



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!



Contact us

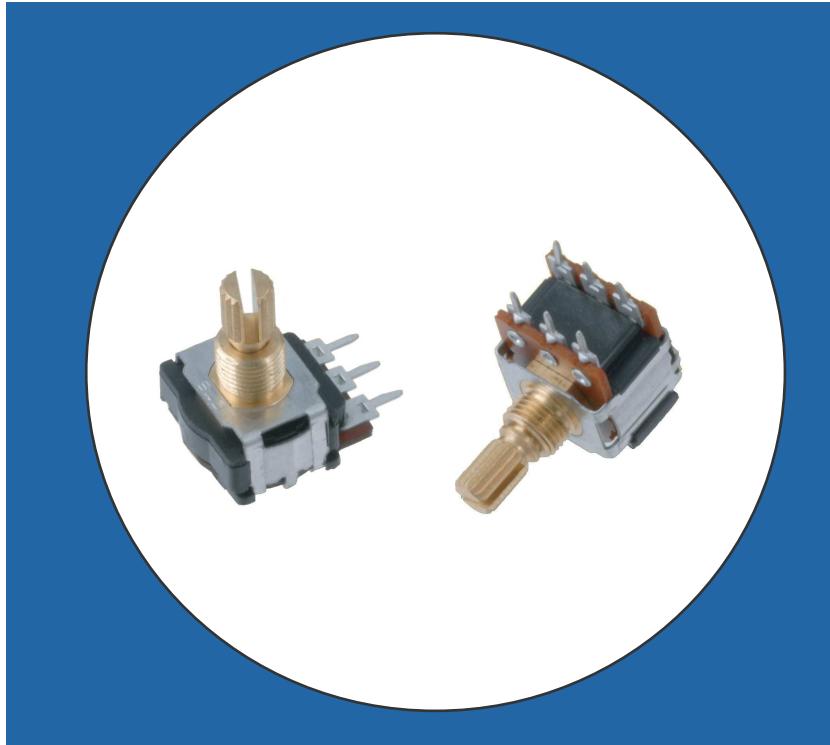
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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

**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: $100\text{m}\Omega$ maximum

After Life Cycles: $200\text{m}\Omega$ maximum

Switch Rating

16 VDC @ 20mA maximum

Switch Bounce

5 milliseconds maximum

Switch Operating Force

$350 \pm 150 \text{ g} (12.3 \pm 5.3 \text{ oz.})$

Switch Life

15,000 operations

Switch Travel

0.5mm (.020")

Truth Table

2 BIT BINARY CODE

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

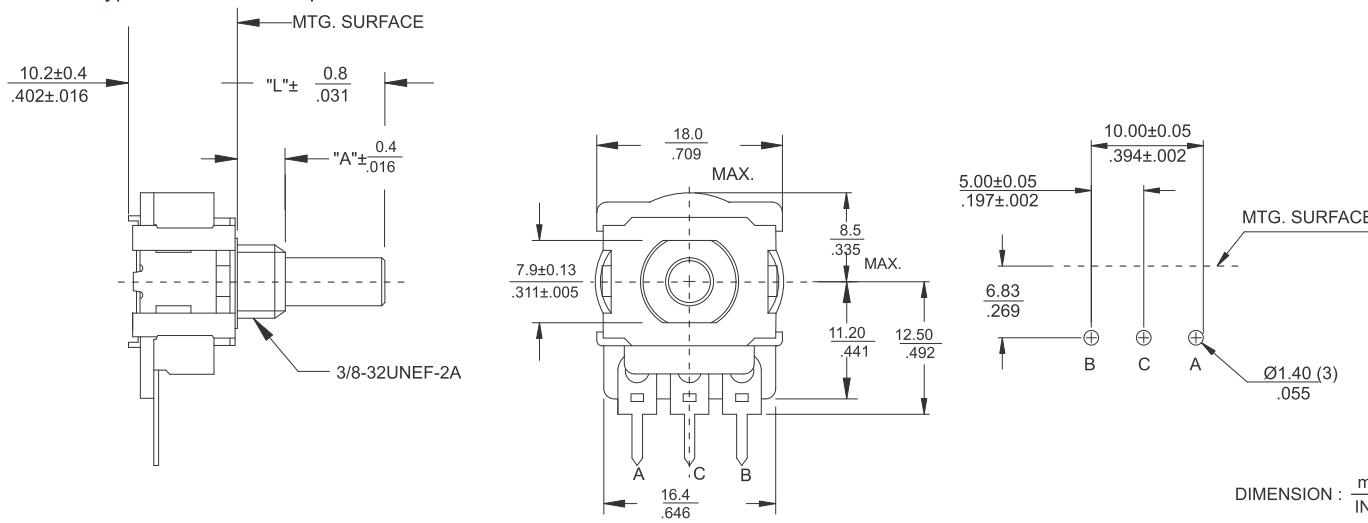
4 BIT GRAY CODE

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

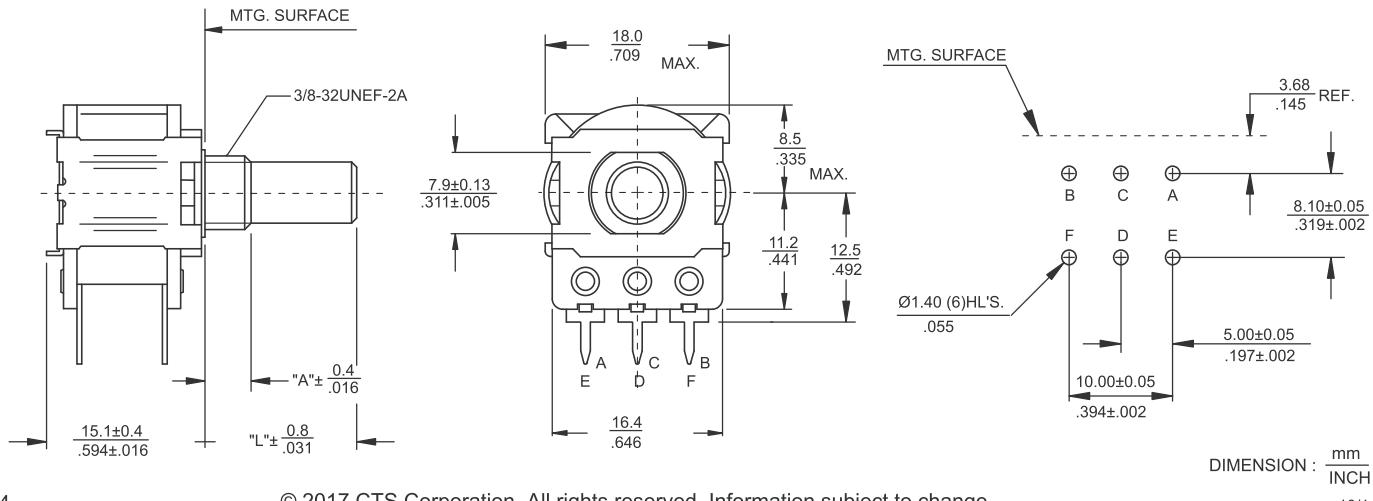
4 BIT HEXADECIMAL CODE

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

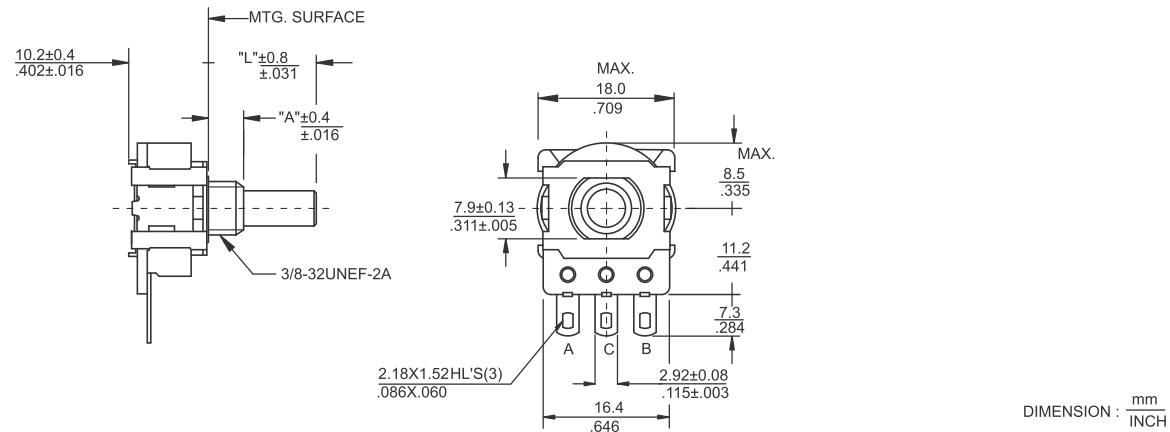
288X Typical 2-bit Encoder parallel to P.C. Board



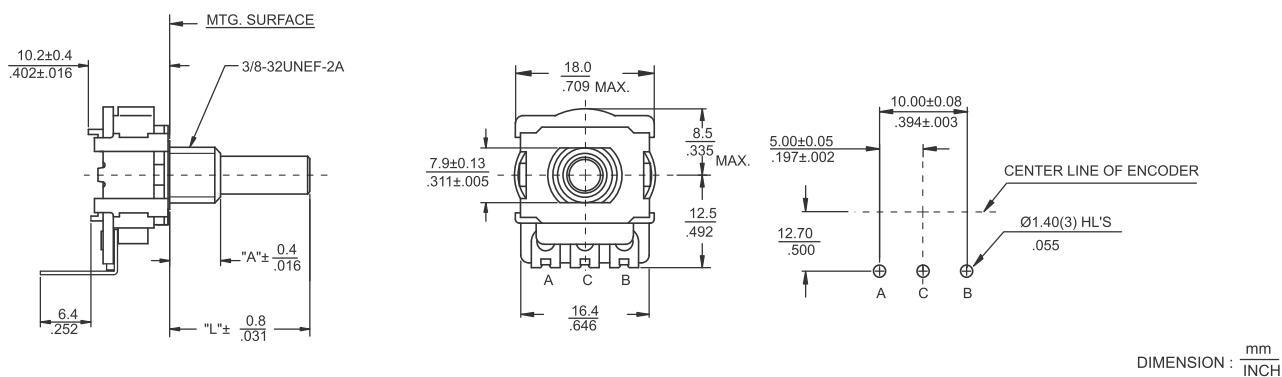
2-288X Typical 4-bit Encoder parallel to P.C. Board



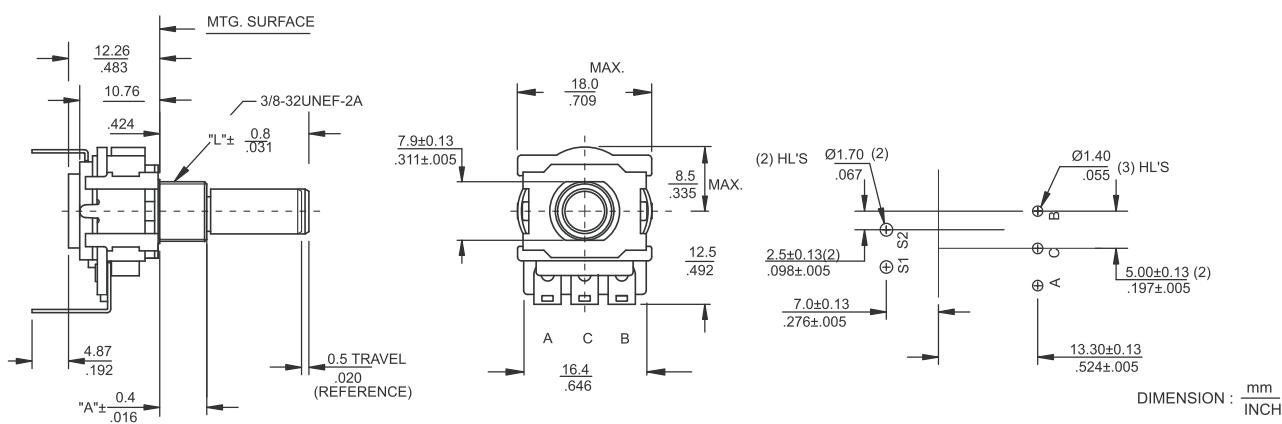
288T Typical 2-bit Encoder With Solder Lug Terminals



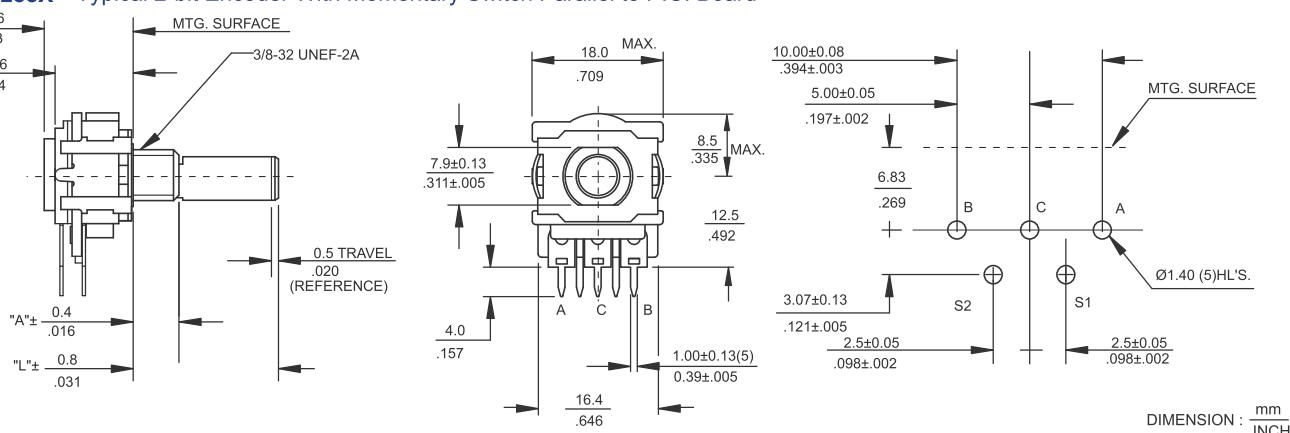
288V Typical 2-bit Perpendicular to P.C. Board



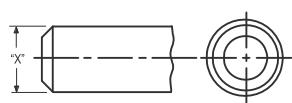
MC-288V Typical 2-bit Encoder With Momentary Switch Perpendicular to P.C. Board



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

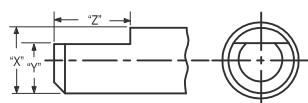


Shaft Trim



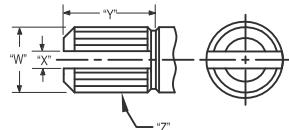
R - ROUND

	X	Y	Z
Imperial Shaft	.250"		
Metric Shaft	6.00		



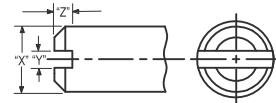
F - FLATTED

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



K - KNULED & 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: inch
mm

Ordering Information

288

T

B

24

F

40

2

A

1

TERMINAL STYLE
*T – SOLDER LUG
X – PC
**V – PC FORMED TO REAR
*Not available in switch construction.
**Not available with 4 bit code

"A" BUSHING LENGTH
mm inch
A=5.0mm 2=.250"
B=6.35mm 3=.375"
C=7.0mm 8=1.000"
D=9.53mm
ALL ALL
M8X.75P 3/8-32 UNEF-2A

SHAFT TRIM
R – ROUND
F – FLATTED
K – KNULED & SLOTTED
S – SLOTTED

ENCODER CODE
1 – 2 BIT BINARY
*2 – 4 BIT GRAY
*3 – 4 BIT HEXADECIMAL
* 16 COMBINATION ONLY

"L" SHAFT LENGTH
mm inch
A0=10mm 20=.625"
A5=15mm 24=.750"
B0=20mm 28=.875"
B5=25mm 32=1.000"
C0=30mm
C5=35mm
ALL ALL
6.0mm Dia. .250" Dia.

COMBINATION (RESOLUTION)
16 - 16 COM (4 PULSES - 2 bit)
- 16 COM (1 PULSE - 4 bit)
24 - 24 COM (6 PULSES)
32 - 32 COM (8 PULSES)
40 - 40 COM (10 PULSES)
48 - 48 COM (12 PULSES)

Please consult CTS for customized or features not listed.