

Optocoupler Package Creepage & Clearance

PN2006

In general, creepage distance is determined or required based on:

1. The operating voltage across the distance of the device.
2. The material group of the device (Renesas opto products are listed as material group IIIa).
3. The level of pollution expected of the device or the environment that the device is used. Renesas Optos are categorized for pollution degree 2 and pollution degree 2 environment defines as normally only nonconductive pollution occurs, temporary conductivity caused by condensation is to be expected.

Below is the table detailing the constructional parameters of Renesas optocouplers:

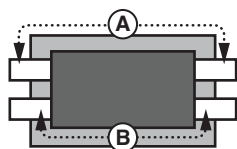
Constructional Parameters List of Optocouplers

Part Number	Parameters ^{*1}					
	Air Distance	Creepage Distance		Insulation Thickness	Isolation Voltage	
		Outer Creepage Distance	Inner Creepage Distance			
PS2381	8.0 mm	8.0 mm	X	0.4 mm	5 kVr.m.s.	
PS250x-1, -4 / PS250xL-1, -4	7.0 mm	7.0 mm	3.5 mm	0.3 mm		
PS2501A-1 / PS2501AL-1				0.2 mm		
PS2513-1						
PS2514-1				0.3 mm		
PS252x-1 / PS252xL-1			4.0 mm	0.4 mm		
PS253x-1 / PS253xL-1						
PS256x-1 / PS256xL-1						
PS2561A-1 / PS2561AL-1						
PS2561AL1-1 / PS2561AL2-1						
PS2561B-1 / PS2561BL-1						
PS2561BL1-1 / PS2561BL2-1						
PS2561D-1 / PS2561DL-1						
PS2561DL1-1 / PS2561DL2-1	8.0 mm	8.0 mm				
PS2561F-1 / PS2561FL-1	7.0 mm	7.0 mm				
PS2561FL1-1 / PS2561FL2-1	8.0 mm	8.0 mm				
PS2581L1 / PS2581L2						
PS2581AL1 / PS2581AL2						
PS270x-1 / PS270xA-1	5.0 mm	5.0 mm	2.5 mm	0.3 mm	3.75 kVr.m.s.	
PS271x-1			2.5 kVr.m.s.			
PS273x-1						
PS276x-1 / PS2761B-1			X	0.4 mm	3.75 kVr.m.s.	
PS280x-1, -4 / PS280xC-1, -4	4.5 mm	4.5 mm	2.5 mm	0.1 mm	2.5 kVr.m.s.	
PS281x-1, -4						
PS283x-1, -4						
PS284x-4x	4.0 mm	4.0 mm	X	0.4 mm	1.5 kVr.m.s.	
PS2861B-1	5 mm	5 mm	X		3.75 kVr.m.s.	

Note 1: Refer to Construction Diagram.

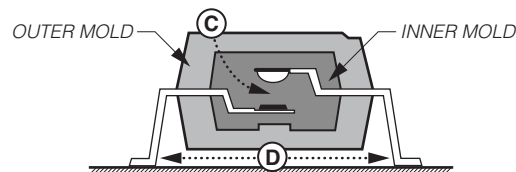
X: Not Defined

Construction Diagram



- (A) Outer Creepage Distance**
The shortest path along the outside of the package between the input and output leads.

- (B) Inner Creepage Distance**
The shortest distance between the input and output leads along the *INNER MOLD* boundary.



- (C) Insulation Thickness**
The shortest distance through the insulation between input and output conductors.

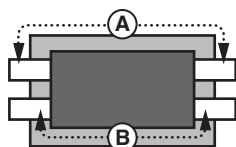
- (D) Air Distance**
The shortest path through the air between the input and output leads.

Constructional Parameters List of Optocouplers (cont.)

Part Number	Parameters ^{*1}				
	Air Distance	Creepage Distance		Insulation Thickness	Isolation Voltage
		Outer Creepage Distance	Inner Creepage Distance		
PS29xx-1	4.0 mm	4.0 mm	2.5 mm	0.4 mm	2.5 kVr.m.s.
PS71xx-1A, -1B	7.0 mm	7.0 mm	X		1.5 kVr.m.s.
PS71xxx-1A, -1B			X		
PS71xx-1C, -2A, -2B			X		
PS71xxx-1C, -2A, -2B			X		
PS72xx-1x, -2x	5.0 mm	5.0 mm	X		
PS72xxx-1			X		
PS73xx-1A / PS73xxx-1A	7.0 mm	7.0 mm	4.0 mm	0.2 mm	3.75 kVr.m.s.
PS78xx-1A / PS78xxx-1A	1.4 mm	1.4 mm	X		500 Vr.m.s.
PS81xx	4.2 mm	4.2 mm	2.5 mm		3.75 kVr.m.s.
PS83xxL	7.0 mm	7.0 mm	X	0.4 mm	5 kVr.m.s.
PS83xxL2	8.0 mm	8.0 mm	X		
PS85xx	7.0 mm	7.0 mm	X		
PS85xxL1 / PS85xxL2	8.0 mm	8.0 mm	X		
PS85xxL3	7.0 mm	7.0 mm	X		
PS85xxL4	8.0 mm	8.0 mm	X		
PS8551L4			X		
PS860x / PS860xL	7.0 mm	7.0 mm	3.5 mm	0.3 mm	2.5 kVr.m.s.
PS88xx-1, -2	4.0 mm	4.0 mm	X	0.2 mm	
PS91xx	4.2 mm	4.2 mm	2.5 mm	3.75 kVr.m.s.	
PS9117A / PS9151				0.4 mm	2.5 kVr.m.s.
PS92xx	5.5 mm	6.4 mm	X		5 kVr.m.s.
PS93xxL	7.0 mm	7.0 mm	X		
PS93xxL2	8.0 mm	8.0 mm	X		
PS9305L	7.0 mm		X		
PS9402	8.0 mm		X		
PS95xx	7.0 mm	7.0 mm	X		
PS95xxL1 / PS95xxL2	8.0 mm	8.0 mm	X		
PS95xxL3	7.0 mm	7.0 mm	X		
PS95xxL4	8.0 mm	8.0 mm	X		
PS9613 / PS9613L	7.0 mm	7.0 mm	3.5 mm	0.3 mm	
PS9617 / PS9617L				0.2 mm	
PS9687L1 / PS9687L2	8.0 mm	8.0 mm		0.4 mm	
PS98xx-1, -2	4.0 mm	4.0 mm	X	0.2 mm	2.5 kVr.m.s.

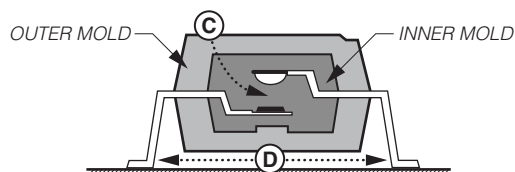
Note 1: Refer to Construction Diagram.

X: Not Defined

Construction Diagram


- (A) Outer Creepage Distance**
The shortest path along the outside of the package between the input and output leads.

- (B) Inner Creepage Distance**
The shortest distance between the input and output leads along the *INNER MOLD* boundary.



- (C) Insulation Thickness**
The shortest distance through the insulation between input and output conductors.

- (D) Air Distance**
The shortest path through the air between the input and output leads.