Panasonic

SK8603140L

Silicon N-channel MOS FET

For Load-switching / For DC-DC Converter

■ Features

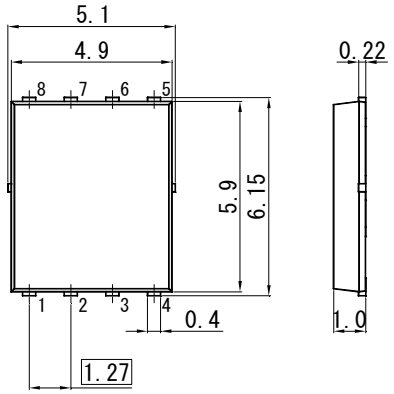
- Low Drain-source On-state Resistance : RDS(on) typ = 1.8 mΩ (VGS = 4.5 V)
- Halogen-free / RoHS compliant
  (EU RoHS / UL-94 V-0 / MSL : Level 1 compliant)

■ Marking Symbol : 14

■ 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

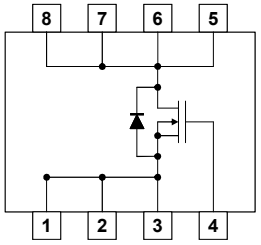
Panasonic	HSO8-F4-B
JEITA	SC-111BC
Code	—

■ 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	46	A
	Ta = 25 °C, DC *1		25	
	Tc = 25 °C		103	
	Pulsed, Tch < 150 °C *2		138	
Total Power Dissipation	Ta = 25 °C, DC *1	PD	2.5	W
	Tc = 25 °C		40	
Thermal Resistance	Channel to Ambient	Rth(ch-a)	50	°C / W
	Channel to Case	Rth(ch-c)	3.1	
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	23	A
Avalanche Energy (Single pulse) *3		EAR	61	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

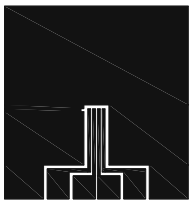


Figure 1 FR4 Glass-Epoxy Board
25.4 mm × 25.4 mm × 0.8 mm

Established : 2012-12-10
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 = 5.85 mA, VDS = 10 V	1.3		3	V
Drain-source On-state Resistance	RDS(on)1	ID = 23 A, VGS = 10 V		1.6	2.2	mΩ
	RDS(on)2	ID = 23 A, VGS = 4.5 V		1.8	2.5	

Dynamic Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	Ciss	VDS = 10 V, VGS = 0 V f = 1 MHz		4 900	6 860	pF
Output Capacitance	Coss			570	798	
Reverse Transfer Capacitance	Crss			410	656	
Turn-on Delay Time *1	td(on)	VDD = 15 V, VGS = 0 to 10 V ID = 23 A		18		ns
Rise Time *1	tr			14		
Turn-off Delay Time *1	td(off)	VDD = 15 V, VGS = 10 to 0 V ID = 23 A		75		ns
Fall Time *1	tf			11		
Total Gate Charge	Qg	VDD = 15 V, VGS = 0 to 4.5 V ID = 23 A		37		nC
Gate to Source Charge	Qgs			12		
Gate to Drain Charge	Qgd			14		
Gate resistance	rg	f = 5 MHz		1.2	3	Ω

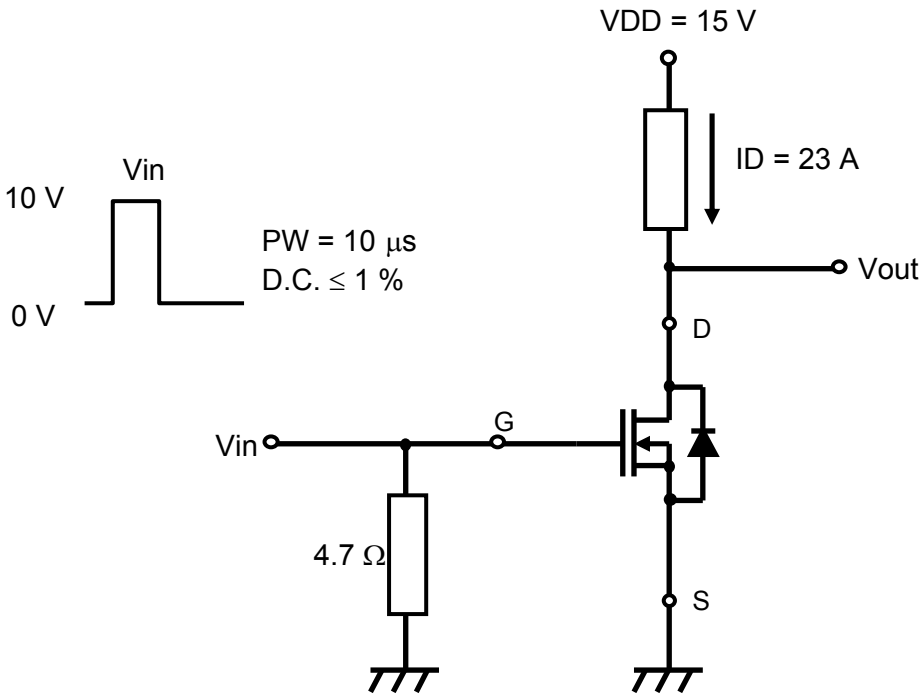
Body Diode Characteristic

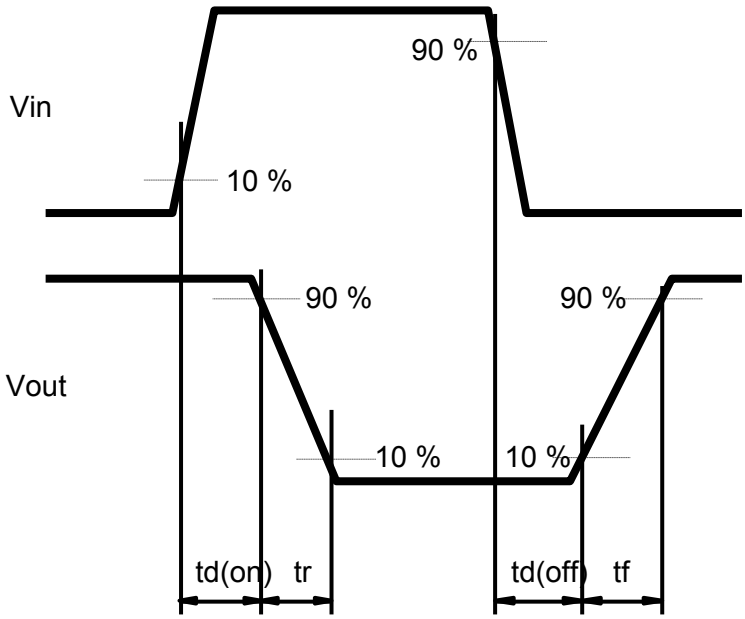
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	VSD	IS = 23 A, VGS = 0 V		0.8	1.2	V

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

Established : 2012-12-10
Revised : 2013-05-31

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





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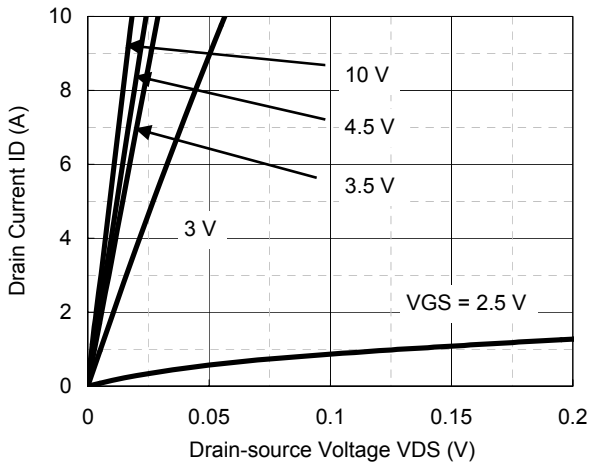
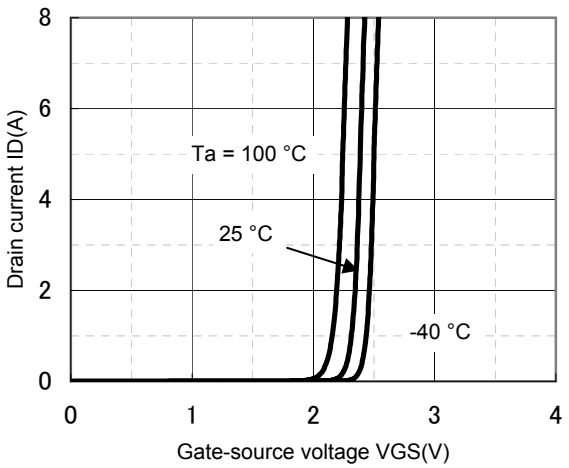
Technical Data (reference)

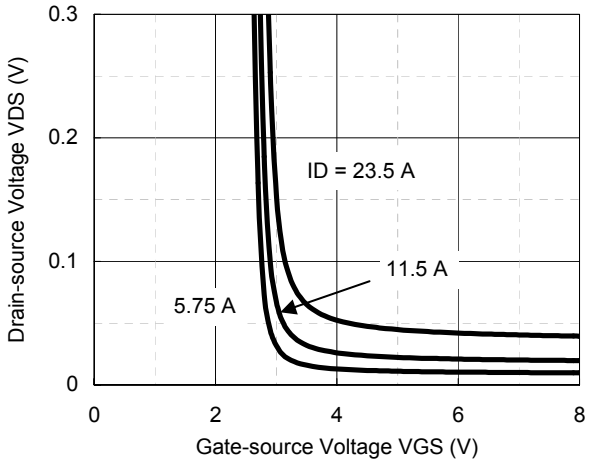
ID - VDS



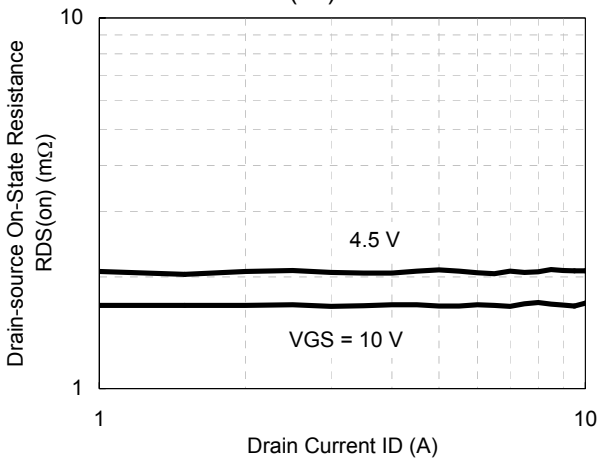
ID - VGS



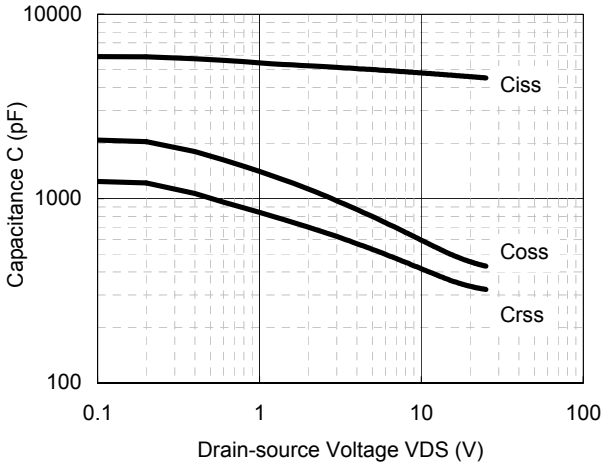
VDS - VGS



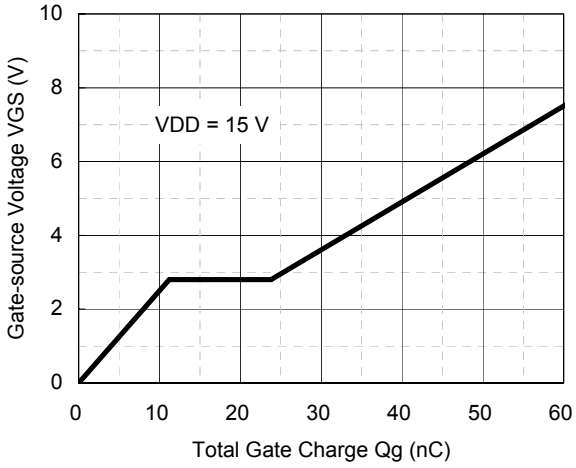
RDS(on) - ID



Capacitance - VDS



Dynamic Input/Output Characteristics



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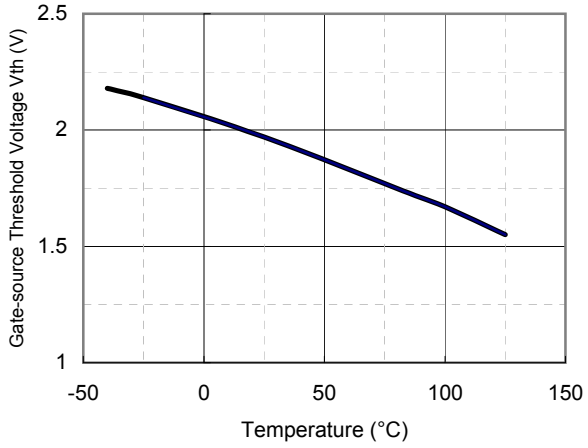
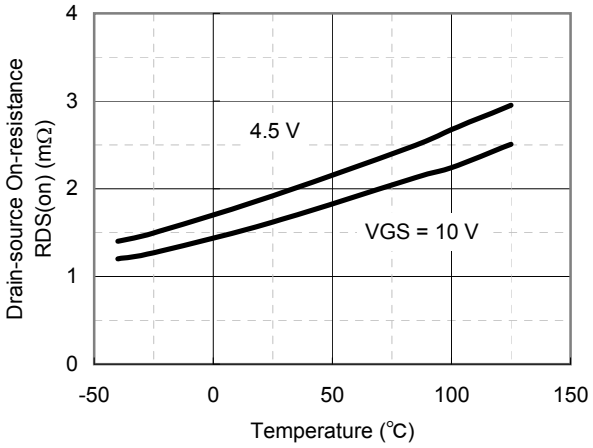
Revised : 2013-05-31

Technical Data (reference)

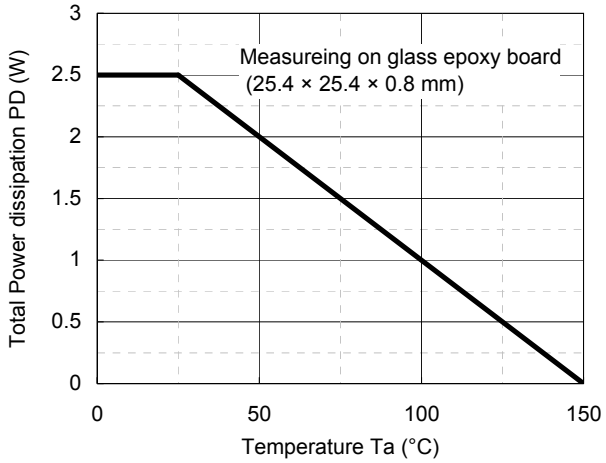
Vth - Ta



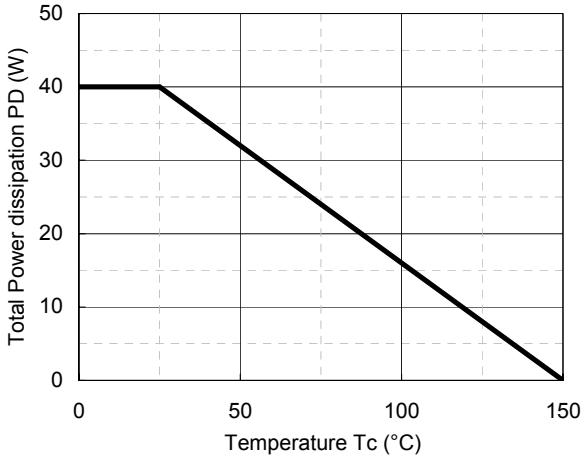
RDS(on) - Ta



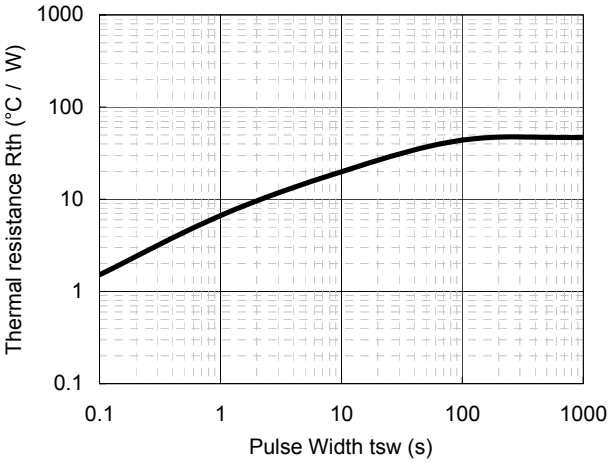
PD - Ta



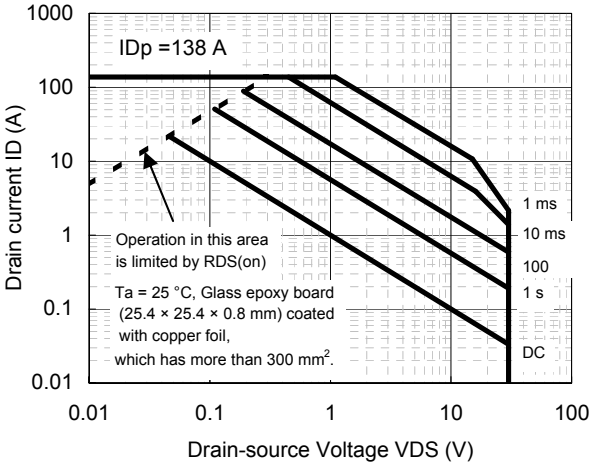
PD - Tc



Rth - tsw



Safe Operating Area



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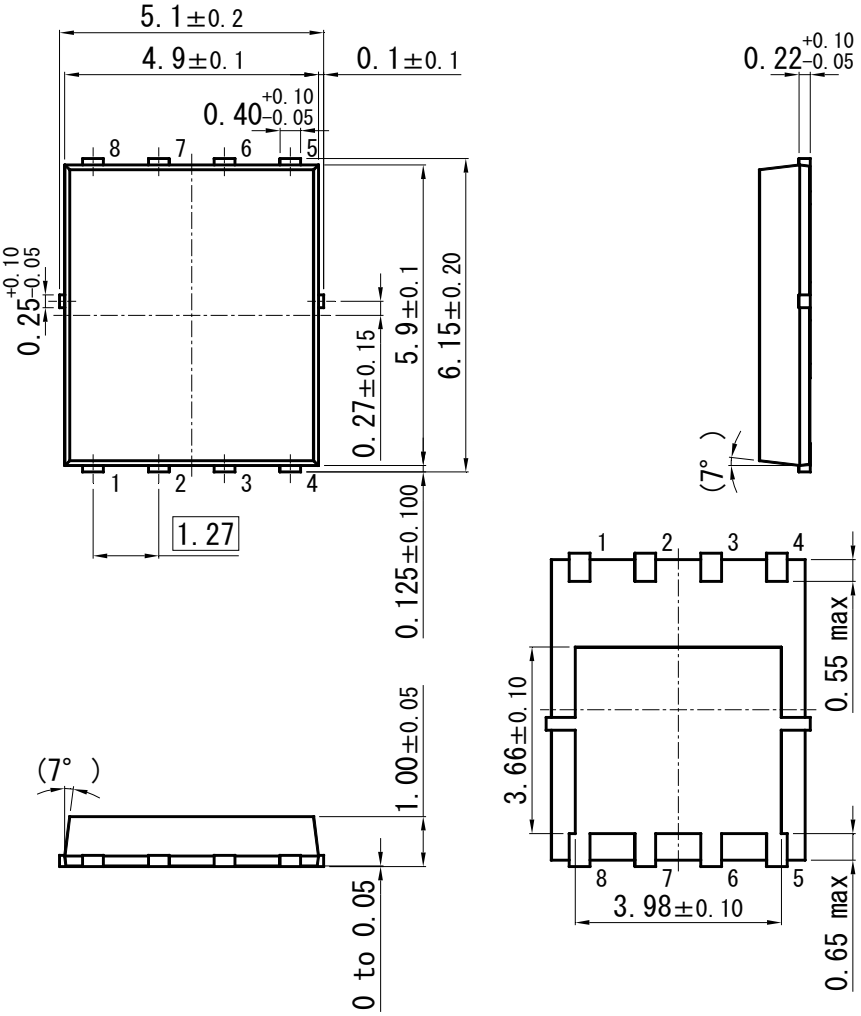
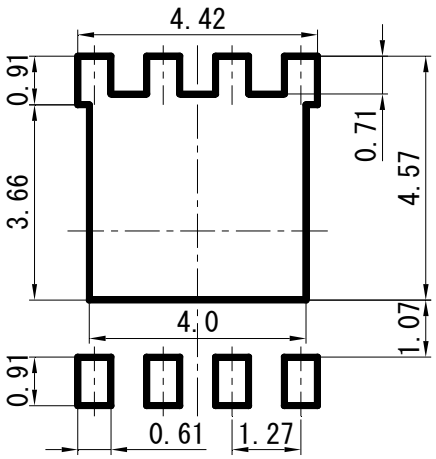


■ Land Pattern (Reference) (Unit : mm)



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