

FC8V33030L

Dual N-channel MOSFET

For DC-DC Converter

■ Features

- Low drain-source ON resistance:RDS(on)typ. = 22 mΩ (VGS = 4.5 V)
- High-speed switching :Qg = 3.8 nC
- Halogen-free / RoHS compliant
(EU RoHS / UL-94 V-0 / MSL:Level 1 compliant)

■ Marking Symbol:6A

■ Basic Part Number

Dual Nch MOS 33 V (Individual)

■ Packaging

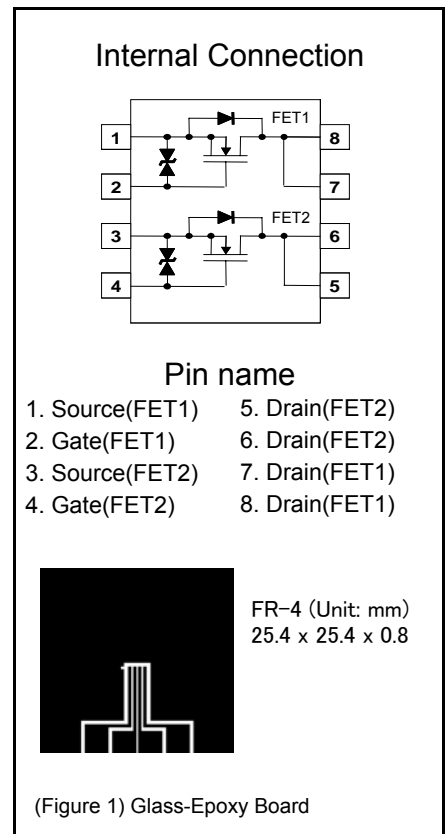
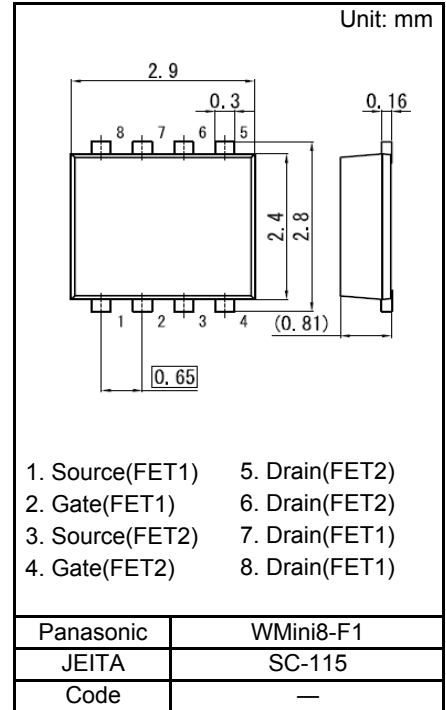
FC8V33030L Embossed type (Thermo-compression sealing):
3 000 pcs / reel (standard)

■ Absolute Maximum Ratings Ta = 25 °C

Parameter		Symbol	Rating	Unit	
FET1 FET2	Drain-source Voltage	VDS	33	V	
	Gate-source Voltage	VGS	±20	V	
	Drain Current (Steady State) ^{*1}	ID	6.5	A	
	Drain Current (t=10s) ^{*1}		8		
	Drain Current (Pulsed) ^{*1,2}	IDp	26		
Source Current (Pulsed) (Body Diode) ^{*1,2}	ISp (BD)	6.5			
Overall	Power Dissipation (Steady State) ^{*1}	PD	1		W
	Power Dissipation (t=10s) ^{*1}		1.5		
	Channel Temperature	Tch	150	°C	
	Storage Temperature Range	Tstg	-55 to +150	°C	

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.



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

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			10	μA
Gate-source Leakage Current	IGSS	VGS = ± 16 V, VDS = 0 V			± 10	μA
Gate-source Threshold Voltage	Vth	ID = 0.48 mA, VDS = 10 V	1		2.5	V
Drain-source On-state Resistance *1	RDS(on)1	ID = 3.3 A, VGS = 10 V		15	20	m Ω
	RDS(on)2	ID = 3.3 A, VGS = 4.5 V		22	35	

Note *1 Pulse test: Ensure that the channel temperature does not exceed 150 $^\circ\text{C}$

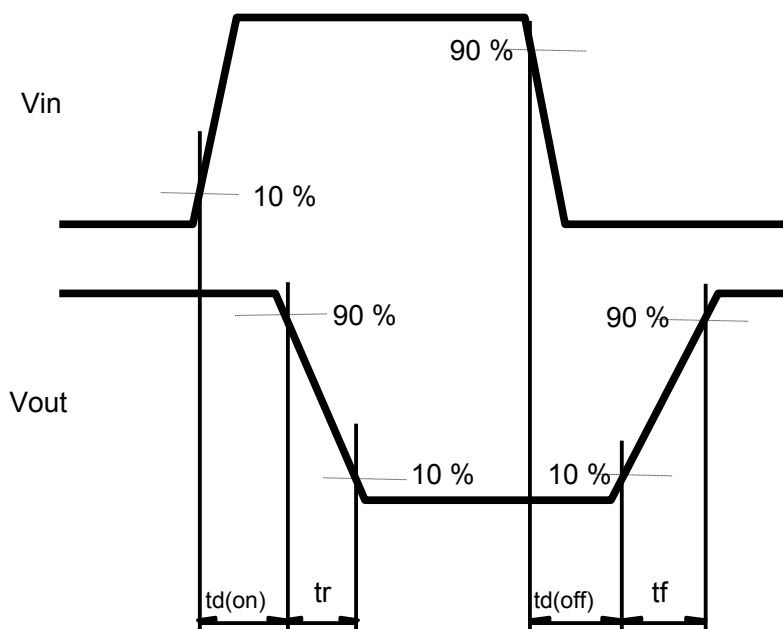
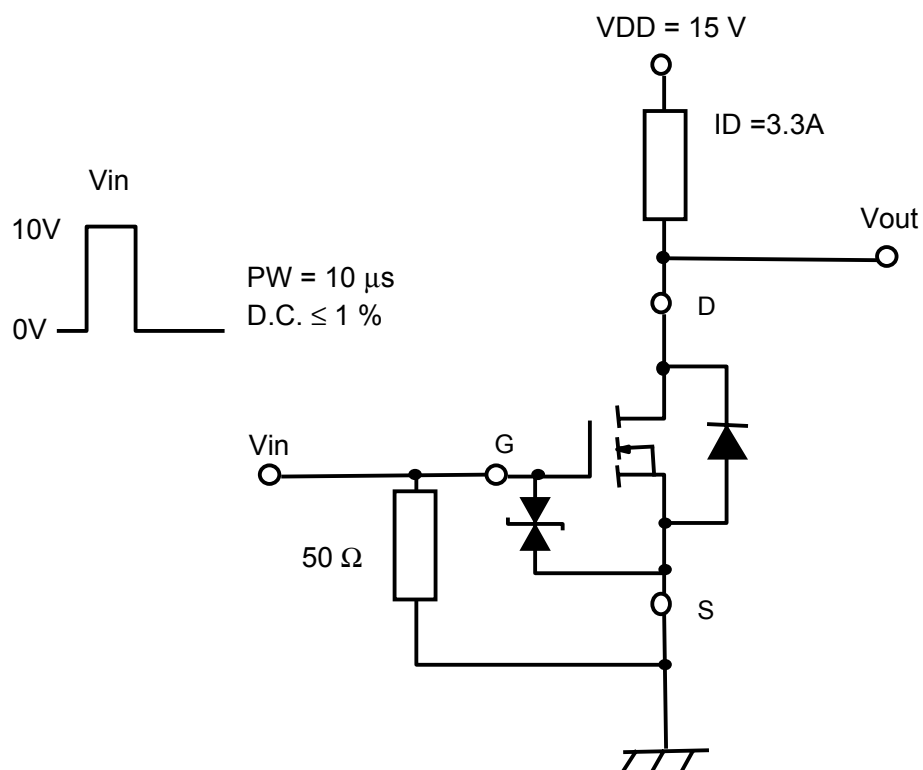
Dynamic Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Capacitance	Ciss	VDS = 10 V, VGS = 0 V, f = 1 MHz		360		pF
Output Capacitance	Coss			70		
Reverse Transfer Capacitance	Crss			50		
Turn-On Delay Time	td(on)	VDD = 15 V, VGS = 0 to 10 V		8		ns
Rise Time	tr	ID = 3.3 A (Figure 2)		3		
Turn-Off Delay Time	td(off)	VDD = 15 V, VGS = 10 to 0 V		24		
Fall Time	tf	ID = 3.3 A (Figure 2)		9		
Total Gate Charge	Qg	VDD = 15 V, VGS = 0 to 4.5 V, ID = 6.5 A		3.8		nC
Gate-source Charge	Qgs			1.4		
Gate-drain Charge	Qgd			1.6		

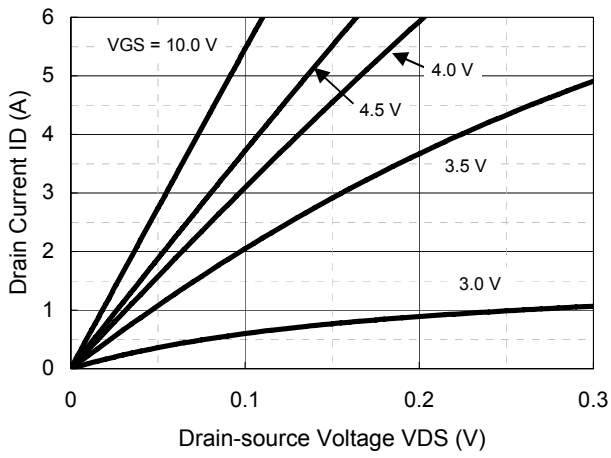
Body Diode Characteristic

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Diode Forward Voltage *1	VSD	IS = 3.3 A, VGS = 0 V		0.8	1.2	V

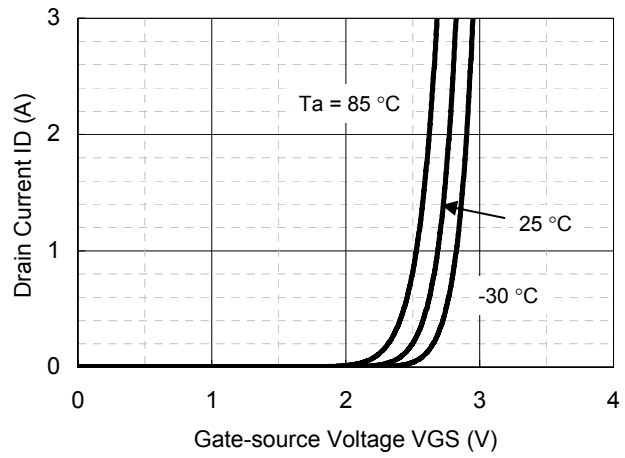
Note *1 Pulse test: Ensure that the channel temperature does not exceed 150 $^\circ\text{C}$



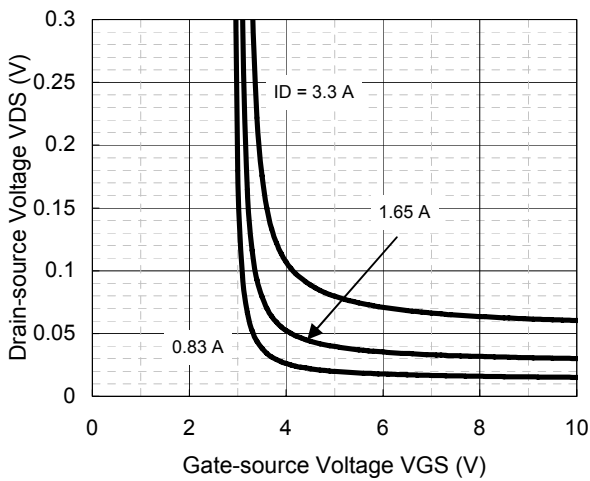
(Figure 2) Measurement circuit for Turn-On Delay Time/Rise Time/Turn-Off Delay Time/Fall Time



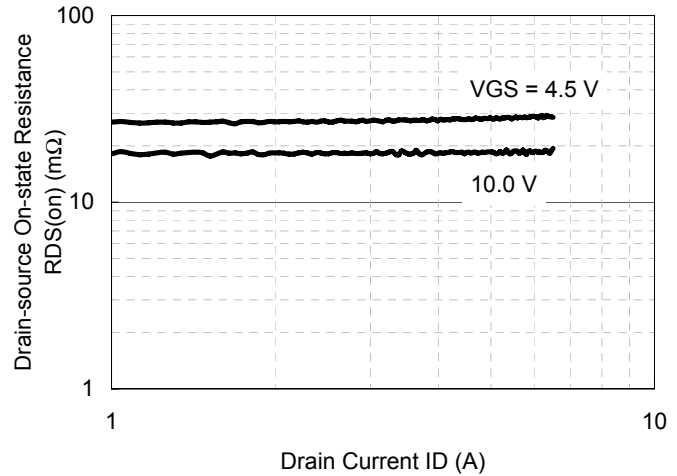
ID - VDS



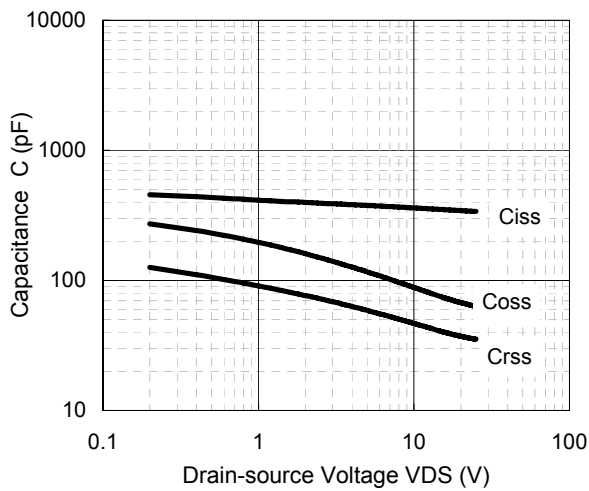
ID - VGS



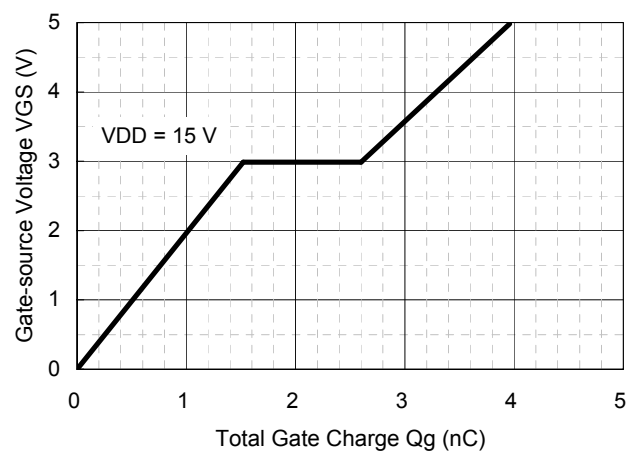
VDS - VGS



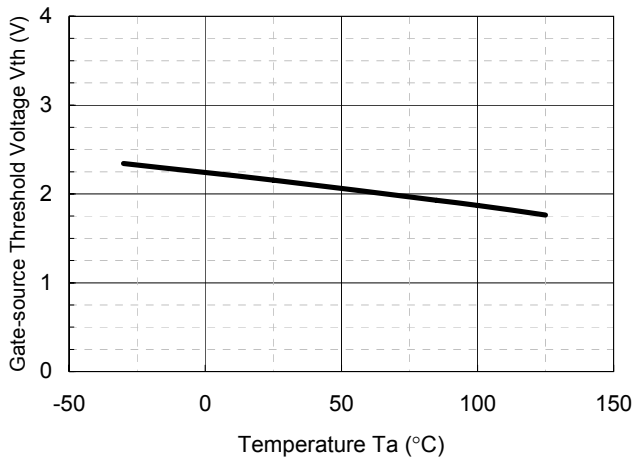
RDS(on) - ID



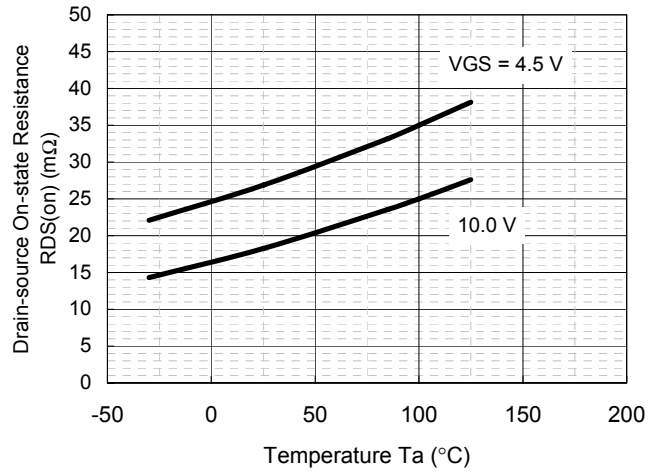
Capacitance - VDS



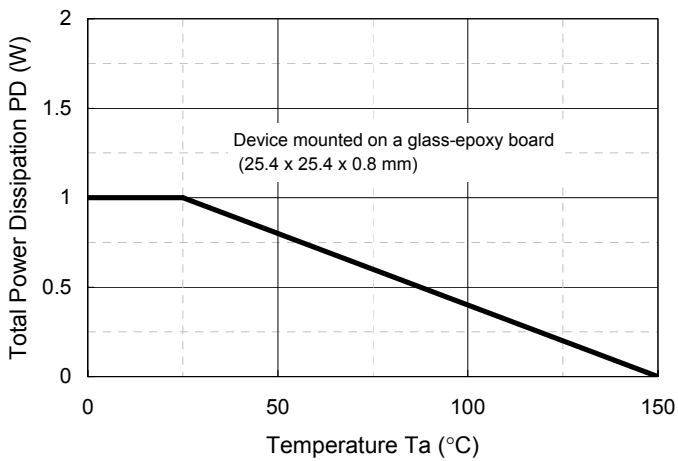
Dynamic Input/Output Characteristics



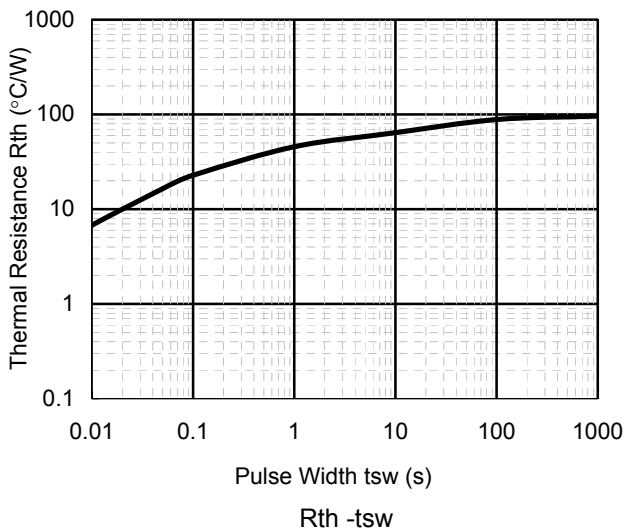
V_{th} - T_a



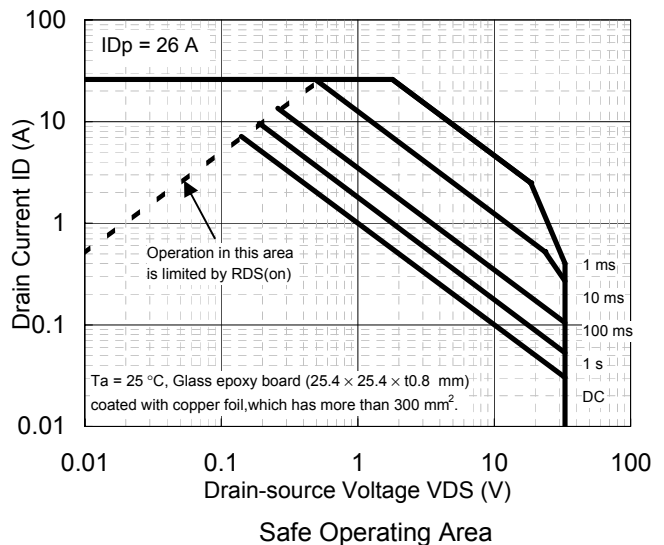
$R_{DS(on)}$ - T_a



P_D - T_a



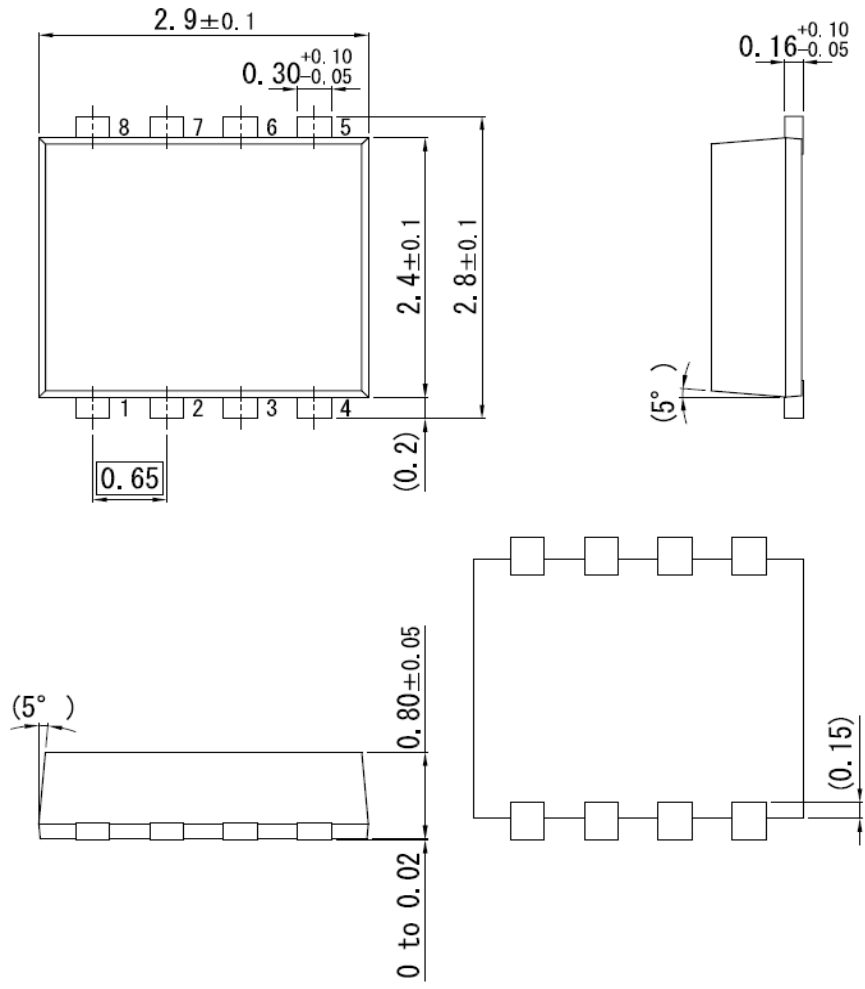
R_{th} - t_{sw}



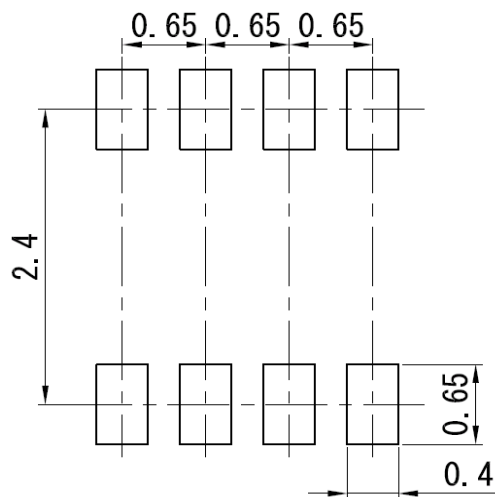
Safe Operating Area

WMini8-F1

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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