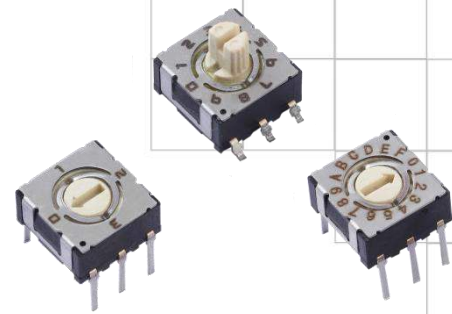




# Series 220

## 7x7mm Compact Rotary DIP Switch

- Robust metal bracket design
- Standard through hole and surface mount gull-wing terminal configurations
- Binary coded decimal, Hexadecimal code and Single pole output
- Clockwise or counterclockwise rotation



### Ordering Information

Series	Terminal Type	Actuator Height	Positions	Number of Type	Packaging
220	AM	A		04	R

Code	Spec.
AM	Surface mount gull wing, 3.8mm height
AD	Standard through hole, 3.6mm height

Code	Spec.
A	Flush arrow rotor
B	Knurled, slotted, flatted shaft
C	Knurled, slotted shaft

Code	Spec.
04	4 Positions
10	10 Positions
16	16 Positions

Code	Spec.
Blank	Tube packaging only for through hole terminals
R	Tape & reel packaging only for surface mount terminals

Notes: Contact CTS for other common features not listed.

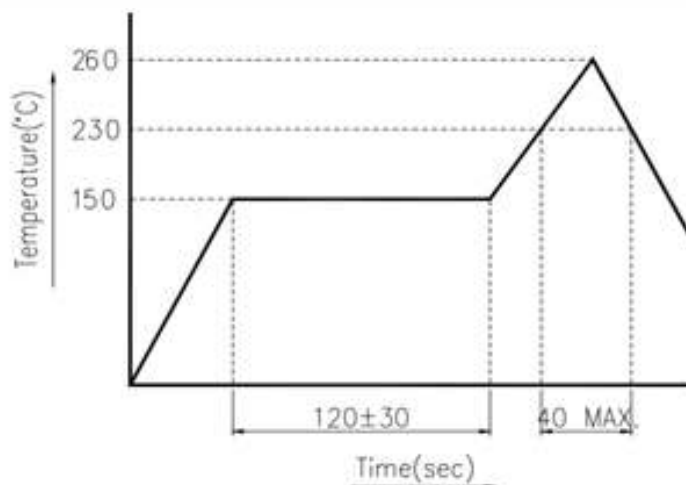
### Electrical Specifications

Parameter	Conditions & Remarks	Min	Max	Unit
Output	Binary coded decimal		10	position
	Hexadecimal		16	
	Single pole		4	
Contact Resistance			100	milliohms
Insulation Resistance	Between insulated terminals	1000		megohms
Dielectric Strength	250 Vac between adjacent switches		1	minute
Nonswitching Rating			100 or 50	mA or VDC
	Load	1 $\mu$ A 20m		VDC

### Mechanical and Environmental

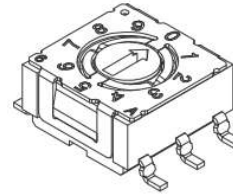
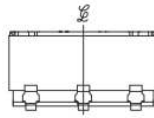
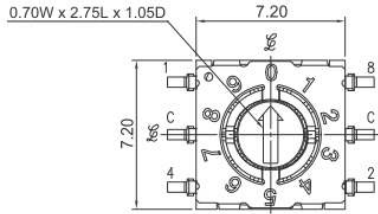
Soldering	Maximum reflow temperature, 260°C for 5 seconds Maximum wave temperature, 260°C for 10 seconds Maximum manual temperature, 350°C for 4 seconds
RoHS	Lead-Free. Fully compliant to RoHS
Rotational Torque:	40~200 gf-cm
Actuation Life	10,000 steps
Marking:	Special top marking available-consult CTS
Packaging :	Standard anti-static tube packaging for through hole terminal Standard tape and reel packaging for gull wing terminal
Operating Temperature Range	-40°C to +85°C
Storage Temperature Range:	-40°C to +85°C

### Soldering Profile



### Mechanical Specifications

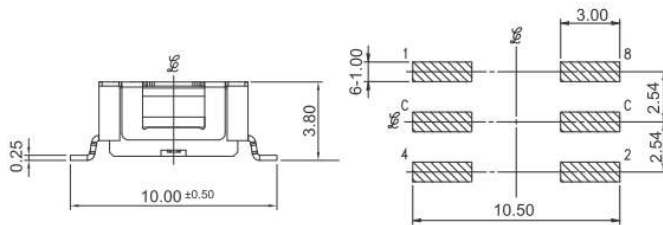
Figure 1 – 220AM\_10, 16R - Surface Mount Gull Wing, 10 and 16 Position



### CODE TABLE

		CODE			
		1	2	4	8
POSITIONS	0				
	1	●			
	2		●		
	3	●			
	4			●	
	5	●		●	
	6				
	7	●	●	●	
	8				●
	9	●			
A	●	●	●		
B	●	●	●		
C			●	●	
D	●	●	●	●	
E	●	●	●	●	
F	●	●	●	●	

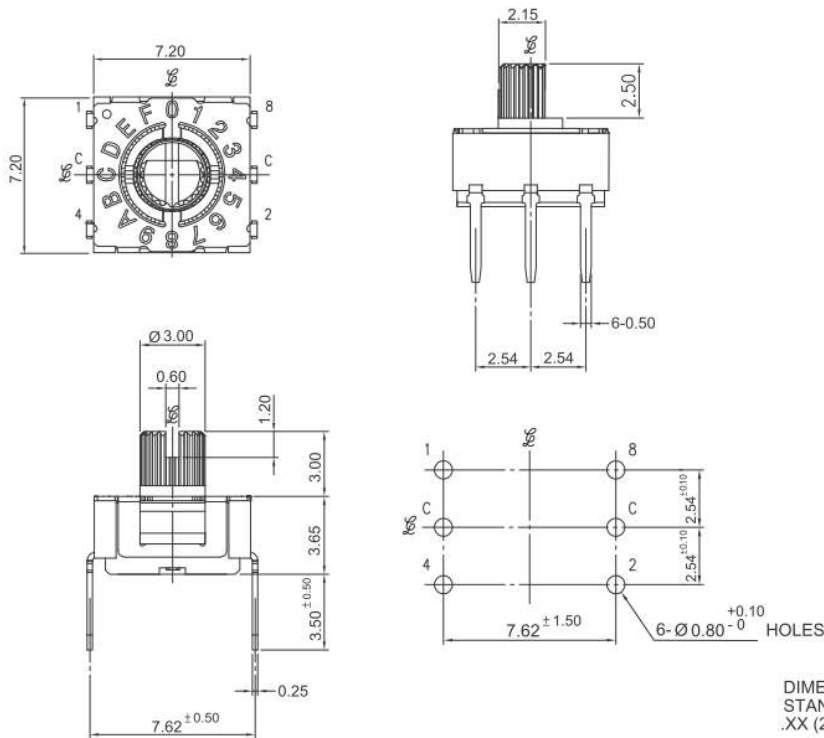
### PCB LAYOUT



DIMENSION : mm  
STANDARD TOLERANCE :  
.XX (2 PLACE) : ±0.30

Dot indicates terminal to common connection. All switches are continuous rotation.  
10 Position - Numbered 0 through 9  
16 Position - Numbered 0 through F

Figure 2 – 220AD\_10, 16 - Standard Through Hole, 10 and 16 Position

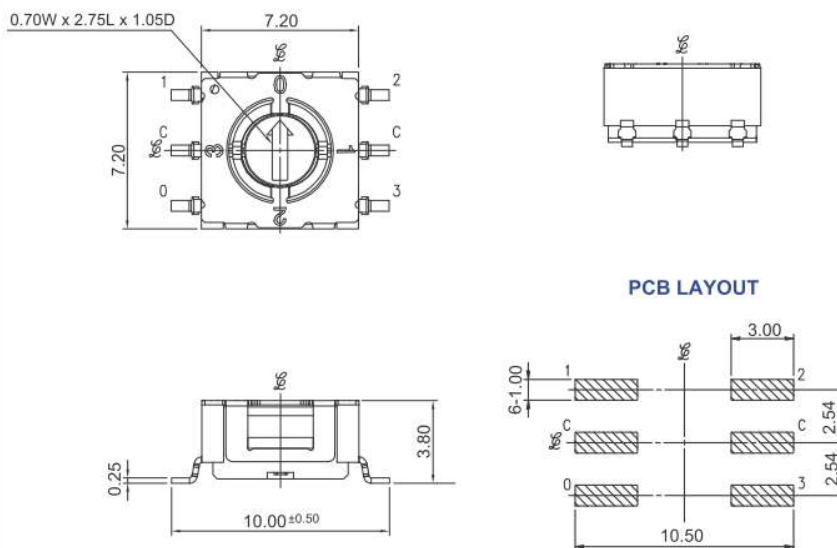


**CODE TABLE**

POSITIONS	CODE			
	1	2	4	8
0				
1	●			
2		●		
3	●	●		
4			●	
5	●	●	●	
6			●	
7	●	●	●	
8				●
9	●	●	●	●
A	●	●	●	●
B	●	●	●	●
C			●	●
D	●	●	●	●
E	●	●	●	●
F	●	●	●	●

Dot indicates terminal to common connection. All switches are continuous rotation.  
10 Position - Numbered 0 through 9  
16 Position - Numbered 0 through F

Figure 3 – 220AM\_04R - Surface Mount Gull Wing, 4 Position

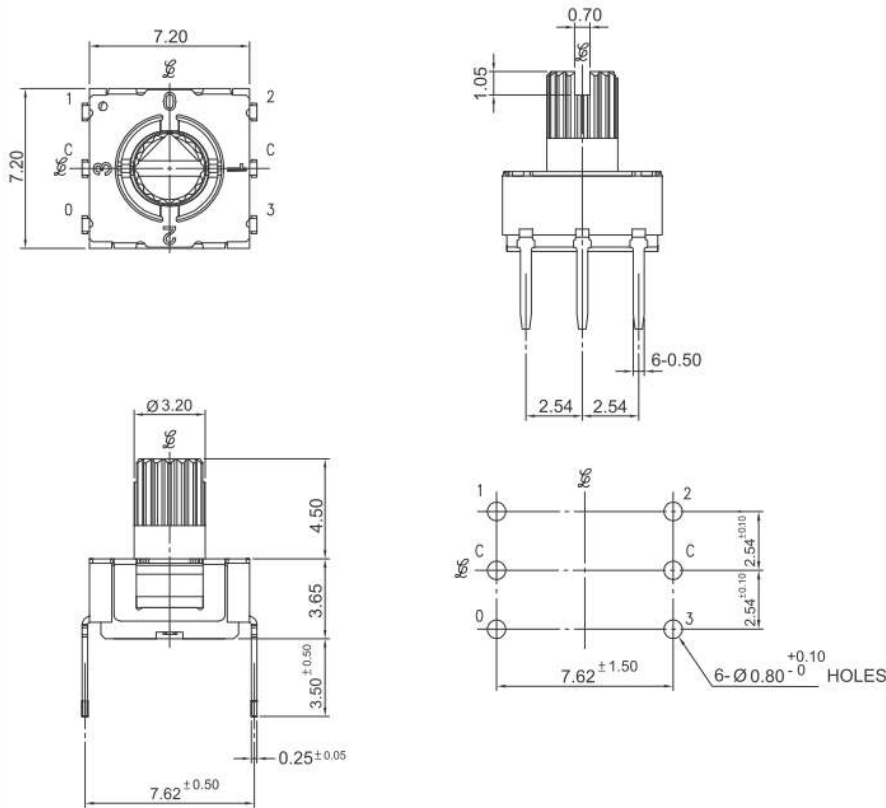


**CODE TABLE**

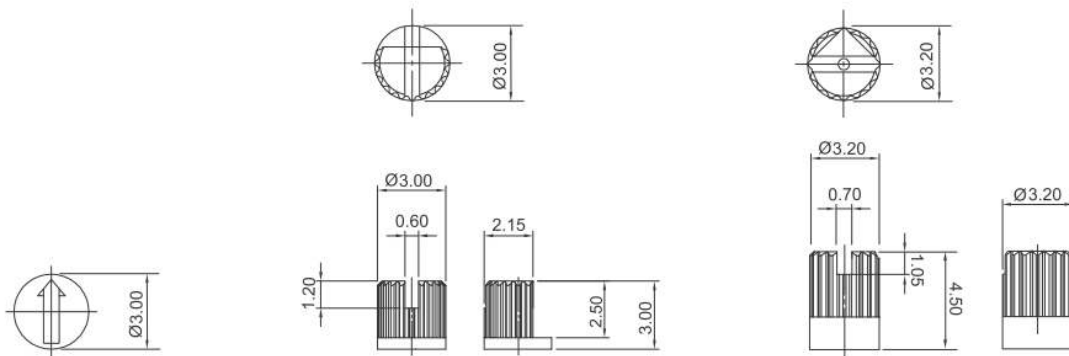
POSITIONS	CODE			
	0	1	2	3
0	●			
1		●		
2			●	
3				●

Dot indicates terminal to common connection. All switches are continuous rotation.  
4 Position - Single pole

Figure 4 – 220AD\_04 - Standard Through Hole, 4 Position



### Actuator Options



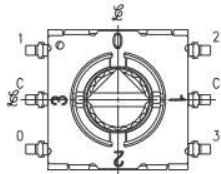
A: FLUSH ARROW ROTOR

B: KNURLED, SLOTTED, FLATTED SHAFT

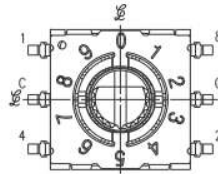
C: KNURLED, SLOTTED SHAFT

DIMENSION : mm  
STANDARD TOLERANCE :  
.XX (2 PLACE) : ±0.30

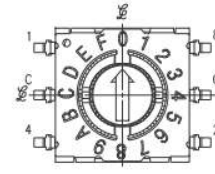
Position Options



04: 4 POSITIONS



10: 10 POSITIONS

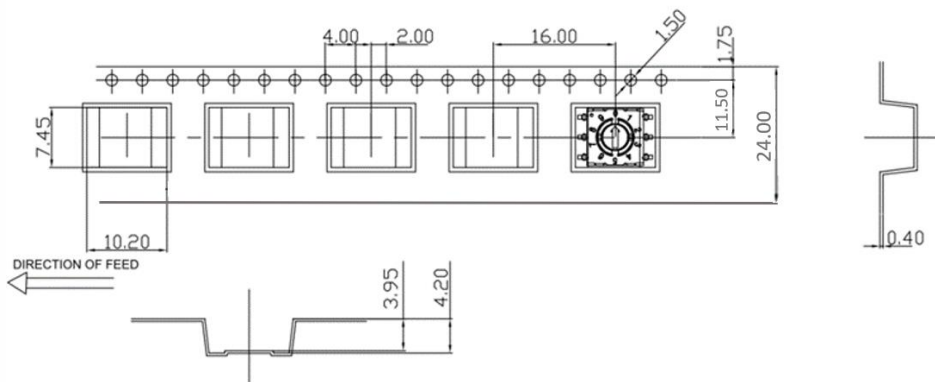


16: 16 POSITIONS

Packing: Tape and Reel

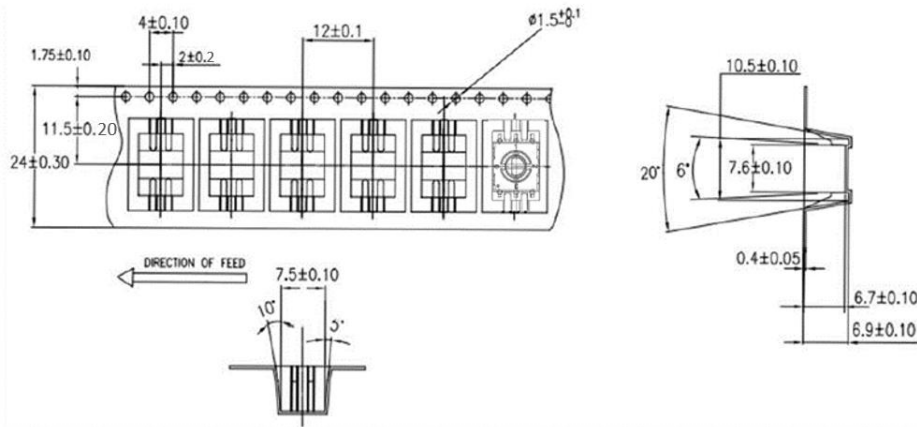
**TAPE :**

**(A) 220AMAxxR – MATERIAL & DIMENSIONS:**



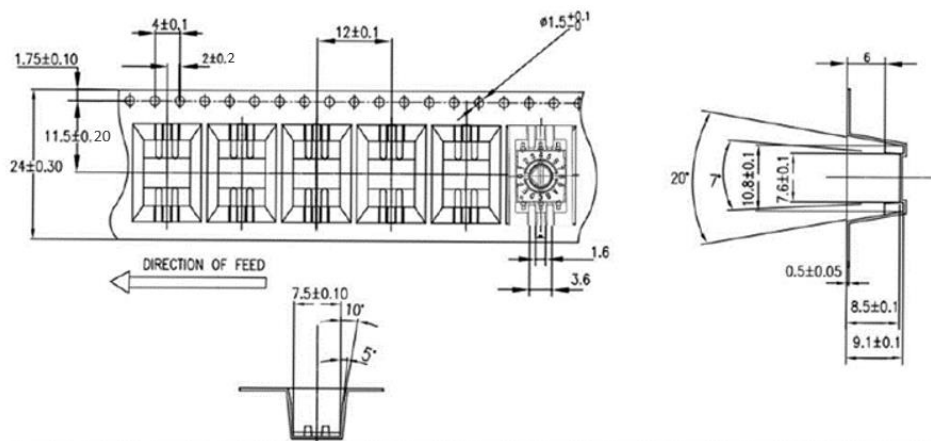
**MATERIAL: CONDUCTIVE POLYSTYRENE, BLACK COLOR**  
**ALL DIMENSIONS MEET EIA-481-2A REQUIREMENTS**  
**CARRIER TAPE THICKNESS: 0.40±0.05MM.**  
**PACKING LENGTH PER 13" REEL: 16.6 METERS.**  
**COMPONENT LOADED PER 13" REEL: 1038 PCS.**  
**SPQ: 1000 PCS/ REEL**

**(B) 220AMBxxR – MATERIAL & DIMENSIONS:**



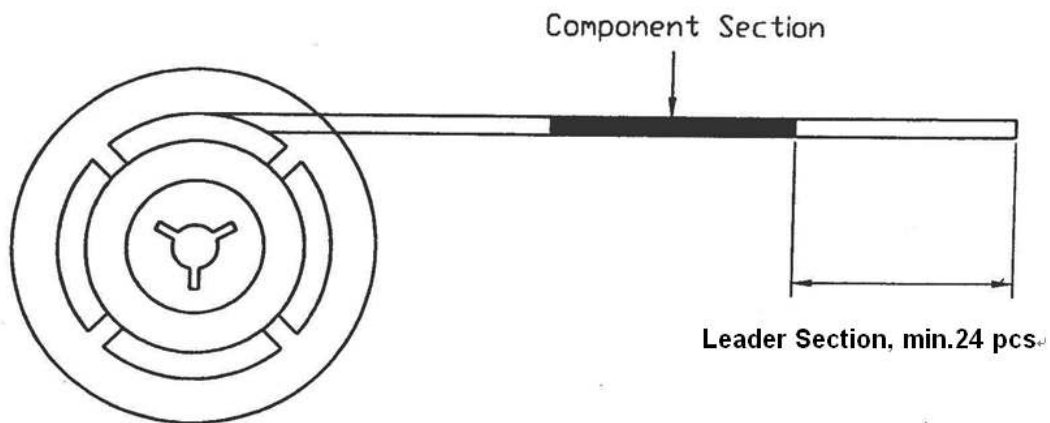
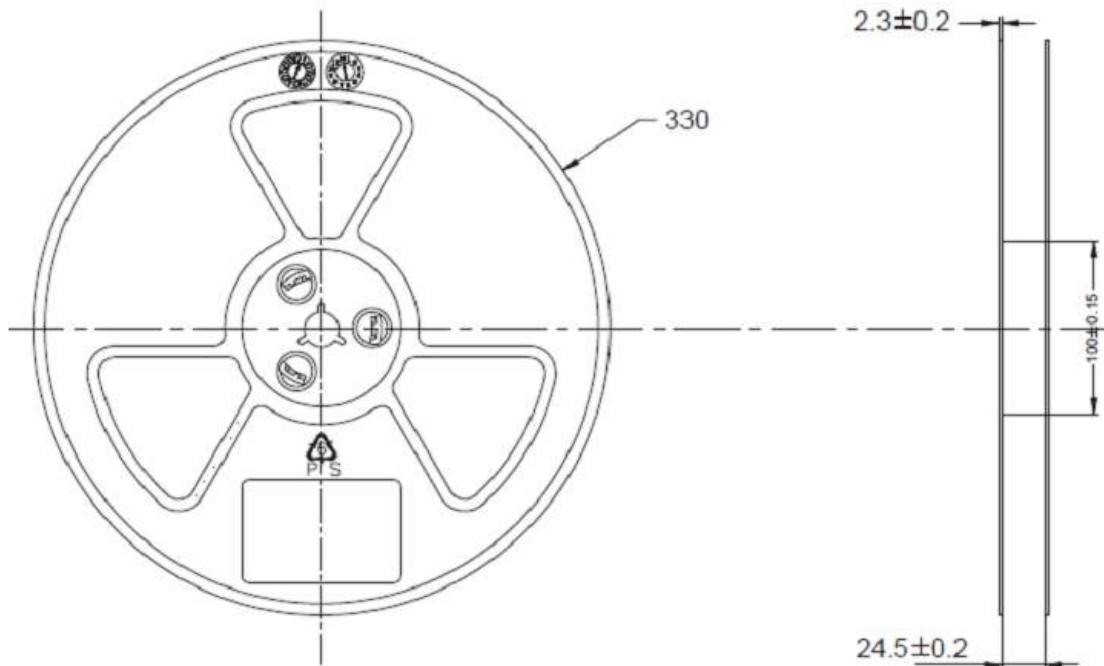
**MATERIAL: ANTI-STATIC POLYSTYRENE, TRANSPARENT, BLACK COLOR.**  
**ALL DIMENSIONS MEET EIA-481-B REQUIREMENTS.**  
**CARRIER TAPE THICKNESS: 0.40±0.05MM.**  
**PACKING LENGTH PER 13" REEL: 8.93 METERS.**  
**COMPONENT LOADED PER 13" REEL: 744 PCS.**  
**SPQ: 700 PCS/REEL.**

**(C) 220AMCxxR – MATERIAL & DIMENSIONS:**



**REEL:**

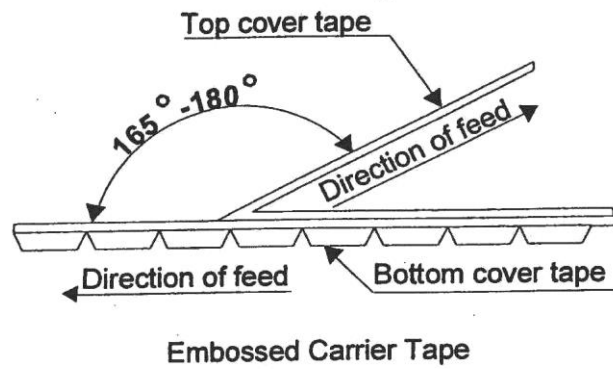
(A) SPECIFIED REEL PARTS DIMENSIONS: (COMMON TO ALL SMT COMPONENTS)



**TAPE BREAK FORCE, PEEL STRENGTH AND ANGLE:  
REQUIRED SETTINGS :**

- **TOP COVER TAPE PEEL FORCE : 10 ~ 140 gm**
- **ANGLE BETWEEN THE TOP COVER TAPE AND THE DIRECTION OF FEED DURING PEEL OFF : 165° ~ 180°**





**THE COVER TAPES MAY NOT EXTEND OVER THE DEGE OF THE CARRIER TAPE OR COVER ANY PART OF THE SPROCKETS HOLES.**