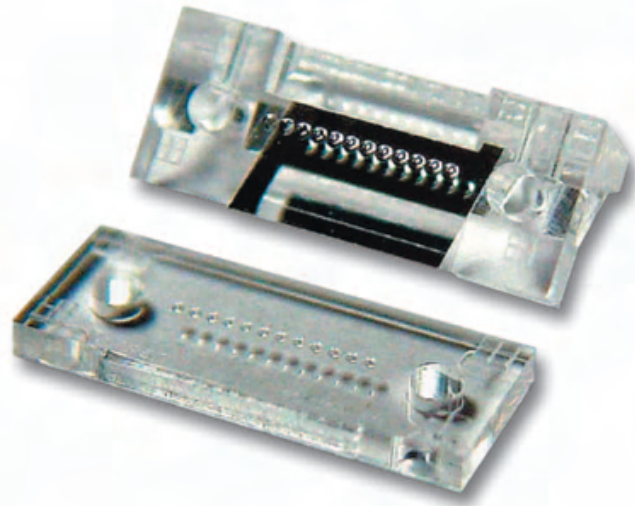


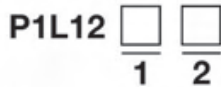
**12ch Flat – P1L12A-C1/-C2/-F1/-F2**  
**12ch Right Angle – P1L12C-F1/-F2**  
**Flat and right angle type Micro Lens**  
**Arrays provide low cost optical**  
**coupling in free space applications**



- Easy alignment with high precision positioning holes based on MT guide pins
- Low cost achieved by high precision injection moulding
- Anti-reflective (AR) coating option available
- Insertion loss (IL) can be reduced through customisation
- Custom lens and various channel configurations available (i.e. 1 x 4, 2 x 12, etc.)

**Ordering Information**

**Model Number Legend**



- 1. Type**  
 A: Flat (plate),  
 C: Right-angle

- 2. Working distance & function**  
 C1: Flat (plate) Collimate 850nm  
 LED: 1.5mm,  
 C2: 2.5mm,  
 F1: Flat (plate) Focus 850nm  
 VCSEL to lens & lens to fibre:  
 0.3mm,  
 F2: 0.2mm,

- F1: Right-angle Focus 850nm  
 VCSEL to lens 0.3mm & lens to  
 fibre 0.5mm,  
 F2: Right-angle Focus 850nm LED,  
 fibre to lens 0.3mm.

**Application Examples**

- Free-space Optical Coupling
- Transceiver (For Parallel Optical Link)
- Optical Interconnection
- Board-to-board
- Chip-to-chip Interconnection

**Specifications**

Specifications	P1L12A-C1/-C2	P1L12A-F1/-F2	P1L12C-F1/-F2
Type	Flat (Collimator Type)	Flat (Focuser Type)	Right Angle
Number of Lens	1 x 12	1 x 12	2 x 12
Insertion Loss	≤ 2.0dB (Typ. 1.2dB) *1	≤ 2.5dB (Typ. 1.5dB) *2	≤ 2.5dB (Typ. 1.5dB) *3/*4
Cross Talk	≥ 50dB	≥ 50dB	≥ 50dB
Lens Position Tolerance	0.005mm *5	0.005mm *5	0.005mm *5
Operating Temperature Range	-40 to +85°C	-40 to +85°C	-40 to +85°C
Storage Temperature Range	-40 to +85°C	-40 to +85°C	-40 to +85°C
Dimensions	W2.5 x L6.4 x H0.55mm	W2.5 x L6.4 x H0.55mm	W2.6 x L6.4 x H2.6mm

\*1 Light Source: 850nm (Steady State Mode by LED)/Air Gap: 1.5mm (Lens to Lens) Attached to the MT guide pin without any other alignment and matching glue

\*2 Light Source: 850nm VCSEL(\*12um, Divergence < 30°)/Air Gap: 0.3mm (VCSEL to Lens), 0.3mm (Lens to Fibre) active alignment for VCSEL side non active alignment for fibre side without matching glue between fibre and lens

\*3 Light Source: 850nm (Steady State Mode by LED)/Air Gap: 0.4mm (Fibre to Lens) Attached to the MT guide pin without any other alignment and matching glue

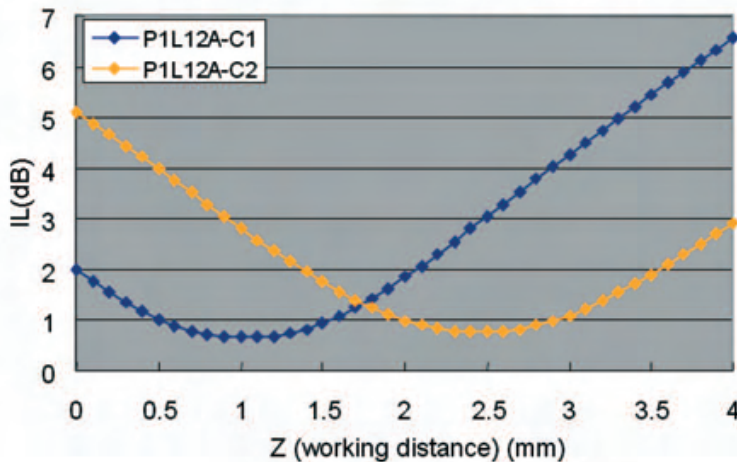
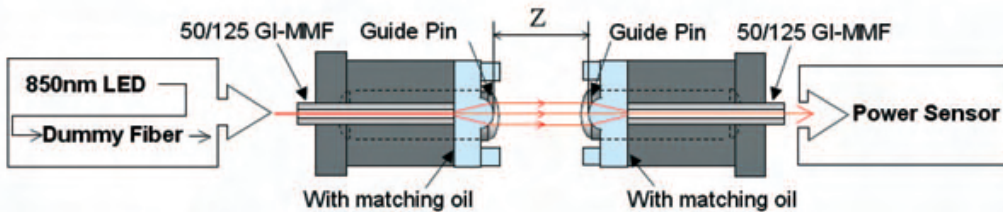
\*4 Light Source: 850nm VCSEL(\*12um, Divergence < 30°)/Air Gap: 0.3mm (VCSEL to Lens), 0.5mm (Lens to Fibre) active alignment for VCSEL side non active alignment for fibre side without matching glue between fibre and lens

\*5 Lens position tolerance is defined as an error to the true position referred to the center point of alignment holes

■ Selection Guide

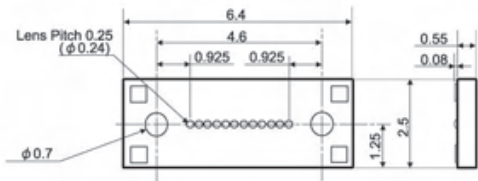
Model		P1L12A				P1L12C		
Function		C1	C2	F2	F1	F2	F1	
Coupling Image								
Feature		Plate type, 12ch Collimator (short gap)	Plate type, 12ch Collimator (long gap)	Plate type, 12ch Focuser (short WD) without gap between L & F	Plate type, 12ch Focuser (long WD) with gap between L & F	Right-angle type for fibre coupling, re-direction by total internal reflection (F - F)	Right-angle type for VCSEL coupling, re-direction by total internal reflection (VCSEL-F)	
Comment		Available for Focuser spot size: F2, F1, C1				IL: approx 3dB (VCSEL-F)	Without guide holes VCSEL	
Specification	Insertion Loss (IL)	≤2.0dB (typ 1.2dB)		≤2.5dB (typ 1.5dB)		2.5dB (typ 1.5dB)		
	Crosstalk (XT)	≥50dB						
	Error of Centre (μm)	5μm circle						
	Total Error (μm)	-	-	-	-	≤10μm		
Measurement Condition	Light Source	850nm LED (steady-state mode)		850nm VCSEL (Ø12μm Divergence <30°)		850nm LED (steady-state mode)	850nm VCSEL (Ø12μm Divergence <30°)	
	Coupling Distance (mm)	1.5mm	2.5mm	VCSEL - Lens: 0.2mm	VCSEL - Lens: 0.3mm	Fibre - Lens: 0.4mm	VCSEL- Lens:0.3mm Lens-Fibre: 0.5mm	
	Other Condition	Without index matching glue between fibre and lens		Without index matching glue between fibre and lens		Non active alignment		Non active alignment for fibre side
		Non active alignment		Non active alignment for fibre side		Using fixed jig		Active alignment for VCSEL side
Using fixed jig		Active alignment for VCSEL side				-		
Application		Multimode fibre:, transmission and reflective free space parallel optical interconnect; Proprietary backplane, Multi-fibre interconnect based on MT, MT-RJ, MPO, MTP; SNAP12 Transmitter/ Receiver; POP4 modules; Infiniband; ODI; Alternative to GRIN and ball lens						

■ Example of free-space coupling efficiency in a Multimode application

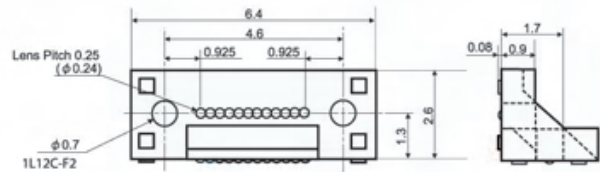


■ Dimensions (mm)

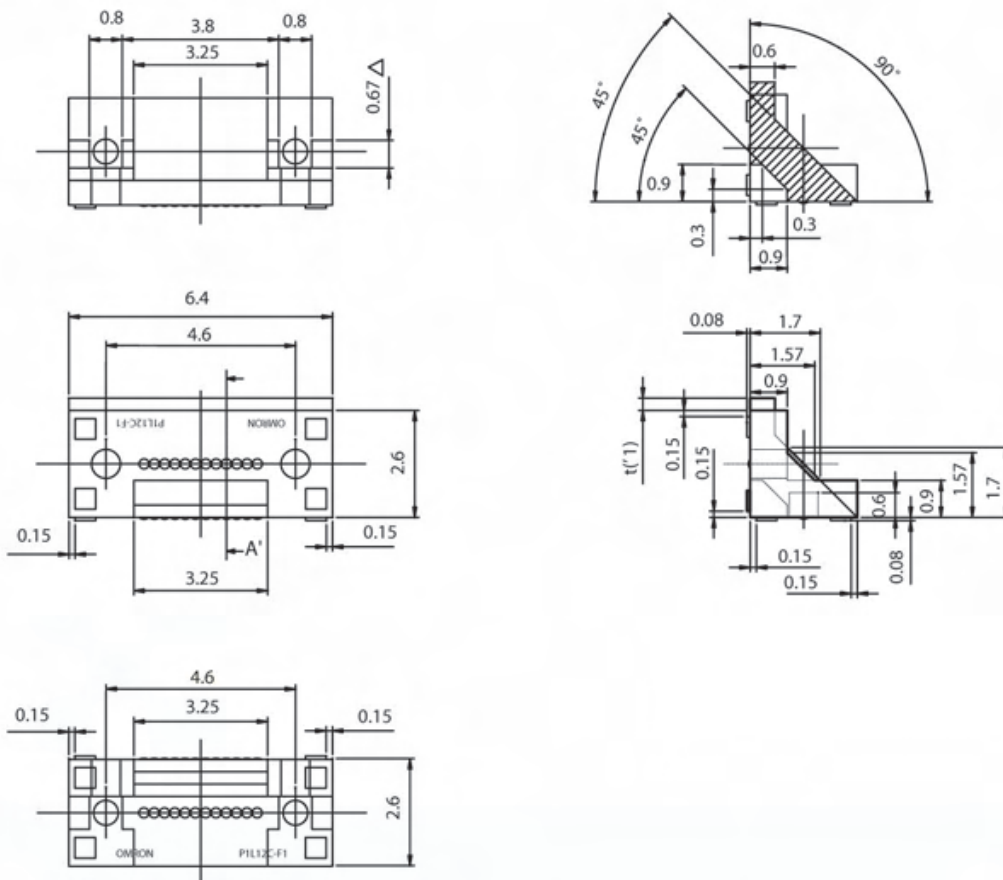
Flat Type  
P1L12A-C1/C2/F1/F2



Right Angle Type P1L12C-F2



Right Angle Type P1L12C-F1



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ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

**OMRON**  
OMRON ELECTRONIC  
COMPONENTS LLC  
55 E. Commerce Drive, Suite B  
Schaumburg, IL 60173  
847-882-2288

**OMRON ON-LINE**  
Global - <http://www.omron.com>  
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# Omron Electronic Components, LLC

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  - Delivery and shipping dates are estimates only; and
  - Seller will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
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