Revision. 3

Panasonic SK8603150L

### SK8603150L

#### Silicon N-channel MOS FET

For Load-switching / For DC-DC Converter

#### ■ Features

- Low Drain-source On-state Resistance : RDS(on) typ =  $2.5 \text{ m}\Omega$  (VGS = 4.5 V)
- Halogen-free / RoHS compliant (EU RoHS / UL-94 V-0 / MSL : Level 1 compliant)

■ Marking Symbol : 15

#### ■ Packaging

Revised

: 2013-05-31

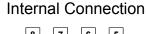
Embossed type (Thermo-compression sealing): 3 000 pcs / reel (standard)

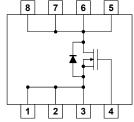
■ Absolute Maximum Ratings Ta = 25 °C

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	4	10			
	Ta = 25 °C, DC <sup>*1</sup>			2	26	Α		
Diaili Cullelli	Tc = 25 °C			8	39	, A		
	Pulsed	l, Tch < 150 °C <sup>*2</sup>		1	20			
Total Power			PD	2	9	W		
Dissipation		Tc = 25 °C	FD	(	34	VV		
Thermal Resistance		Channel to Ambient	Rth(ch-a)	42		°C / W		
memai Nesisi	ance	Channel to Case	Rth(ch-c)	3.7		C / VV		
Channel Temperature			Tch	150				
Operating ambient temperature			Topr	-40 to	+85	°C		
Storage Temperature Range		Tstg	-55 to	+150				
Avalanche Current (Single pulse) *3			IAR	20		Α		
Avalanche Energy (Single pulse) *3		EAR	46		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  $^{\circ}$ C (initial)

Unit: mm 5.1 4.9 9 5 6. 0.4 1.27 1. Source 5. Drain 6. Drain 2. Source 7. Drain 3. Source 8. Drain 4. Gate HSO8-F4-B Panasonic JEITA SC-111BC Code





#### Pin Name

- Source
   Source
- 5. Drain
- 3. Source
- 6. Drain7. Drain
- 4. Gate
- 8. Drain



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

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MOS FET

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

#### Static Characteristics

Parameter	Symbol	Conditions	Min	Тур	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	μΑ
Gate-source Leakage Current	IGSS	VGS = $\pm 16$ V, VDS = 0 V			±10	μΑ
Gate-source Threshold Voltage	_	ID = 4.38 mA, VDS = 10 V	1.3		3	V
		ID = 20 A, VGS = 10 V		1.9	2.5	mΩ
Diani-source On-sidle Nesistance	RDS(on)2	ID = 20 A, VGS = 4.5 V		2.5	3.5	

**Dynamic Characteristics** 

Dynamic characteriotics		_				
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Input Capacitance	Ciss	VDS = 10 V, VGS = 0 V		3 700	5 180	
Output Capacitance	Coss	f = 1 MHz		430	602	pF
Reverse Transfer Capacitance	Crss			310	496	
Turn-on Delay Time *1	td(on)	VDD = 15 V, VGS = 0 to 10 V		13		no
Rise Time *1	tr	ID = 20 A		14		ns
Turn-off Delay Time *1	td(off)	VDD = 15 V, VGS = 10 to 0 V		64		no
Fall Time *1	tf	ID = 20 A		9		ns
Total Gate Charge	Qg	VDD = 15 V VCS = 0 to 4 5 V		28		
Gate to Source Charge	Qgs	VDD = 15 V, VGS = 0 to 4.5 V ID = 20 A		9		nC
Gate to Drain Charge	Qgd	1D - 20 A		10		
Gate resistance	rg	f = 5 MHz		0.8	3	Ω

#### **Body Diode Characteristic**

Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Diode Forward Voltage	VSD	IS = 20 A, VGS = 0 V		0.9	1.2	V

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

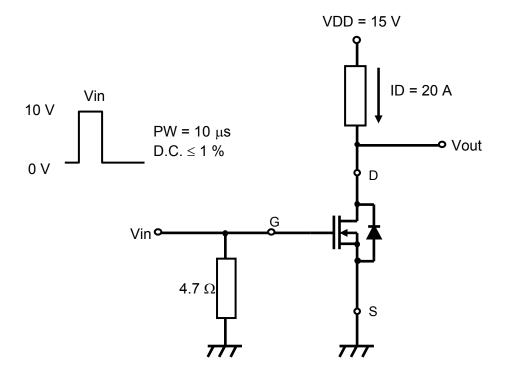
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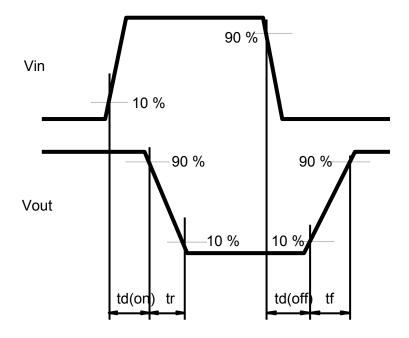
<sup>2. \*1</sup> Measurement circuit for Turn-on Delay Time / Rise Time / Turn-off Delay Time / Fall Time

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

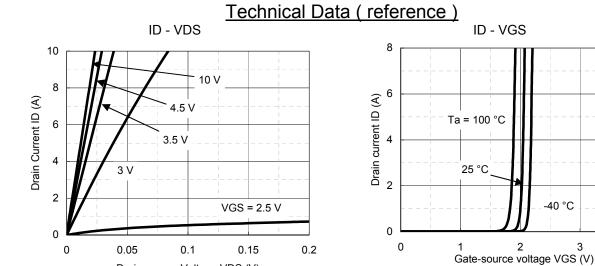


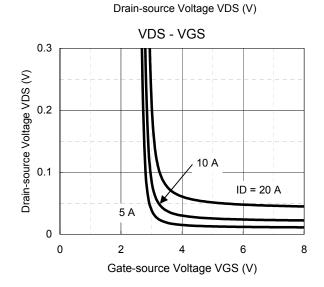


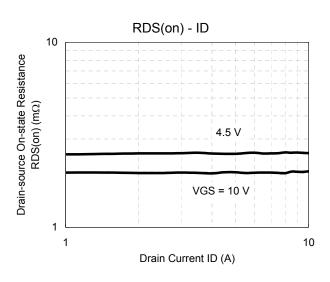
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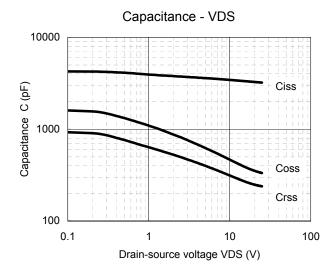
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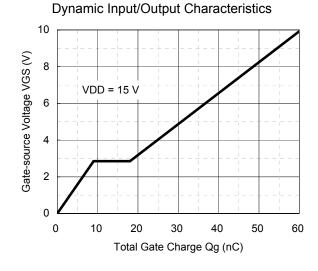
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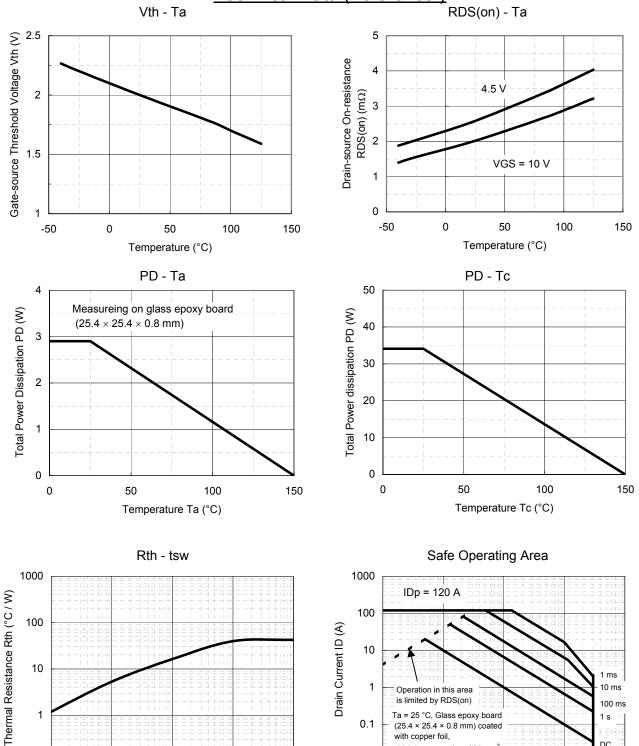




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Drain-source Voltage VDS (V)

1

1 s

DC

100

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10

Ta = 25 °C, Glass epoxy board (25.4 × 25.4 × 0.8 mm) coated

which has more than 300 mm<sup>2</sup>

with copper foil,

0.1

0.01

0.01

1

10

Pulse Width tsw (s)

100

1000

1

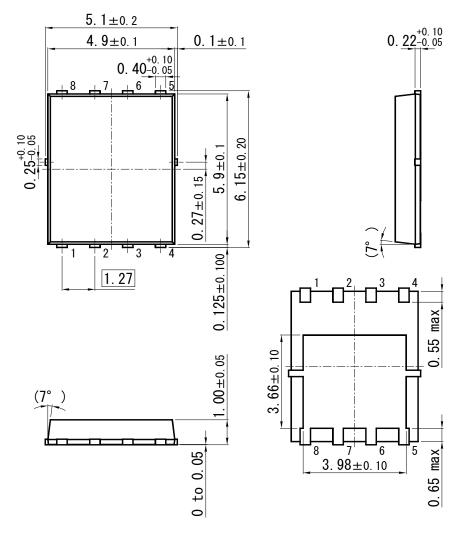
0.1 0.1

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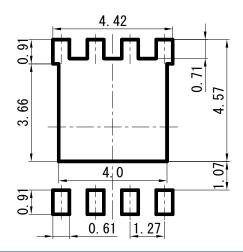
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HSO8-F4-B



■ Land Pattern (Reference) (Unit : mm)



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