

## FC8V33030L

## Dual N-channel MOSFET

For DC-DC Converter

## ■ Features

- Low drain-source ON resistance:  $R_{DS(on)}$  typ. = 22 m $\Omega$  ( $V_{GS}$  = 4.5 V)
  - High-speed switching :  $Q_g$  = 3.8 nC
  - Halogen-free / RoHS compliant
- (EU RoHS / UL-94 V-0 / MSL:Level 1 compliant)

## ■ Marking Symbol:6A

## ■ Basic Part Number

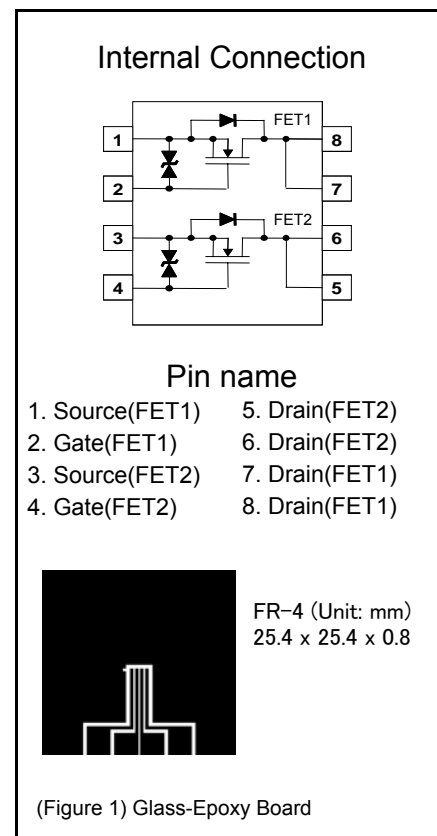
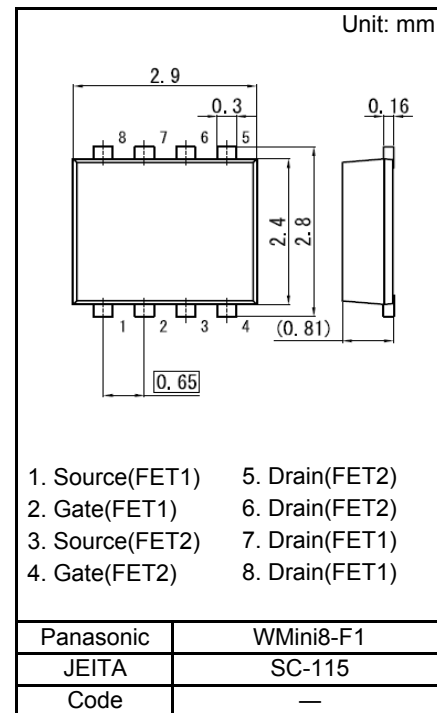
Dual Nch MOS 33 V (Individual)

## ■ Packaging

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

■ Absolute Maximum Ratings  $T_a$  = 25 °C

Parameter		Symbol	Rating	Unit
FET1 FET2	Drain-source Voltage	$V_{DS}$	33	V
	Gate-source Voltage	$V_{GS}$	$\pm 20$	V
	Drain Current (Steady State) <sup>*1</sup>	$I_D$	6.5	A
	Drain Current ( $t=10s$ ) <sup>*1</sup>		8	
	Drain Current (Pulsed) <sup>*1,2</sup>	$I_{Dp}$	26	
	Source Current (Pulsed) (Body Diode) <sup>*1,2</sup>	$I_{Sp}$ (BD)	6.5	
Overall	Power Dissipation (Steady State) <sup>*1</sup>	$P_D$	1	W
	Power Dissipation ( $t=10s$ ) <sup>*1</sup>		1.5	
	Channel Temperature	$T_{ch}$	150	
	Storage Temperature Range	$T_{stg}$	-55 to +150	

Note: <sup>\*1</sup> Device mounted on a glass-epoxy board (See Figure 1)<sup>\*2</sup> 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	$\mu\text{A}$
Gate-source Leakage Current	IGSS	VGS = $\pm 16$ V, VDS = 0 V			$\pm 10$	$\mu\text{A}$
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 $\Omega$
	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  $^{\circ}\text{C}$

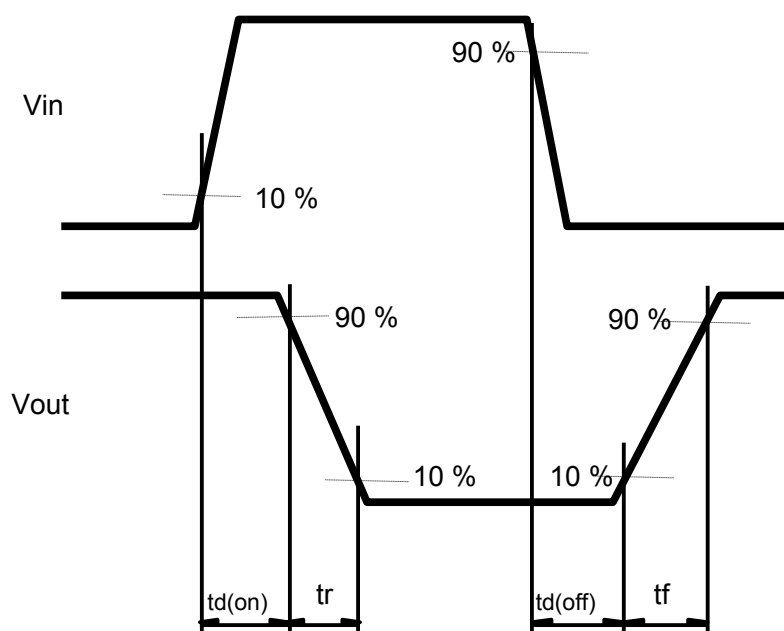
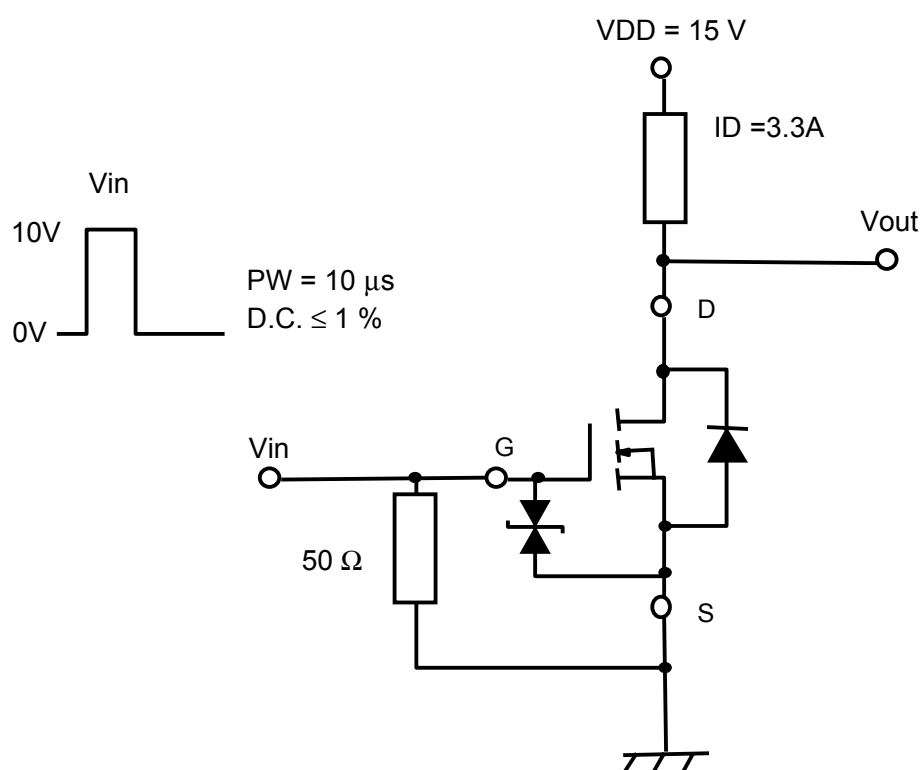
Dynamic Characteristics

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 ID = 3.3 A (Figure 2)		8		ns
Rise Time	tr			3		
Turn-Off Delay Time	td(off)	VDD = 15 V, VGS = 10 to 0 V ID = 3.3 A (Figure 2)		24		
Fall Time	tf			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		

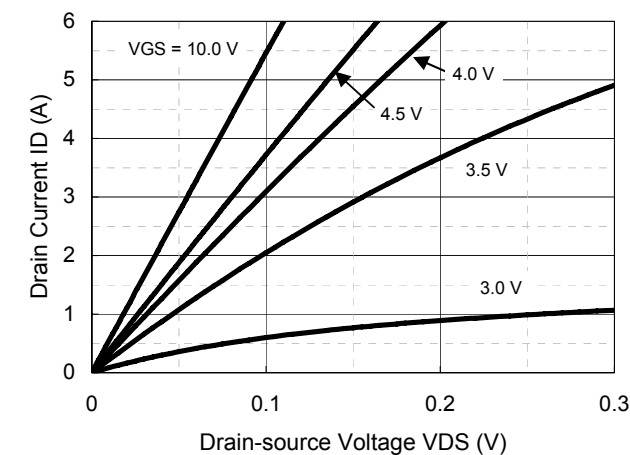
Body Diode Characteristic

Diode Forward Voltage *1	VSD	IS = 3.3 A, VGS = 0 V		0.8	1.2	V
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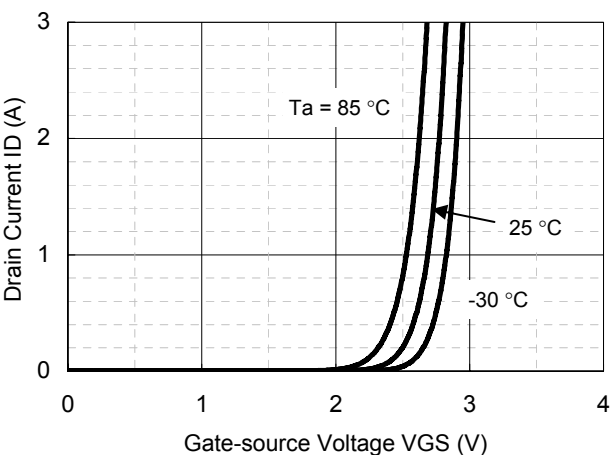
Note \*1 Pulse test: Ensure that the channel temperature does not exceed 150  $^{\circ}\text{C}$



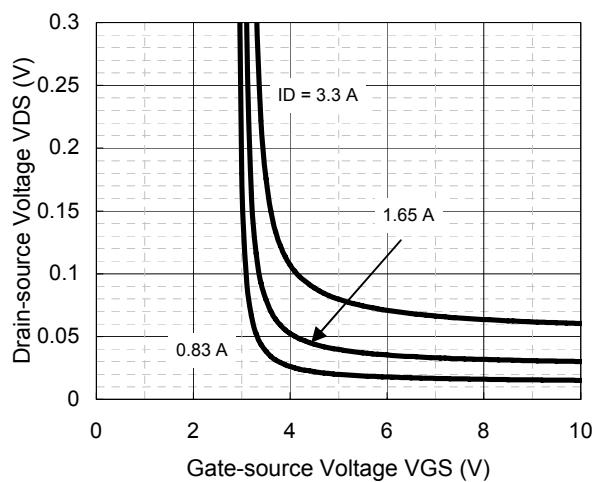
(Figure 2) Measurement circuit for Turn-On Delay Time/Rise Time/Turn-Off Delay Time/Fall Time



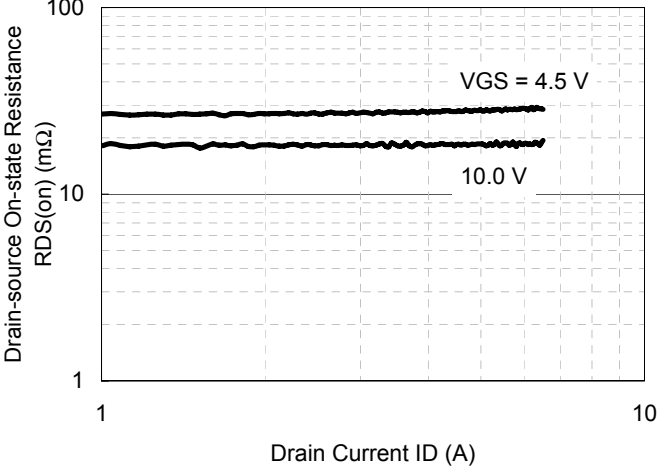
ID - VDS



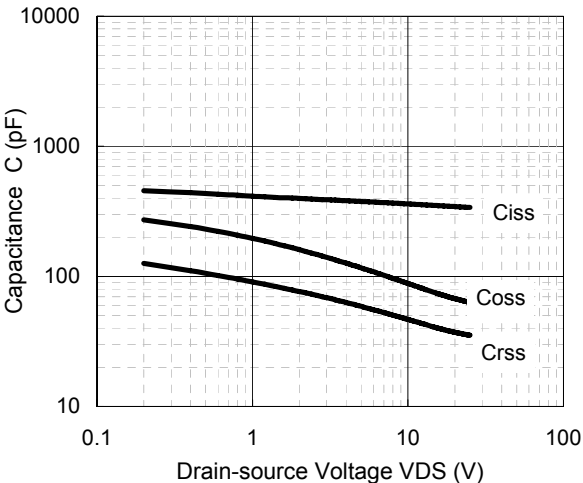
ID - VGS



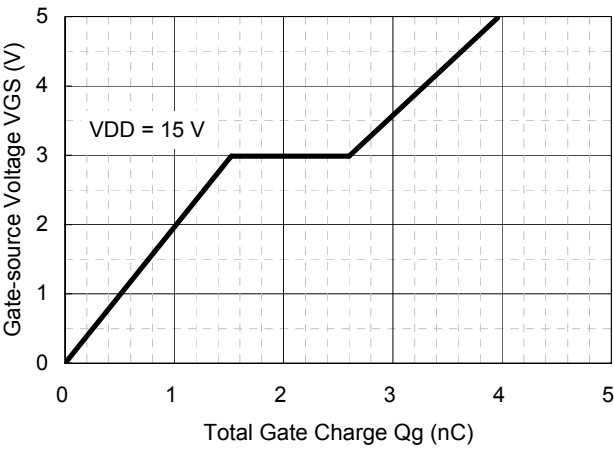
VDS - VGS



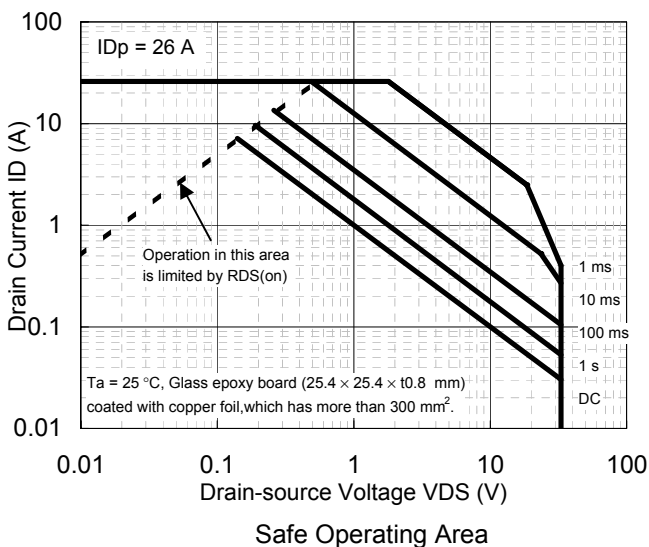
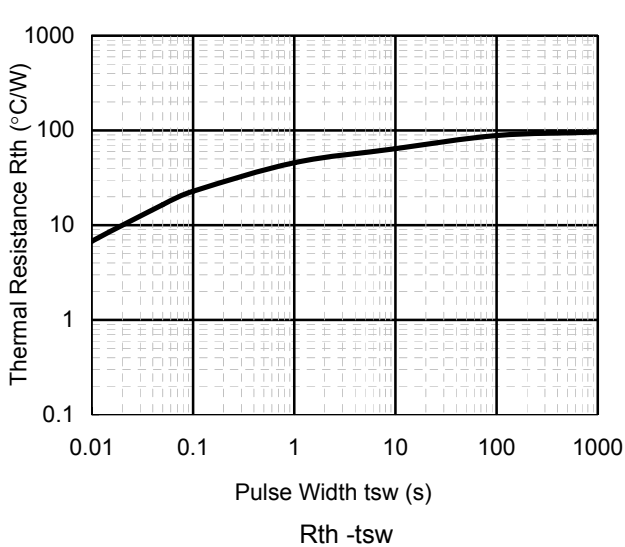
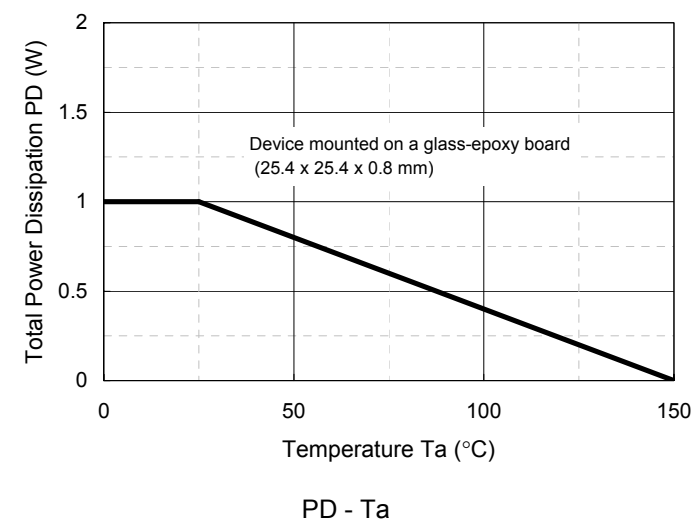
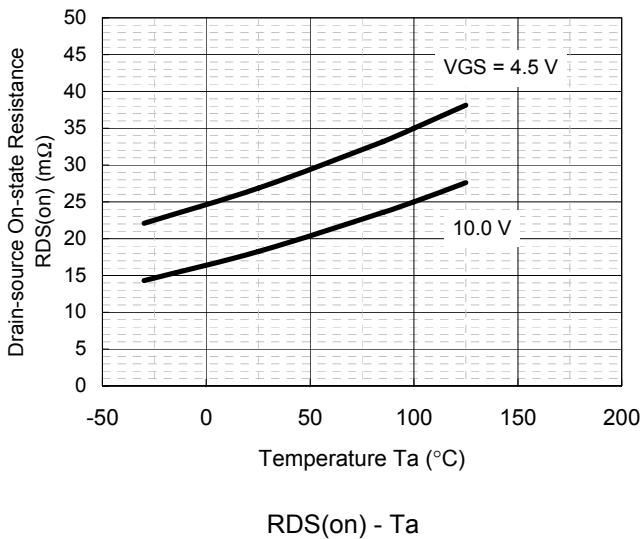
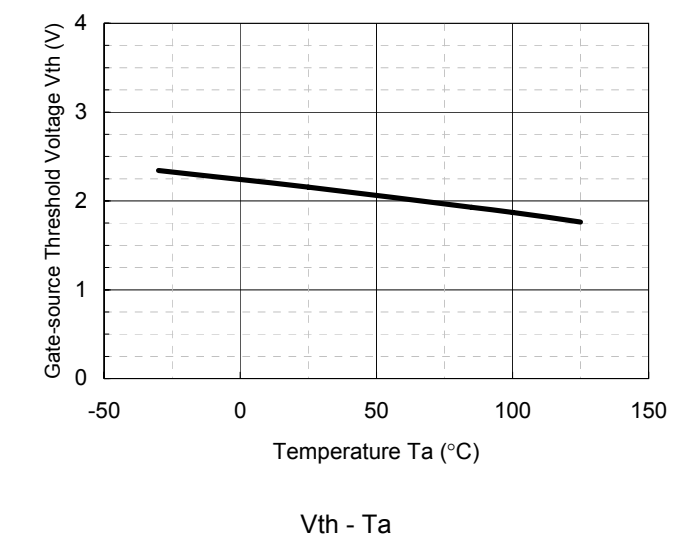
RDS(on) - ID



Capacitance - VDS

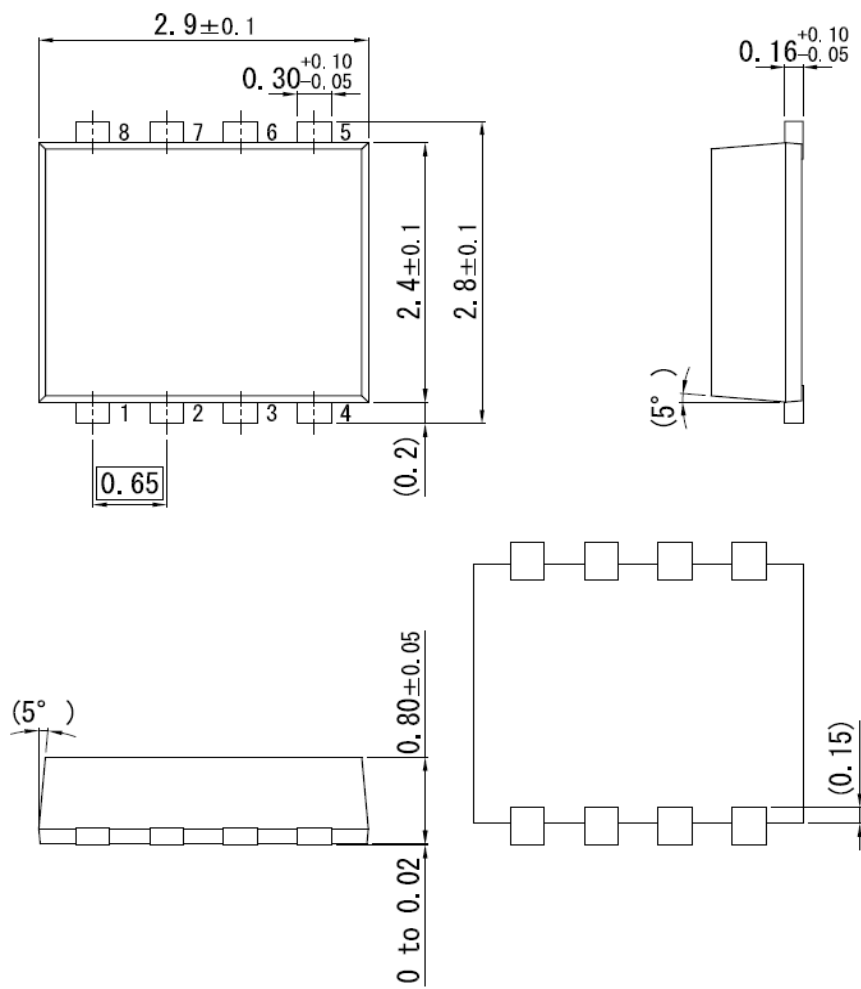


Dynamic Input/Output Characteristics

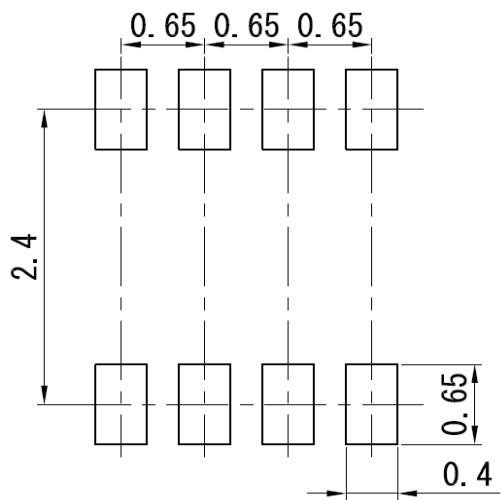


WMini8-F1

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.