

Panasonic

MOS FET
SK8403170L

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Silicon N-channel MOS FET

For Load-switching / For DC-DC Converter

■ Features

- Low Drain-source On-state Resistance : $R_{DS(on)}$ typ = 3.9 m Ω (VGS = 4.5 V)
- Halogen-free / RoHS compliant
(EU RoHS / UL-94 V-0 / MSL : Level 1 compliant)

■ Marking Symbol : 17

■ Packaging

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

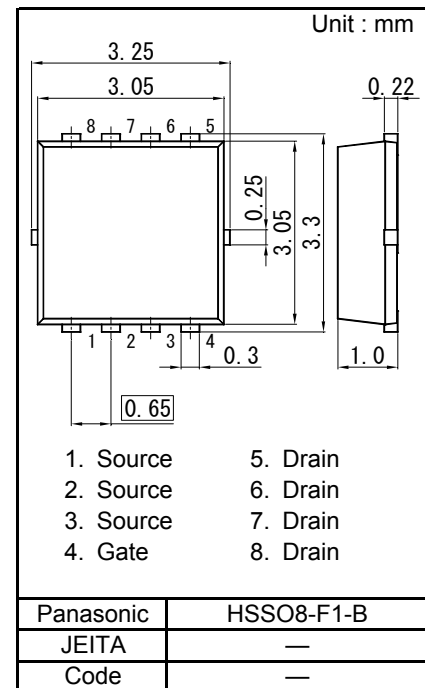
■ Absolute Maximum Ratings Ta = 25 °C

Parameter		Symbol	Rating	Unit
Drain to Source Voltage		VDS	30	V
Gate to Source Voltage		VGS	±20	
Drain Current	Ta = 25 °C, t = 10 s ^{*1}	ID	24	A
	Ta = 25 °C, DC ^{*1}		16	
	Tc = 25 °C		59	
	Pulsed, Tch < 150 °C ^{*2}		72	
Total Power Dissipation	Ta = 25 °C, DC ^{*1}	PD	2	W
	Tc = 25 °C		24.6	
Thermal Resistance	Channel to Ambient	Rth(ch-a)	62.5	°C / W
	Channel to Case	Rth(ch-c)	5.1	
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	12	A
Avalanche Energy (Single pulse) ^{*3}		EAR	18	mJ

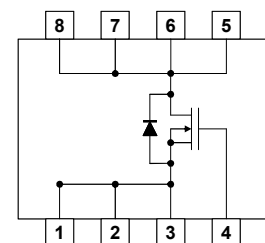
Note *1 Device mounted on a glass-epoxy board in Figure 1

*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 |

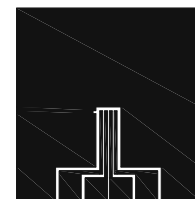


Figure 1 FR4 Glass-Epoxy Board
25.4 mm × 25.4 mm × 0.8 mm

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

Static Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	VDSS	ID = 1 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 = 2.56 mA, VDS = 10 V	1.3		3	V
Drain-source On-state Resistance	RDS(on)1	ID = 12 A, VGS = 10 V		2.9	4.1	mΩ
	RDS(on)2	ID = 12 A, VGS = 4.5 V		3.9	5.8	

Dynamic Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	Ciss	VDS = 10 V, VGS = 0 V f = 1 MHz		2 100	2 940	pF
Output Capacitance	Coss			250	350	
Reverse Transfer Capacitance	Crss			180	290	
Turn-on Delay Time ^{*1}	td(on)	VDD = 15 V, VGS = 0 to 10 V		11		ns
Rise Time ^{*1}	tr	ID = 12 A		10		
Turn-off Delay Time ^{*1}	td(off)	VDD = 15 V, VGS = 10 to 0 V		48		ns
Fall Time ^{*1}	tf	ID = 12 A		7		
Total Gate Charge	Qg	VDD = 15 V, VGS = 0 to 4.5 V ID = 12 A		17		nC
Gate to Source Charge	Qgs			6		
Gate to Drain Charge	Qgd			7		
Gate resistance	rg	f = 5 MHz		1.2	3	Ω

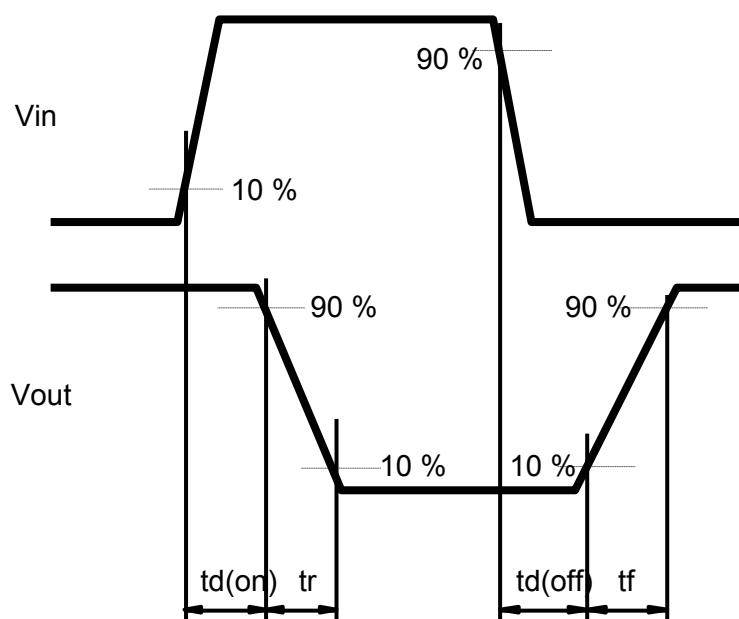
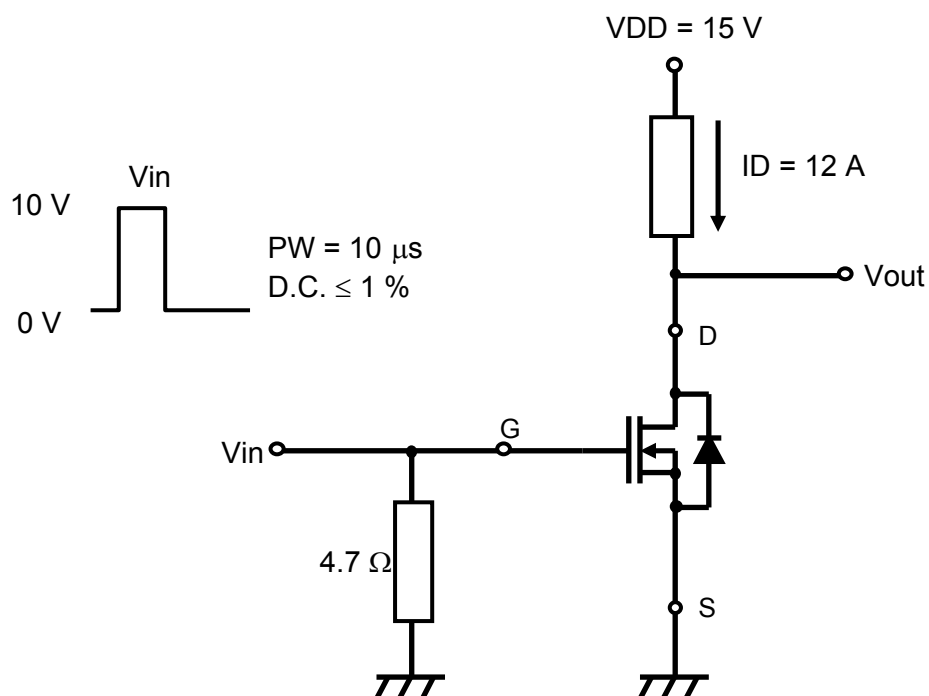
Body Diode Characteristic

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	VSD	IS = 12 A, VGS = 0 V		0.8	1.2	V

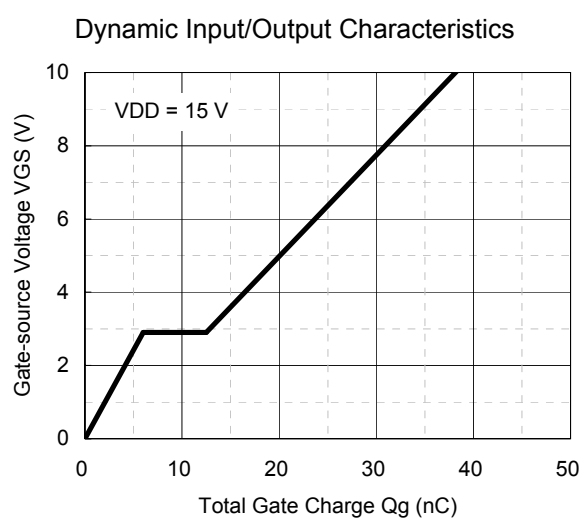
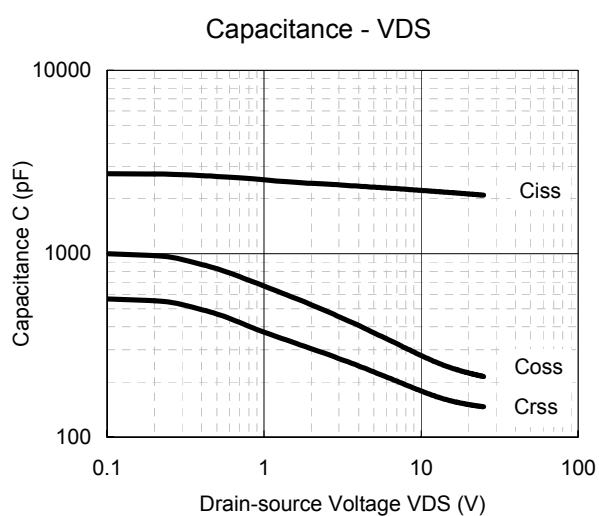
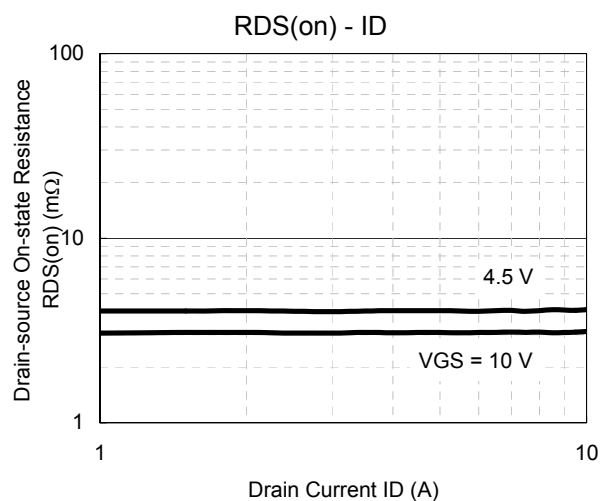
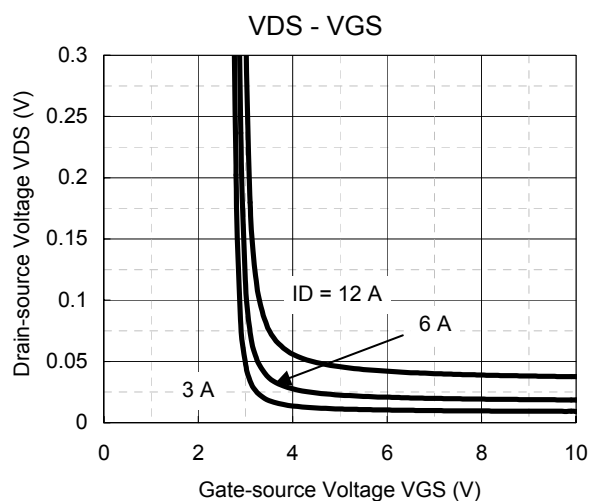
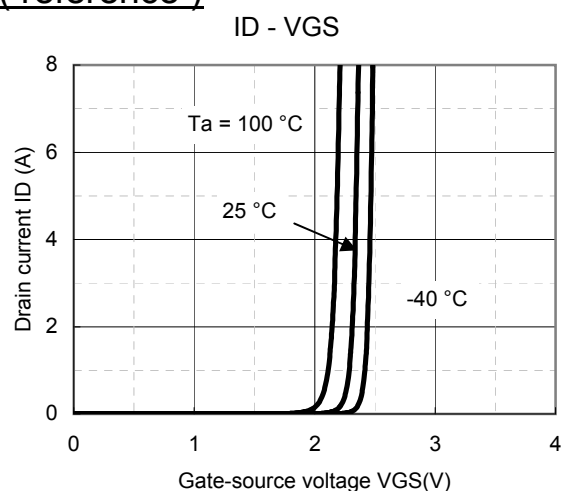
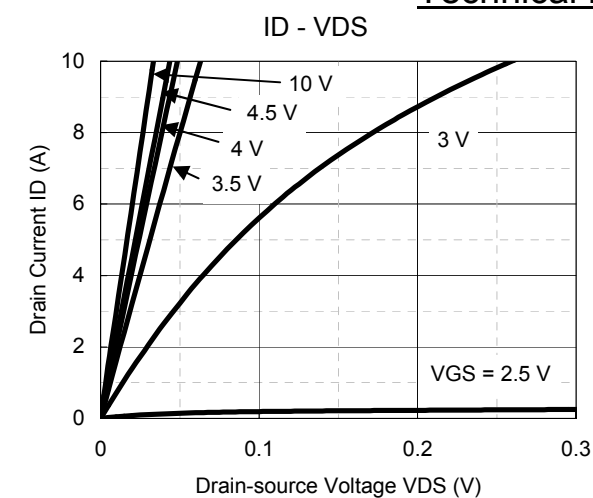
Note : 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.

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

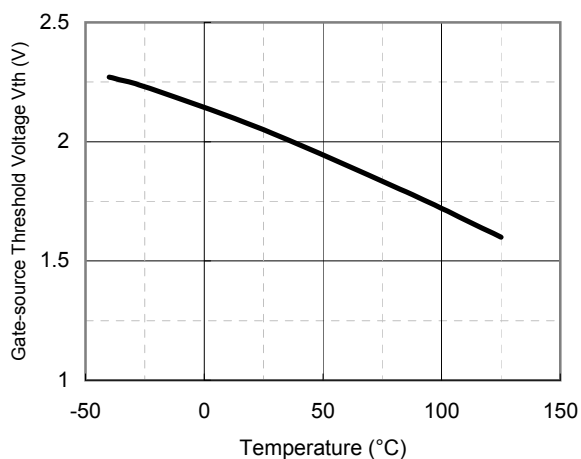


Technical Data (reference)

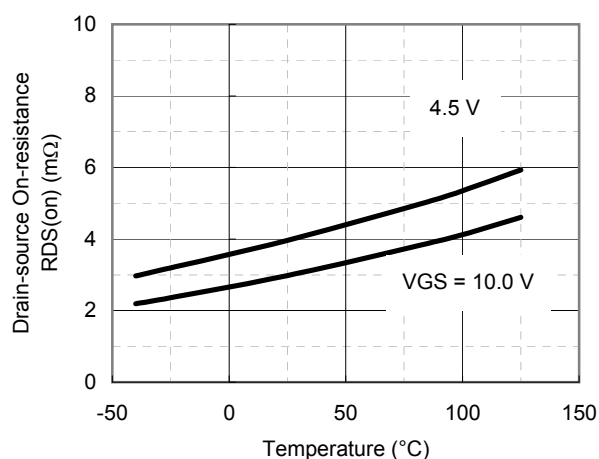


Technical Data (reference)

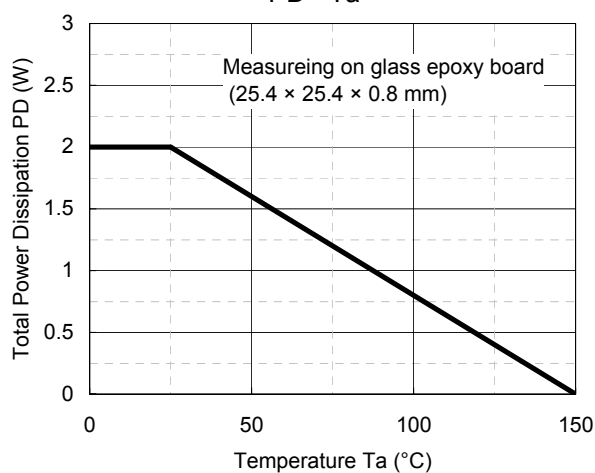
V_{th} - T_a



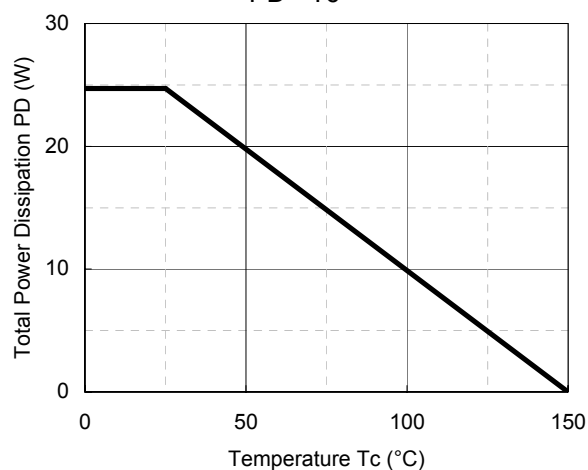
R_{DS(on)} - T_a



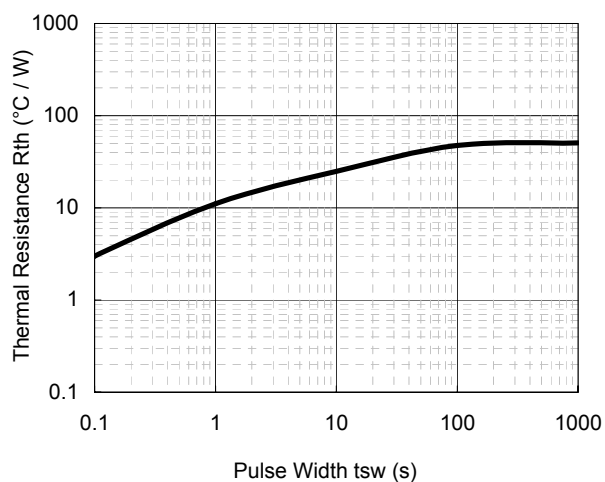
PD - T_a



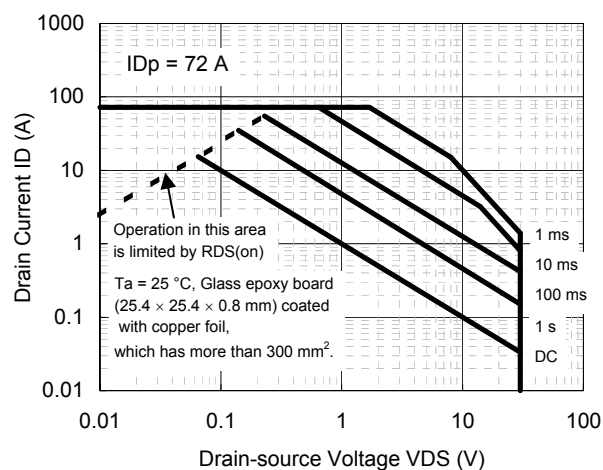
PD - T_c



R_{th} - t_{sw}



Safe Operating Area

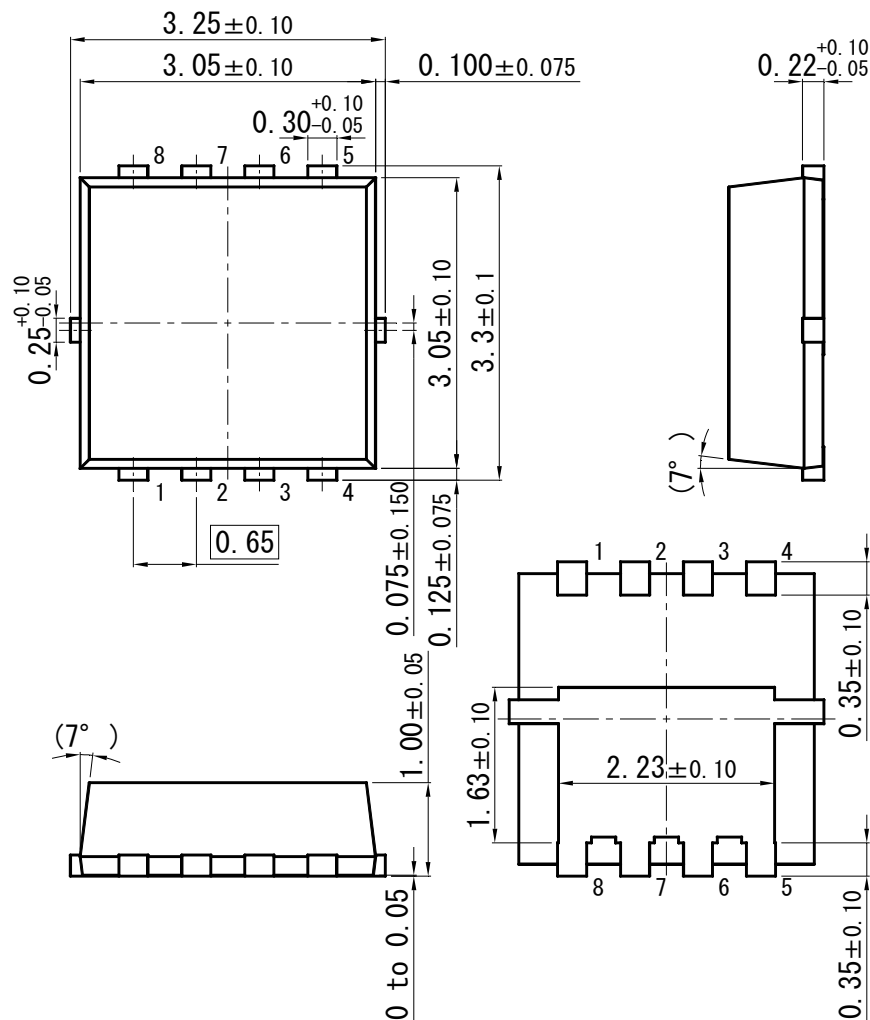


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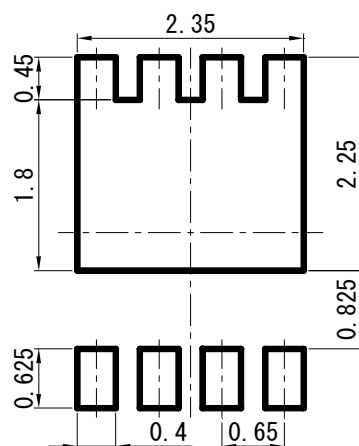
MOS FET
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HSSO8-F1-B

Unit: mm



■ Land Pattern (Reference) (Unit : mm)



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