



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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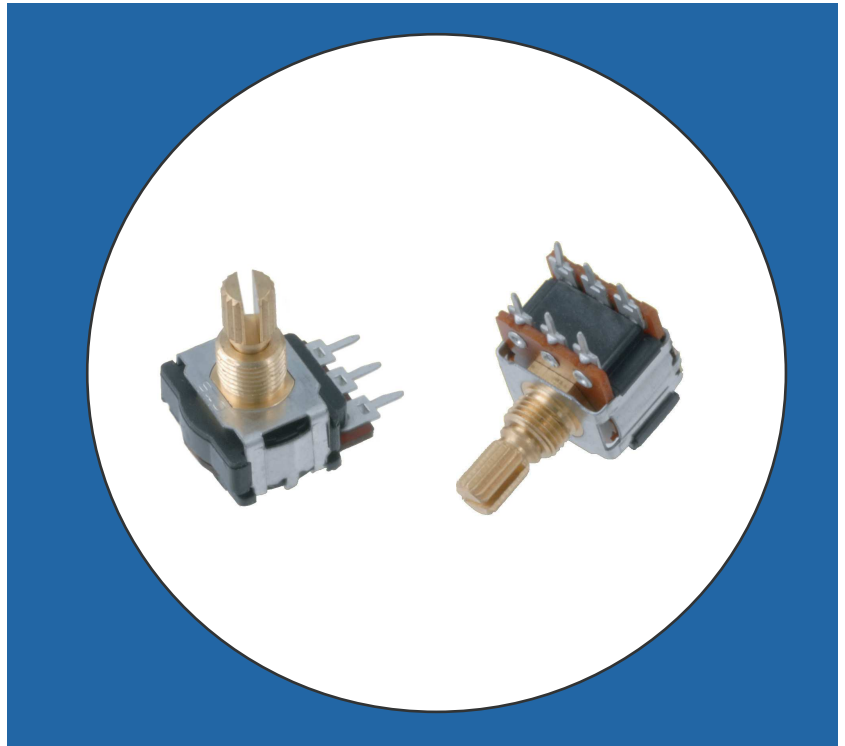
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



### Commercial Miniature 16mm Size Rotary Encoder

#### Features

- Robust Construction
- 2-bit Incremental or 4-bit Absolute Encoder
- Optional Momentary Switch
- Available with 16 Detents
- Continuous Rotation
- Bushing Mount
- Solder Lug or PCB Terminals
- RoHS Compliant



### Electrical and Mechanical Specifications

#### Encoder:

**Contact Resistance**

500Ω maximum

**Voltage Rating**

5 VDC @ 0.5mA maximum

**Detent Points**

16 detents available

**Rotational Life**

50,000 cycles

**Resolution**

2-bit: 4, 6, 8, 10 or 12 pulses in 360°

4-bit: 16 combinations in 360°

**Insulation Resistance**

10MΩ minimum at 50 VDC

**Temperature Range**

Operating: -25°C to +100°C

Storage: -30°C to +100°C

**Rotational Torque**

No Detent: 36 - 216 gf.cm

With Detent: 100 - 500 gf.cm

**Solder Heat Resistance**

260°C for 5 seconds

**Push-Pull Strength of Shaft**

8 kg minimum for 10 seconds

**Special**

Consult CTS for customized or features not listed, including other detent points, resolution, torque and mounting style.

# Electrical and Mechanical Specifications (continued)

## Optional Momentary Switch:

### Switch Contact Resistance

Initial: 100mΩ maximum  
After Life Cycles: 200mΩ maximum

### Switch Rating

16 VDC @ 20mA maximum

### Switch Bounce

5 milliseconds maximum

### Switch Operating Force

350 ± 150 g (12.3 ± 5.3 oz.)

### Switch Life

15,000 operations

### Switch Travel

0.5mm (.020")

## Truth Table

### 2 BIT BINARY CODE

DENOTES CONTACT CLOSURE TO COMMON	2 BIT BINARY CODE															
	B	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1
A	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0
POS. NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	0	1	1													
	1	1	0													
	46	47	48													

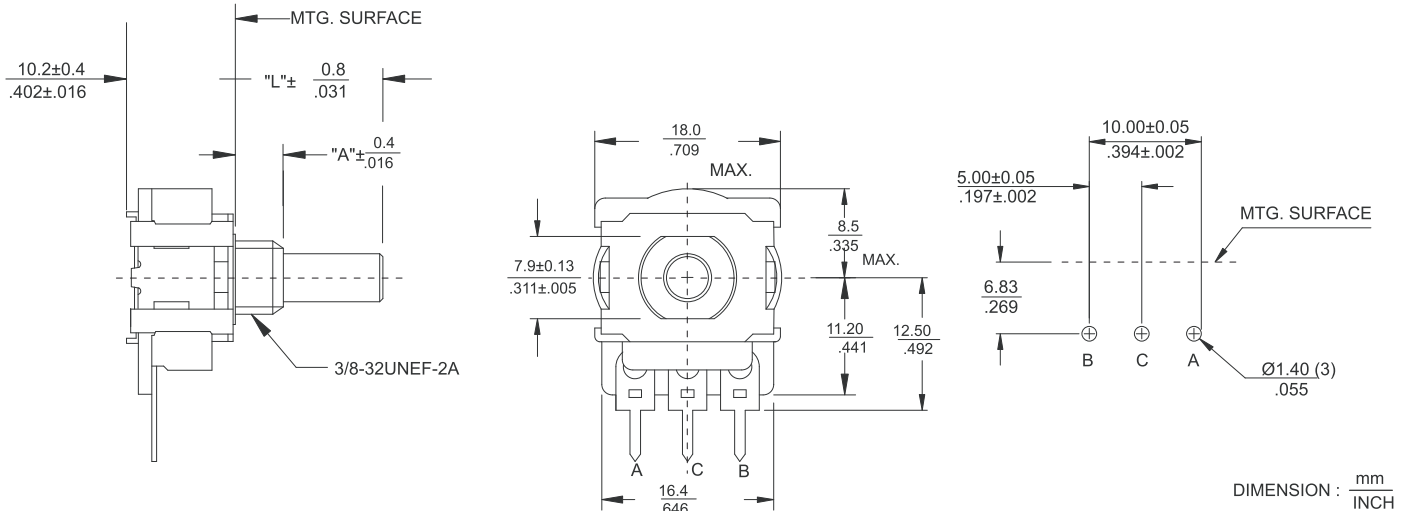
### 4 BIT GRAY CODE

POS. NO.	DENOTES CONTACT CLOSURE TO COMMON					
	A	B	E	F		
1	0	0	0	0		
2	0	0	0	1		
3	0	0	1	1		
4	0	0	1	0		
5	1	0	1	0		
6	1	0	1	1		
7	1	1	1	1		
8	1	1	1	0		
9	0	1	1	0		
10	0	1	1	1		
11	0	1	0	1		
12	0	1	0	0		
13	1	1	0	0		
14	1	1	0	1		
15	1	0	0	1		
16	1	0	0	0		

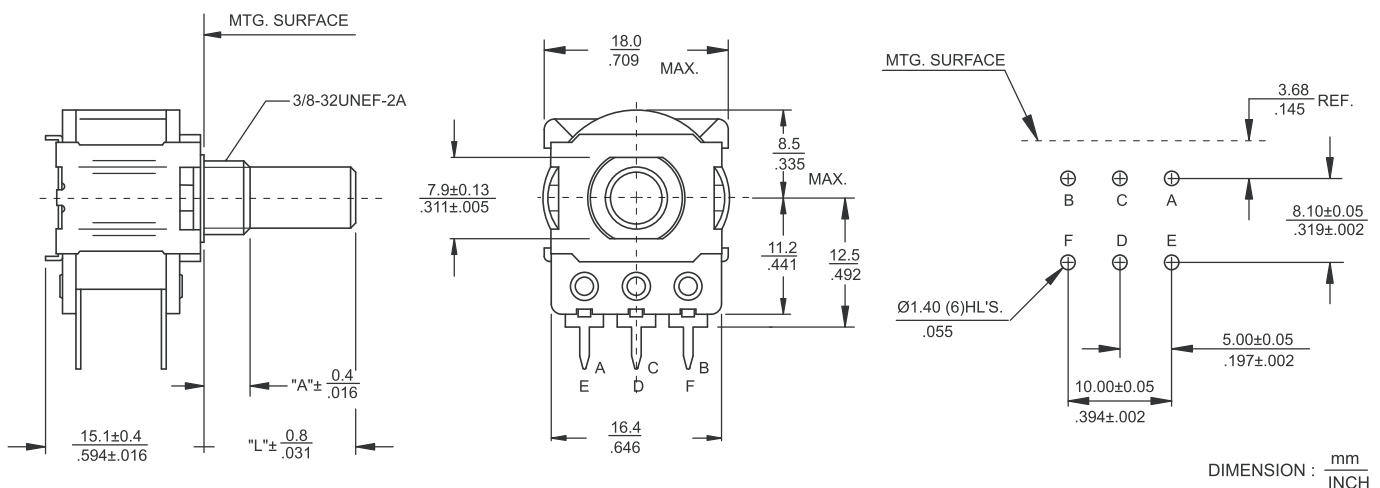
### 4 BIT HEXADECIMAL CODE

POS. NO.	DENOTES CONTACT CLOSURE TO COMMON					
	A	B	E	F		
1	0	0	0	0		
2	0	1	0	0		
3	1	0	0	0		
4	1	1	0	0		
5	0	0	0	1		
6	0	1	0	1		
7	1	0	0	1		
8	1	1	0	1		
9	0	0	1	0		
10	0	1	1	0		
11	1	0	1	0		
12	1	1	1	0		
13	0	0	1	1		
14	0	1	1	1		
15	1	0	1	1		
16	1	1	1	1		

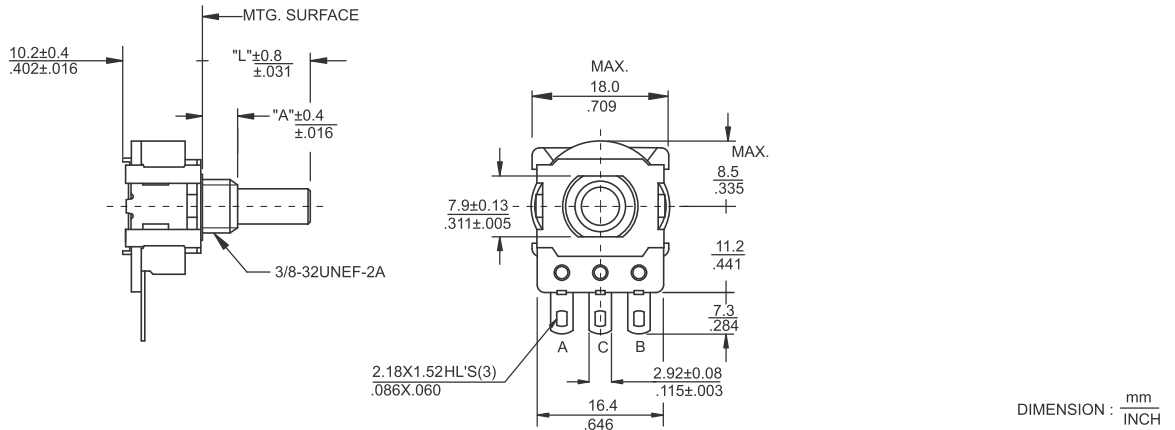
### 288X Typical 2-bit Encoder parallel to P.C. Board



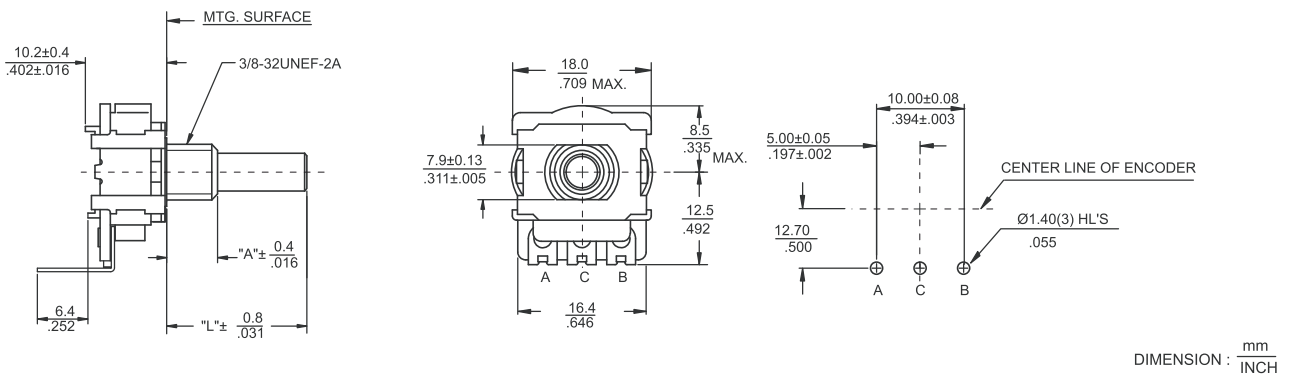
### 2-288X Typical 4-bit Encoder parallel to P.C. Board



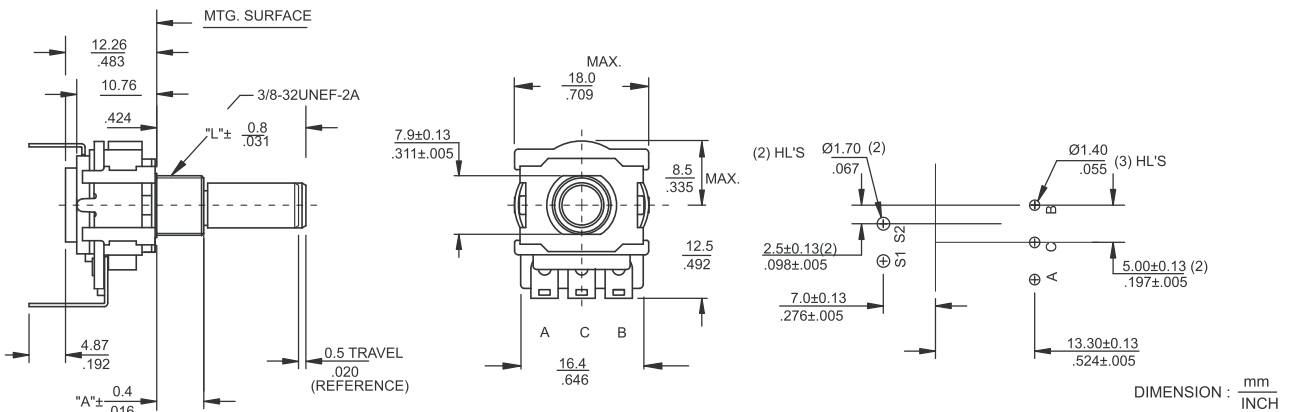
**288T** Typical 2-bit Encoder With Solder Lug Terminals



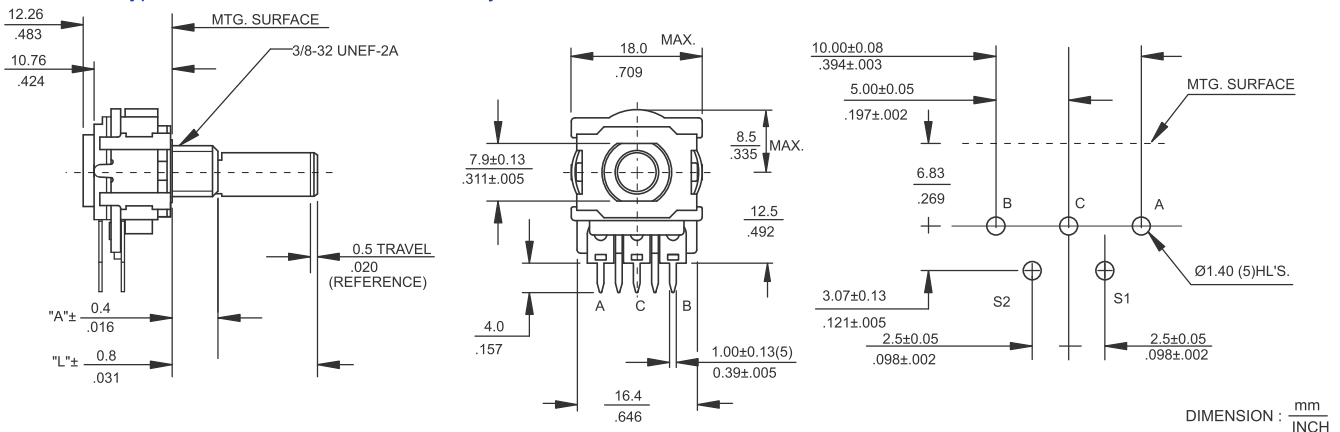
**288V** Typical 2-bit Perpendicular to P.C. Board



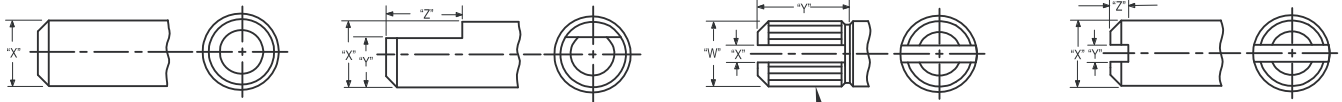
**MC-288V** Typical 2-bit Encoder With Momentary Switch Perpendicular to P.C. Board



**MC-288X** Typical 2-bit Encoder With Momentary Switch Parallel to P.C. Board



# Shaft Trim



**R - ROUND**

	X
Imperial Shaft	.250"
Metric Shaft	6.00

**F - FLATTED**

	X	Y	Z
Imperial Shaft	.250"	.156"	.375"
Metric Shaft	6.00	4.50	7.00

**K - KNURLED & SLOTTED**

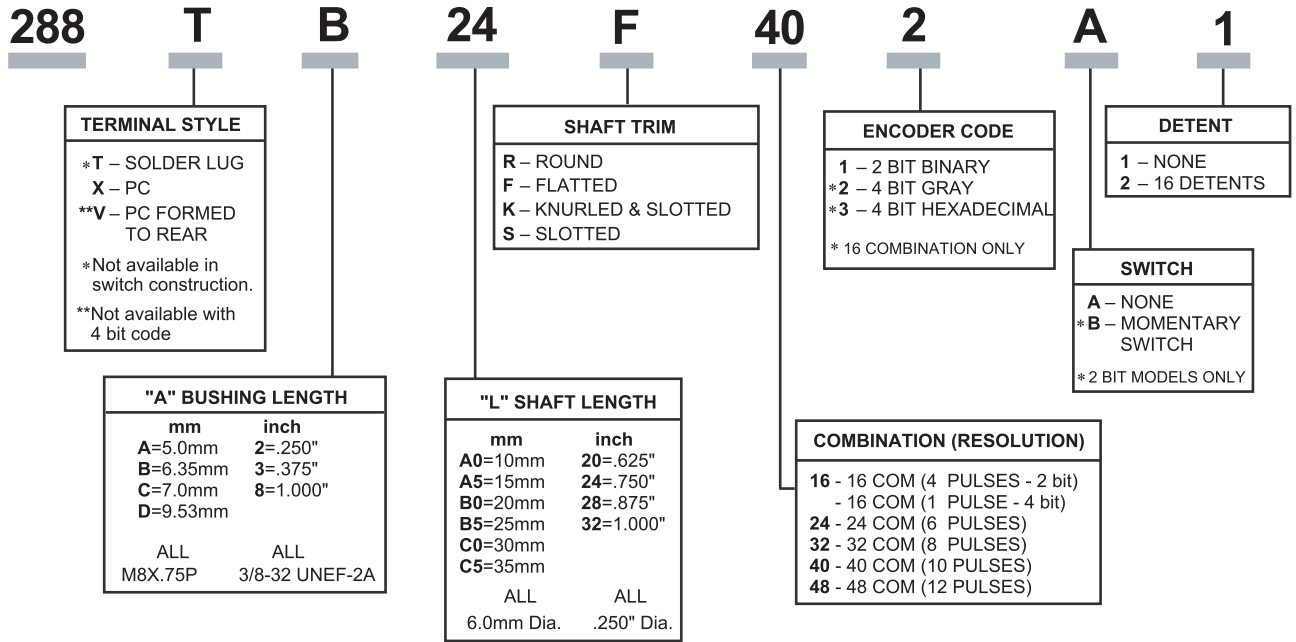
	W	X	Y	Z
Imperial Shaft	.236"	.062"	.344"	24 TEETH
Metric Shaft	6.00	1.57	7.0	18 TEETH

**S - SLOTTED**

	X	Y	Z
Imperial Shaft	.250"	.046"	.062"
Metric Shaft	6.00	1.17	1.57

DIMENSION:  $\frac{\text{inch}}{\text{mm}}$

## Ordering Information



Please consult CTS for customized or features not listed.