

Panasonic

MOS FET
FK8V03020L

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Silicon N-channel MOS FET

For lithium-ion secondary battery protection circuit

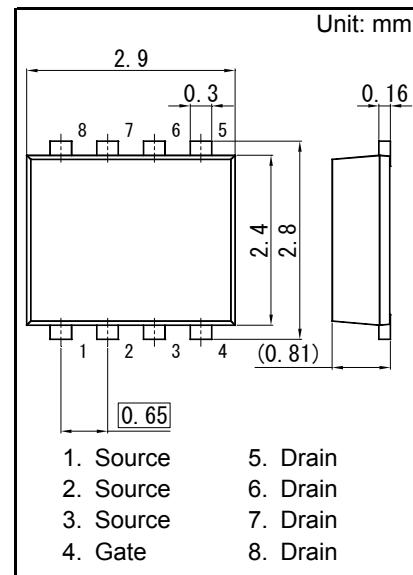
■ Features

- Low drain-source On-state Resistance
RDS(on) typ = 5.4 mΩ (VGS = 4.5 V)
- Halogen-free / RoHS compliant
(EU RoHS / UL-94 V-0 / MSL:Level 1 compliant)

■ Marking Symbol: 3B

■ Packaging

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



Panasonic	WMini8-F1
JEITA	SC-115
Code	—

■ Absolute Maximum Ratings Ta = 25 °C

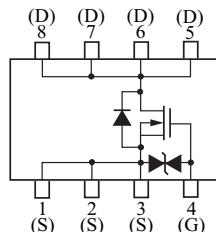
Parameter	Symbol	Rating	Unit
Drain-source Voltage	VDS	33	V
Gate-source Voltage	VGS	±20	V
Drain Current (Steady State) ^{*1}	ID	14	
Drain Current (t = 10 s) ^{*1}		18	
Drain Current (Pulsed) ^{*1,*2}	IDp	56	A
Source Current (Pulsed) (Body Diode) ^{*1,*2}	ISp (BD)	14	
Total Power Dissipation (Steady State) ^{*1}	PD	1	W
Total Power Dissipation (t = 10 s) ^{*1}		1.6	
Channel Temperature	Tch	150	°C
Operating Ambient Temperature	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-55 to +150	°C
Avalanche Current ^{*3}	Iar	60	A

Note: *1 Device mounted on a glass-epoxy board (See Figure 1)

*2 Pulse test: Ensure that the channel temperature does not exceed 150°C

*3 Conditions: VDS = 24 V, VGS = 10 V, L = 10 μH

Internal Connection



Pin Name

- | | |
|-----------|----------|
| 1. Source | 5. Drain |
| 2. Source | 6. Drain |
| 3. Source | 7. Drain |
| 4. Gate | 8. Drain |

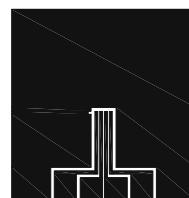


Figure1 FR4 Glass-Epoxy Board
25.4 mm × 25.4 mm × 0.8 mm



■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Static Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	VDSS	ID = 1 mA, VGS = 0 V	33			V
Zero Gate Voltage Drain Current	IDSS	VDS = 33 V, VGS = 0 V			1	μA
Gate-source Leakage Current	IGSS	VGS = ± 16 V, VDS = 0 V			± 10	μA
Gate-source Threshold Voltage	V _{th}	ID = 2.2 mA, VDS = 10 V	1.0		3.0	V
Drain-source On-state Resistance ^{*1}	RDS(on)1	ID = 7A, VGS = 10 V		3.6	4.6	$\text{m}\Omega$
	RDS(on)2	ID = 7A, VGS = 4.5 V		5.4	9.8	

Dynamic Characteristics

Input Capacitance	C _{iss}	VDS = 10 V, VGS = 0 V f = 1 MHz		1500		pF
Output Capacitance	C _{oss}			300		
Reverse Transfer Capacitance	C _{rss}			200		
Turn-on Delay Time ^{*2}	td(on)	VDD = 15 V, VGS = 0 to 10 V ID = 7 A		10		ns
Rise Time ^{*2}	tr			5		
Turn-off Delay Time ^{*2}	td(off)			200		
Fall Time ^{*2}	tf	ID = 7 A		150		
Total Gate Charge	Q _g	VDD = 15 V, VGS = 0 to 4.5 V, ID = 14 A		14		nC
Gate-source Charge	Q _{gs}			4		
Gate-drain Charge	Q _{gd}			6		

Body Diode Characteristic

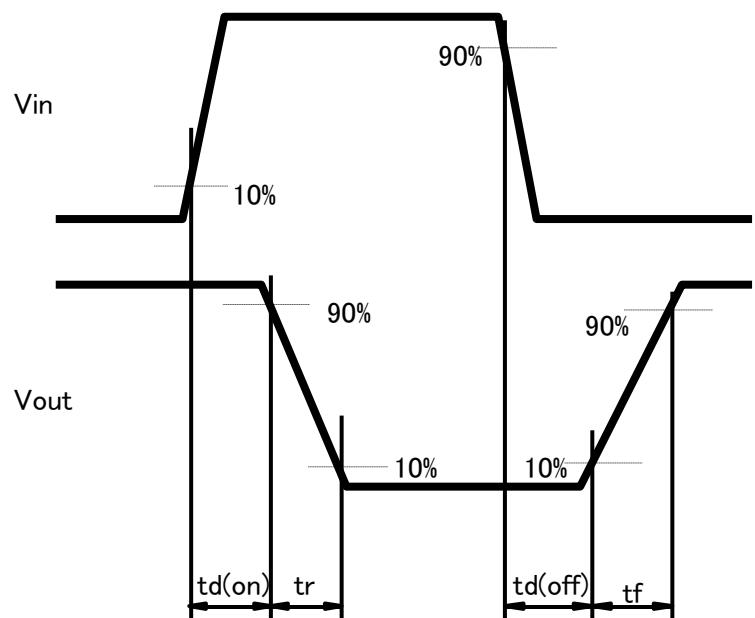
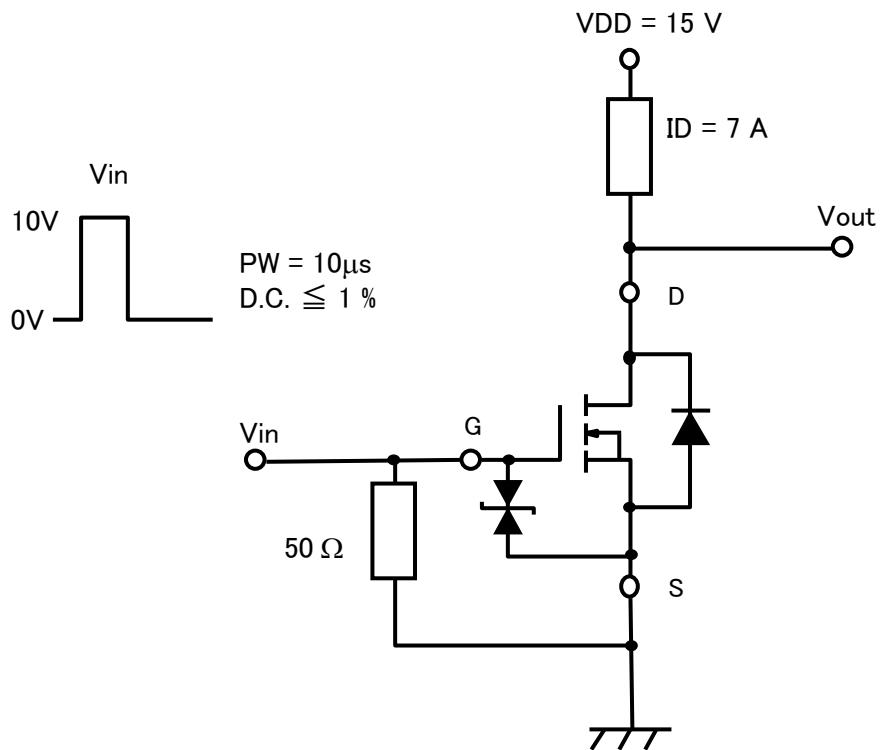
Diode Forward Voltage ^{*1}	V _{SD}	IS = 7 A, VGS = 0 V		0.8	1.2	V
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Note: 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.

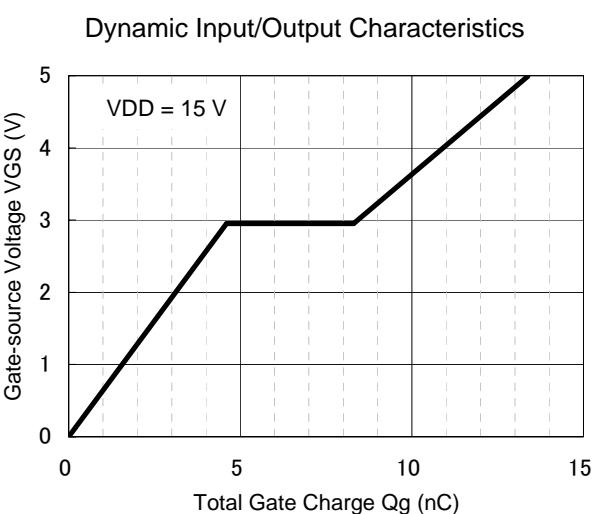
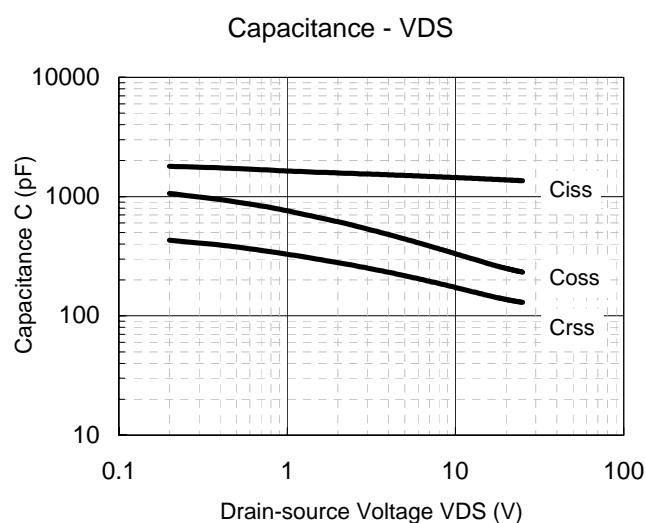
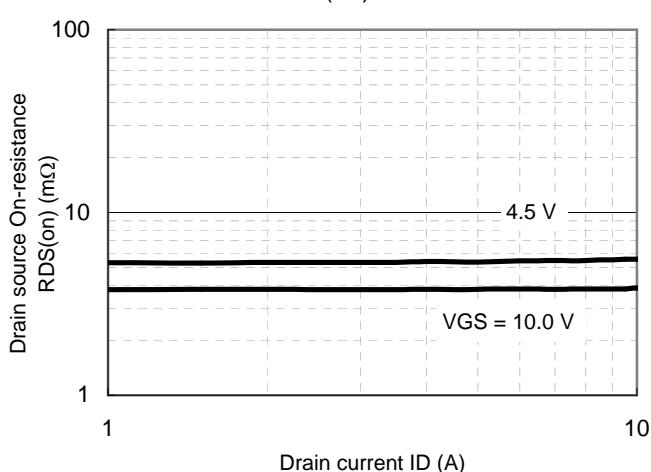
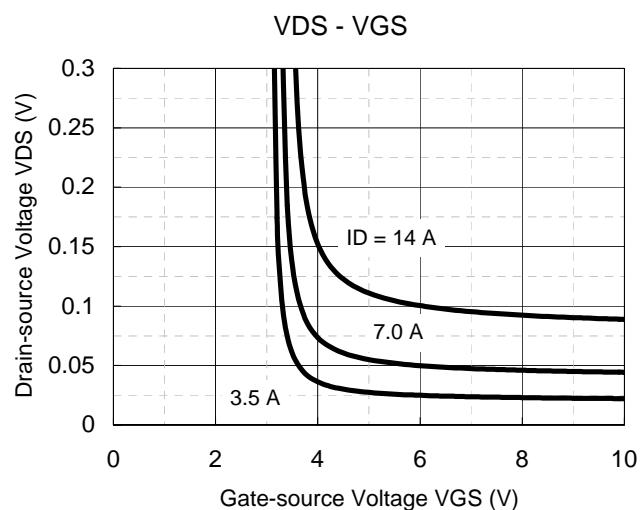
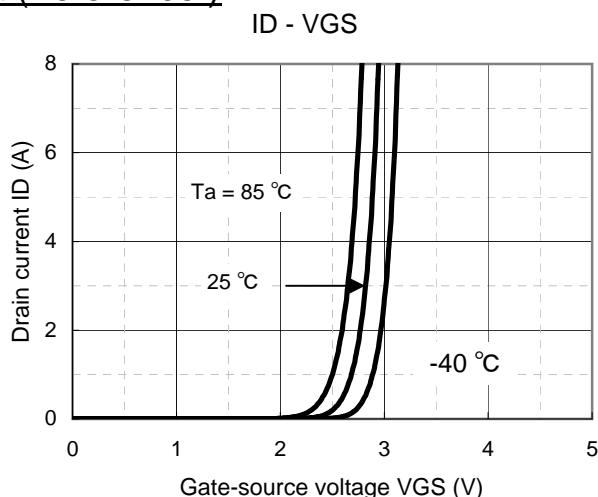
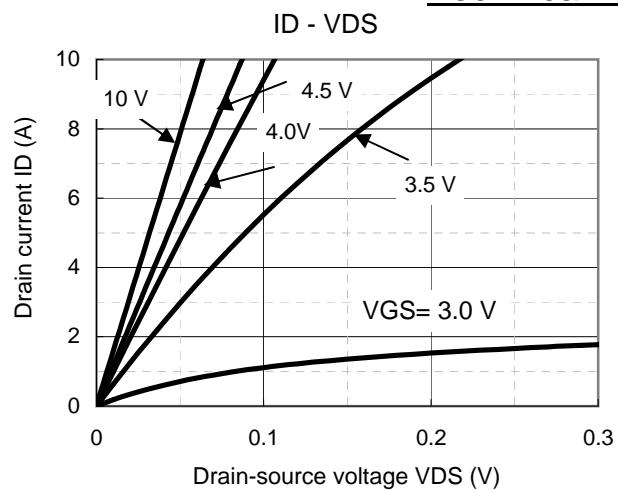
2. *1 Pulse test: Ensure that the channel temperature does not exceed 150°C

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

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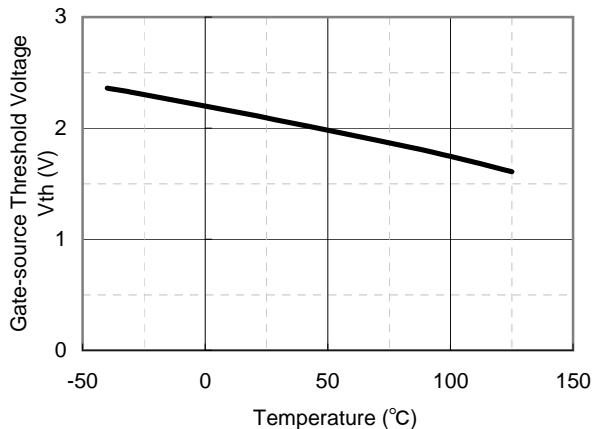


Technical Data (reference)

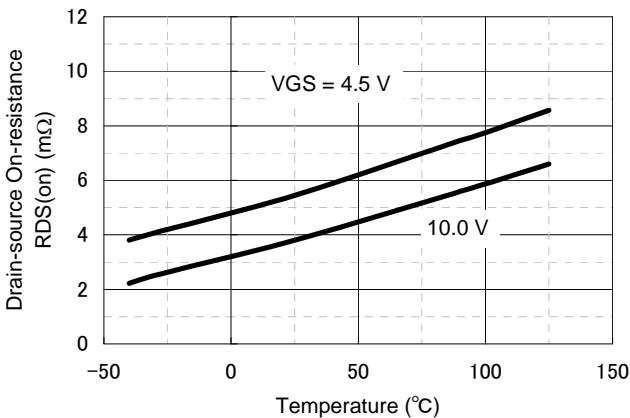


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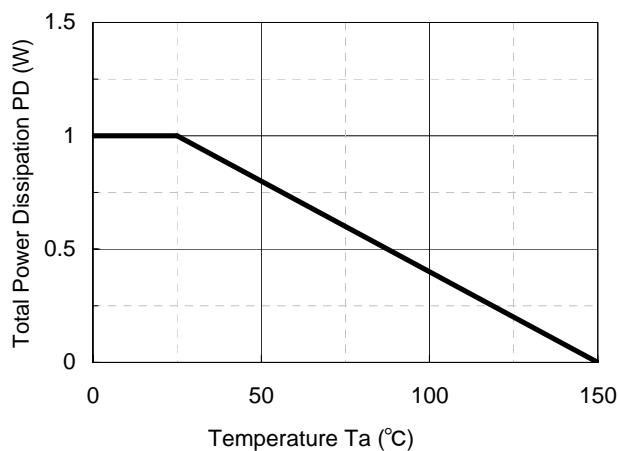
Vth - Ta



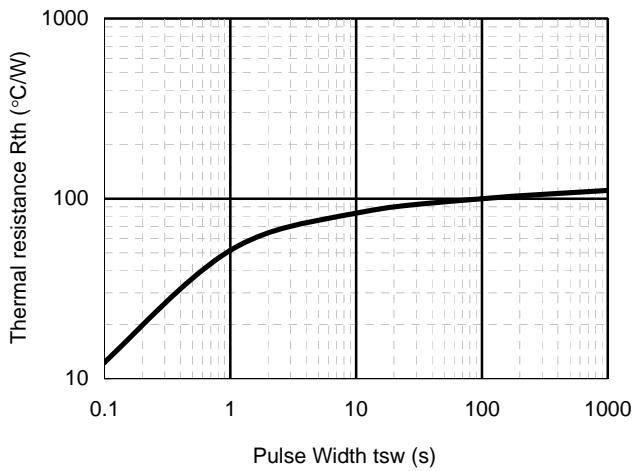
RDS(on) - Ta



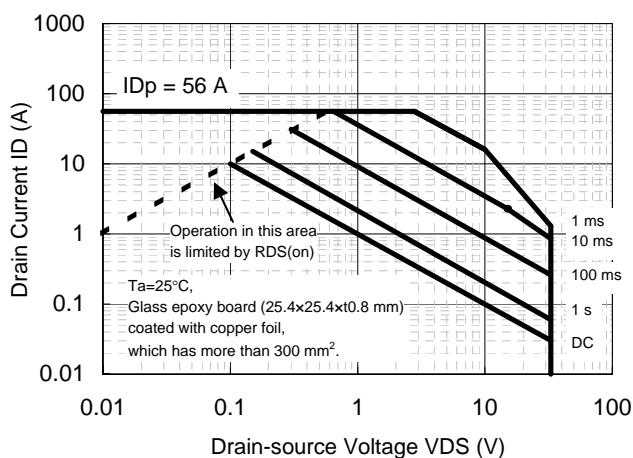
PD - Ta



Rth - tsw



Safe Operating Area

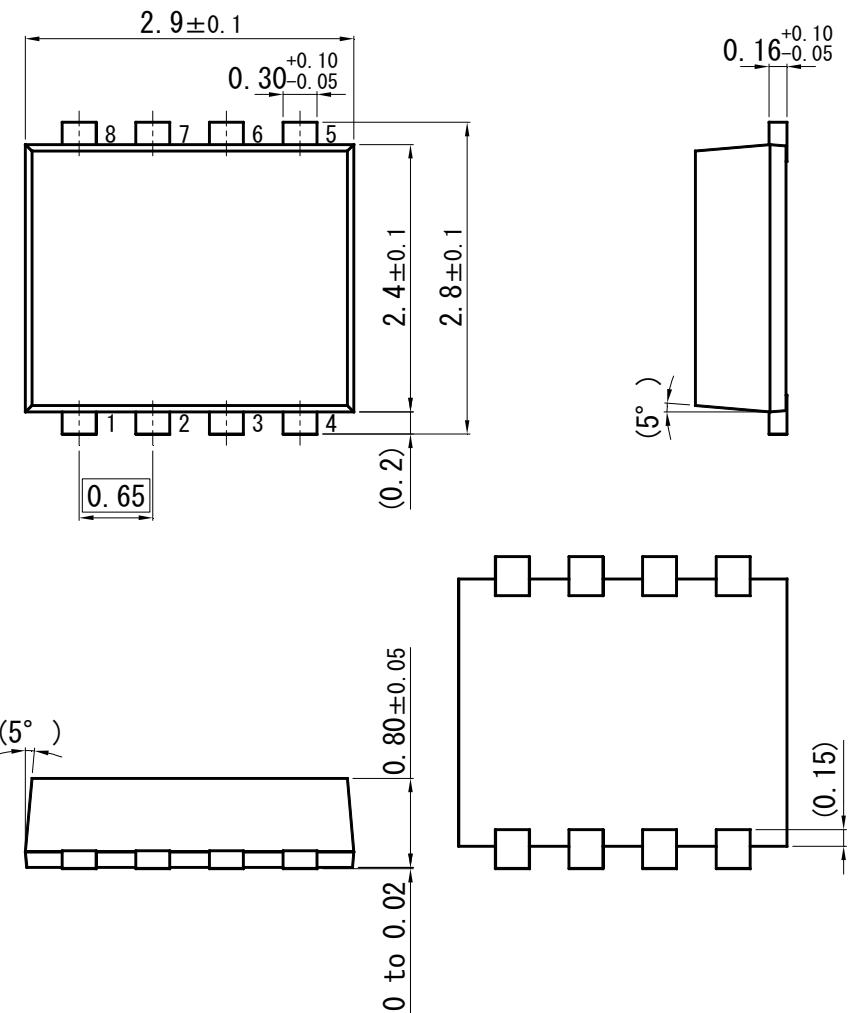


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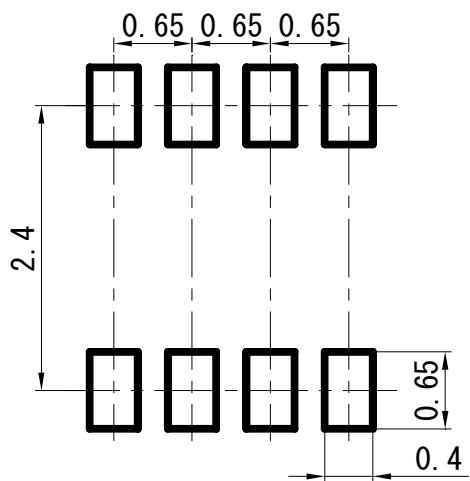
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WMini8-F1

Unit : mm



■ Land Pattern (Reference) (Unit : mm)



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