



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## Features

- Push switch option
- Compact, low profile
- High rotational life and switch life
- Metal bushing/shaft
- RoHS compliant\*



## PEC11L Series - 11 mm Low Profile Encoder

### Electrical Characteristics

Output.....	2-bit quadrature code
Closed Circuit Resistance.....	100 milliohms maximum
Contact Rating.....	10 mA @ 5 VDC
Insulation Resistance.....	100 megohms @ 250 VDC
Dielectric Withstanding Voltage Sea Level.....	300 VAC minimum
Electrical Travel.....	Continuous
Contact Bounce (60 RPM).....	10 ms maximum**
RPM (Operating).....	60 maximum**

### Environmental Characteristics

Operating Temperature Range.....	-25 °C to +80 °C (+13 °F to +176 °F)
Storage Temperature Range.....	-40 °C to +85 °C (-40 °F to +185 °F)
Humidity.....	MIL-STD-202, Method 103B, Condition A
Vibration.....	10~55~10 Hz / 1 min. / Amplitude 1.5 mm
Shock.....	100 G
Rotational Life.....	100,000 cycles minimum
IP Rating.....	IP 40

### Mechanical Characteristics

Mechanical Angle.....	360 ° continuous
Torque	
Detent.....	20-200 gf-cm (0.27 to 2.8 oz-in)
Running.....	10 to 150 gf-cm (0.14 to 2.1 oz-in)
Mounting.....	70 N-cm (6.2 lb-in) maximum
Shaft Side Load (Static).....	2.04 kgf (4.5 lbs) minimum
Shaft Strength (Push-Pull).....	100 N (22.5 lbs)
Weight.....	5 gm (0.17 oz) maximum
Terminals.....	Printed circuit board terminals
Soldering Condition	
Wave Soldering.....	Sn95.5/Ag2.8/Cu0.7 solder with no-clean flux: 260 °C ±5 °C max. for 3-5 seconds
Hand Soldering.....	Not recommended
Hardware.....	One flat washer and one mounting nut supplied with each encoder

### Switch Characteristics

Switch Type.....	Contact Push ON Momentary SPST
Switch Life.....	100,000 actuations minimum
Power Rating (Resistive Load).....	10 mA at 5 V DC
Switch Travel.....	0.5 ± 0.3 mm
Switch Actuation Force.....	610 ± 306 gf (8.47 ± 4.24 oz.-in.)

### How To Order

**PEC11L - 4 0 20 F - S 0015**

Model.....	PEC11L - 4 0 20 F - S 0015
Terminal Configuration.....	4 = PC Pin Horizontal/Rear Facing
Detent Option.....	0 = No Detents (15, 20 pulses) 1 = 20 Detents (20 pulses) 2 = 30 Detents (15 pulses)
Standard Shaft Length.....	15 = 15.0 mm 20 = 20.0 mm 25 = 25.0 mm
Shaft Style.....	F = Metal Flatted Shaft K = Metal Knurled Shaft
Switch Configuration.....	S = Push Momentary Switch N = No Switch
Resolution.....	0015 = 15 Pulses per 360 ° Rotation 0020 = 20 Pulses per 360 ° Rotation

\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

\*\*Devices are tested using standard noise reduction filters. For optimum performance, designers should use noise reduction filters in their circuits.

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

## Applications

Level control, tuning and timer settings in:

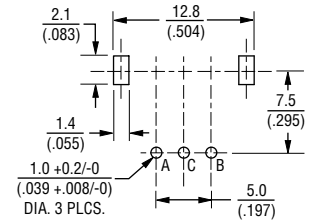
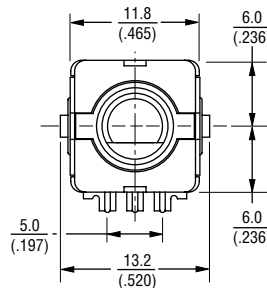
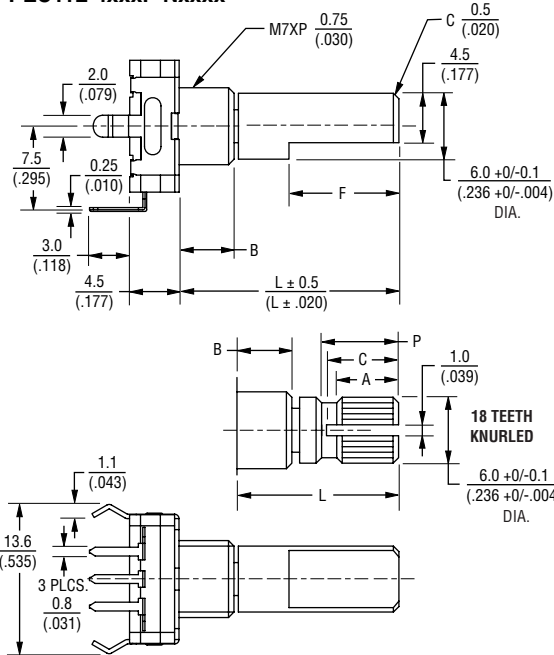
- Audio-visual equipment
- Consumer electric appliances
- Environmental controls
- Musical instrumentation
- Communications equipment

## PEC11L Series - 11 mm Low Profile Encoder

**BOURNS®**

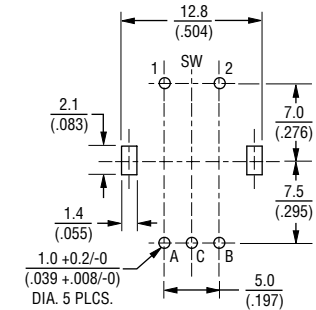
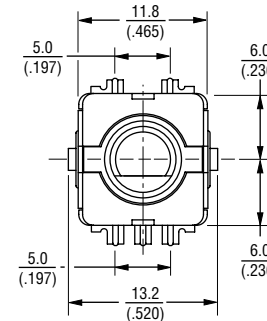
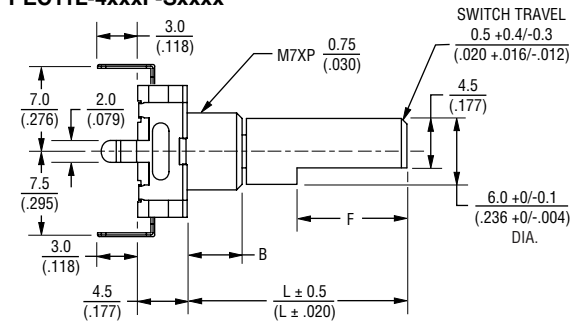
### Product Dimensions

#### PEC11L-4xxxF-Nxxxx

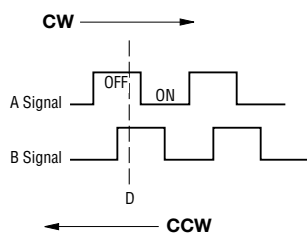


L	B	F	P	A	C	Dim.	Tol.
15 (.591)	5.0 (.197)	7.0 (.276)	7.0 (.276)	6.0 (.236)	7.0 (.276)	<10.0 (<.394)	±0.3 (±.012)
20 (.787)	7.0 (.276)	10.0 (.394)	7.0 (.276)	6.0 (.236)	7.0 (.276)	10.0 ~ 100 (.394 ~ 3.937)	±0.5 (±.020)
25 (.984)	7.0 (.276)	12.0 (.472)	12.0 (.472)	10.0 (.394)	11.0 (.433)	DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$	

#### PEC11L-4xxxF-Sxxxx



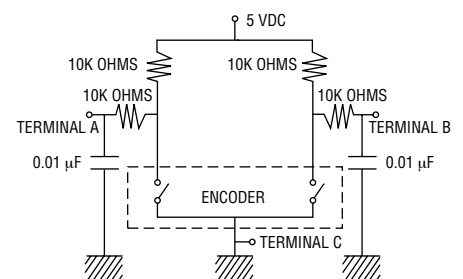
### Quadrature Output Table



### Switch Circuit



### Suggested Filter Circuit



REV. 02/17

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