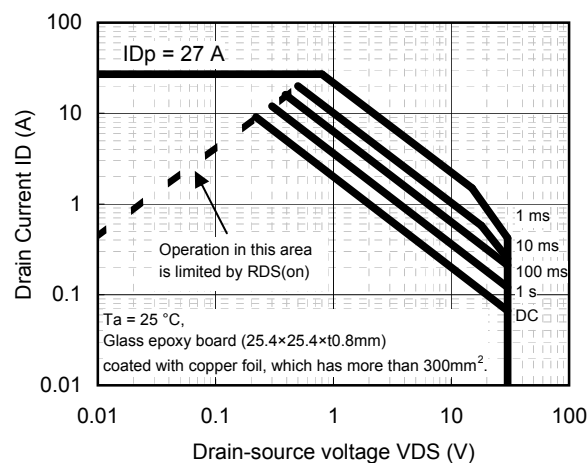
PD - T_c



R_{th} - t_{sw}



Safe Operating Area

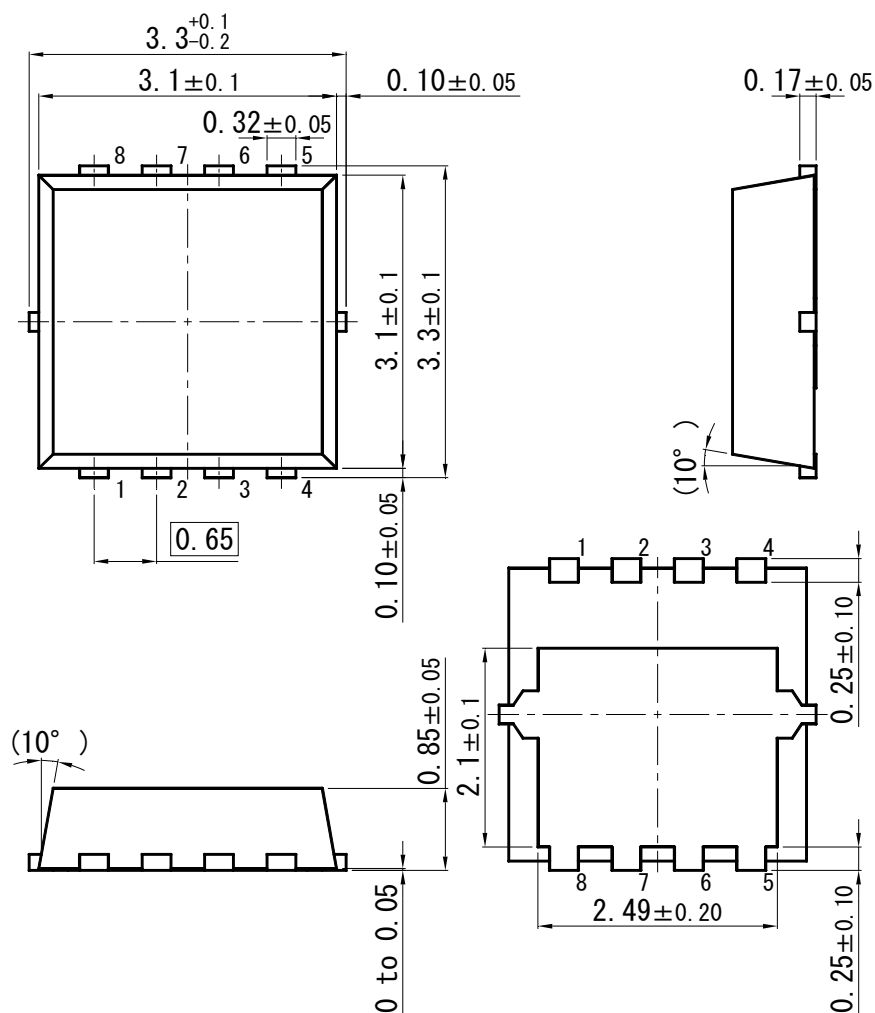


Panasonic

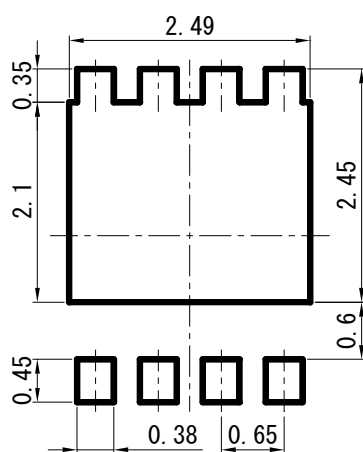
MOS FET
SK830321KL

HSSO8-F3-B

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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