



# Series 204

## Surface Mount Multi-Functional DIP Switch

- Coplanarity: 0.1mm/.004" maximum
- Enclosed actuators shield contacts from foreign particles throughout life of switch
- Available with SPST, SPDT, DPST, 3PST circuitry choices
- Optional top tape seal for board spray washing



### Description

Integral terminal and contact molded into thermoset base provides electrostatic discharge protection rated to 22KV. Optimized gold plated contact design incorporates a dimple wiping interface for long-term contact corrosion resistance.

### Ordering Information

Series	Number of Poles	Number of Throws	Number of Switch Positions	Actuator Height	Bottom Epoxy Seal	Top Tape Seal	Tape and Reel	Actuation Preset
204-	1	2	1	E	S	T	R	N

Code	No. of poles
Blank	For SPST
1	Single pole
2	Double poles
3	3 poles

Code	Spec.
Blank	For SPST
1	Single throw
2	Double throws

Code	No. of switch positions
1	1 position (Not available for SPST)
2	2 positions
3	3 positions
4	4 positions
5	5 positions
6	6 positions
7	7 positions
8	8 positions
9	9 positions
10	10 positions

Code	Spec.
Blank	Standard (0.89mm/.035")
E	Extended (3.43mm/.135") (SPST only)
LP	Low profile (Flush) (SPST&SPDT only)

Code	Bottom epoxy seal
Blank	No epoxy seal
S	Epoxy seal

Code	Spec.
Blank	Ship at OFF position
N	Ship at ON position ( SPST, DPST&3PST only)

Code	Spec.
Blank	Anti-static tube packaging
R	Tape and reel packaging (SPST, DPST&3PST only. Not available for 7-position SPST DIP switch)

Code	Top tape seal
Blank	No top tape seal
T	Top tape seal (Not available for extended actuator)

Notes: Contact CTS for other common features not listed.

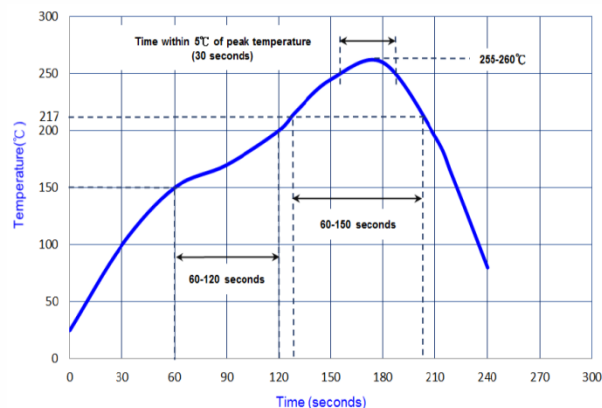
## Electrical Specifications

Parameter	Conditions & Remarks	Min	Max	Unit
Circuit	SPST	2	12	positions
	SPDT	1	6	
	DPST	1	6	
	3PST	1	4	
Contact Resistance	Initial		50	milliohms
	At end of life		100	
Insulation Resistance	Between insulated terminals	1000		megohms
Dielectric Strength	500 VAC between adjacent switches		1	minute
Actuation Life	50mA @ 24 VDC		5,000	cycles
Switch Capacitance	Between adjacent closed switches		5.0	pF
Nonswitching Rating			100	mA
			50	VDC
Coplanarity			0.1	mm
			0.004	inch

## Mechanical and Environmental

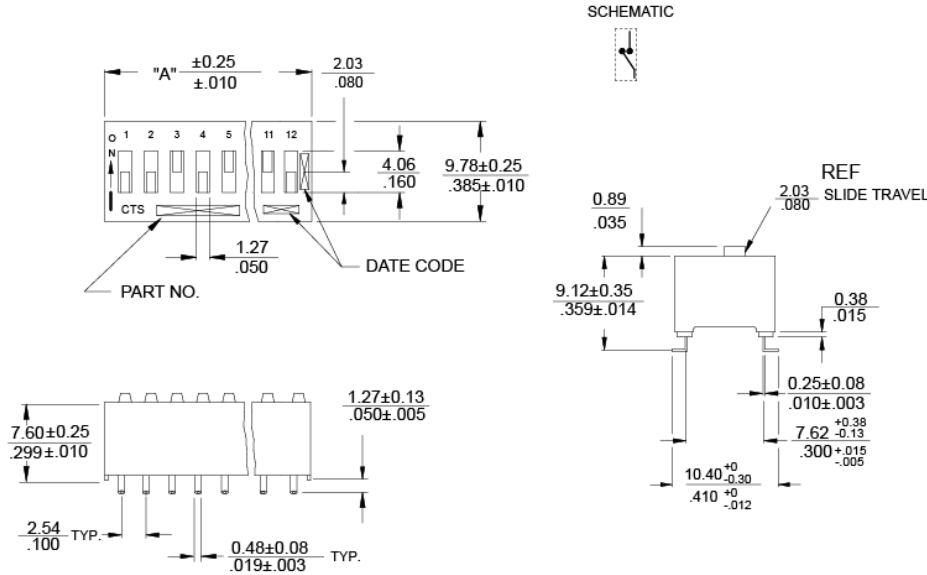
Soldering	Maximum reflow temperature, 250°C for 30 seconds
MSL	Level 1
RoHS	Lead-Free. Fully compliant to RoHS Directive 2011/65/EU
Shock	Per MIL-STD-202F, method 213B, condition A ( 50G's) with no contact inconsistencies greater than 1 microsecond
Vibration	Per MIL-STD-202F, method 204D, condition B ( .06" or 15G's between 10 HZ to 2K HZ) with no contact inconsistencies greater than 1 microsecond
Seal	Bottom epoxy seal Top tape seal optional
Marking	Special side or top marking available-consult CTS
Packaging:	Standard anti-static tube packaging, optional tape and reel packaging
Operating Temperature Range	-40°C to +85°C
Storage Temperature Range	-55°C to +85°C

## Soldering Profile



### Mechanical Specifications

Figure 1 - SPST

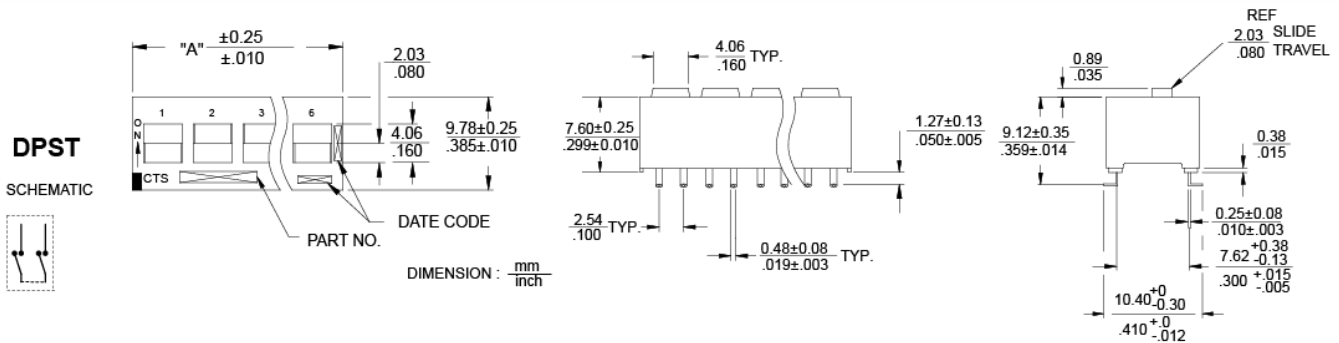


### Ordering Information SPST Switches

"A" Overall Dimension	No. of Switch Positions	Part No.
7.26 / .286	2	204-2
9.80 / .386	3	204-3
12.34 / .486	4	204-4
14.88 / .586	5	204-5
17.42 / .686	6	204-6
19.96 / .786	7	204-7
22.50 / .886	8	204-8
25.04 / .986	9	204-9
27.58 / 1.086	10	204-10
32.66 / 1.286	12	204-12

DIMENSION :  $\frac{\text{mm}}{\text{inch}}$   
 STANDARD TOLERANCE FOR ALL STYLES :  
 X (1 PLACE) :  $\pm 0.3$  /  $\pm 0.12$  XX(2 PLACE) :  $\pm 0.13$  /  $\pm 0.005$

Figure 2 – SPDT/DPST



### Ordering Information SPDT/DPST Switches

"A" Overall Dimension	Number of Switch Positions	Actuation	Part No.
7.26 / .286	1	SPDT/DPST	204-121/204-211
12.34 / .486	2	SPDT/DPST	204-122/204-212
17.42 / .686	3	SPDT/DPST	204-123/204-213
22.50 / .886	4	SPDT/DPST	204-124/204-214
27.58 / 1.086	5	SPDT/DPST	204-125/204-215
32.66 / 1.286	6	SPDT/DPST	204-126/204-216

Figure 3 - 3PST

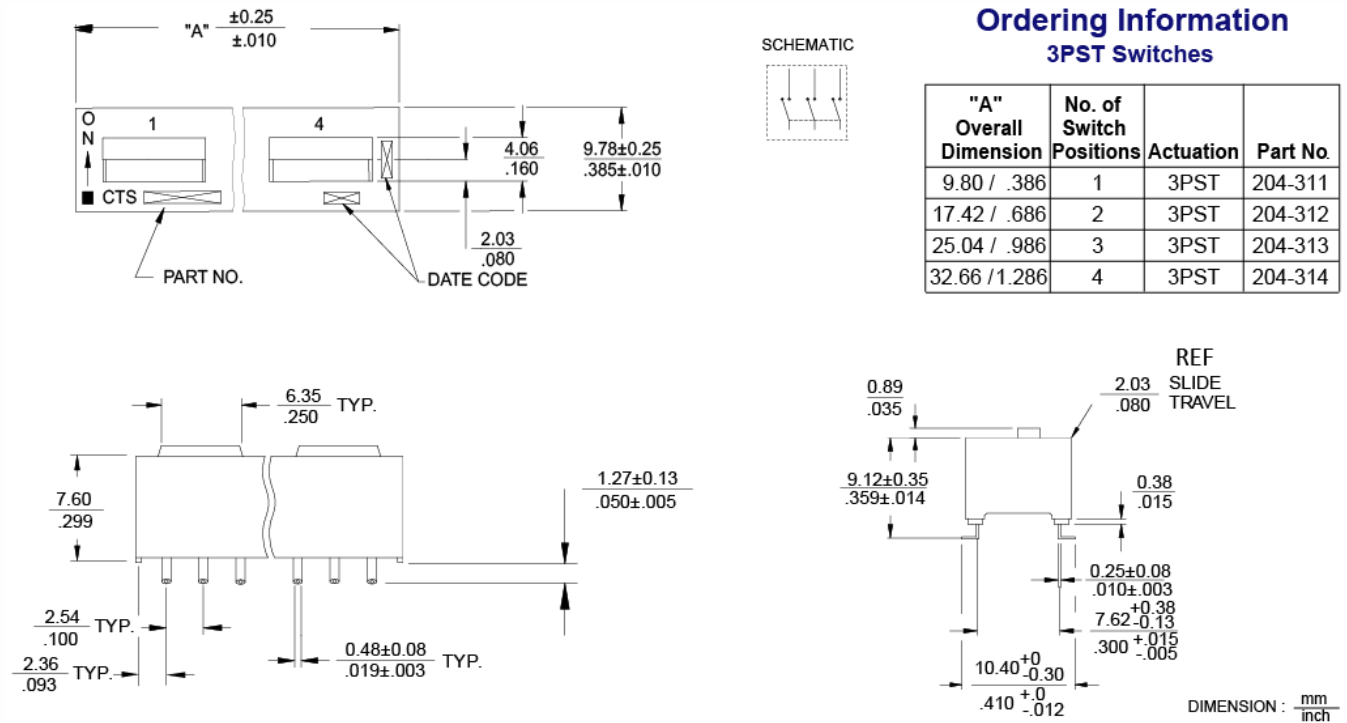


Figure 4 – Low Profile Actuators (SPST&SPDT only)

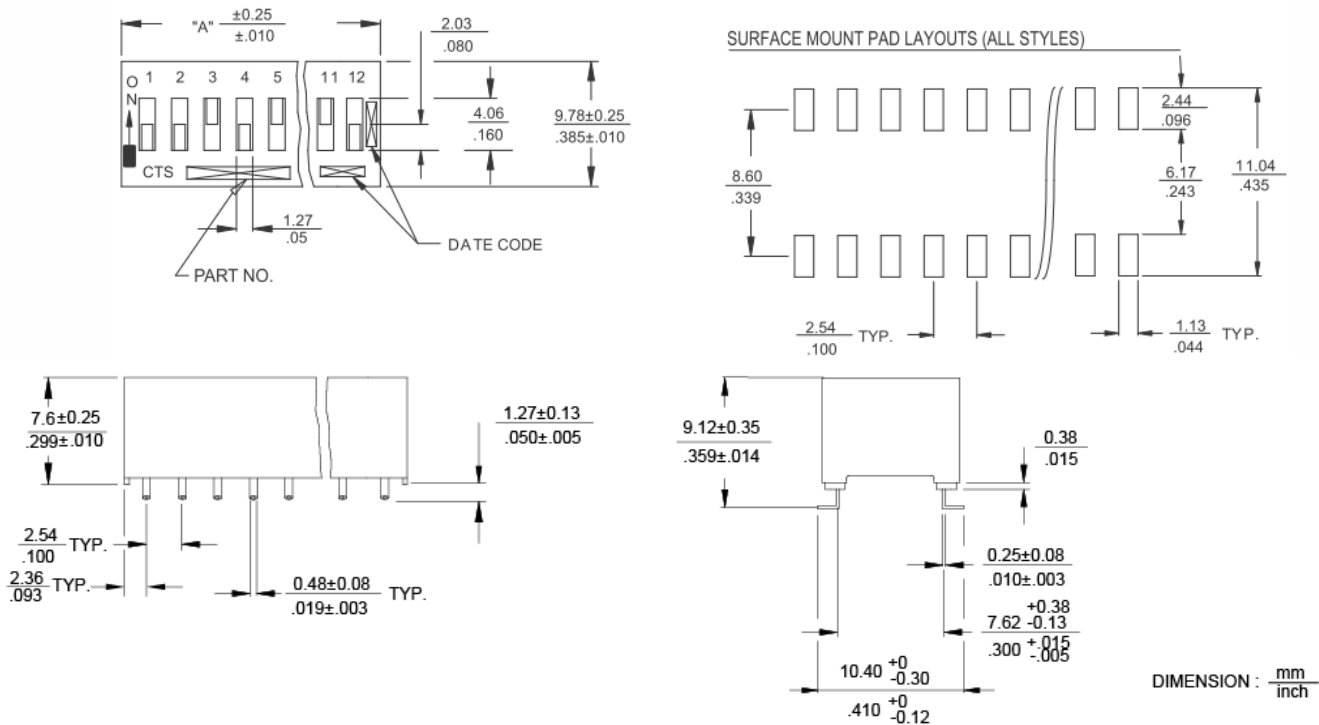
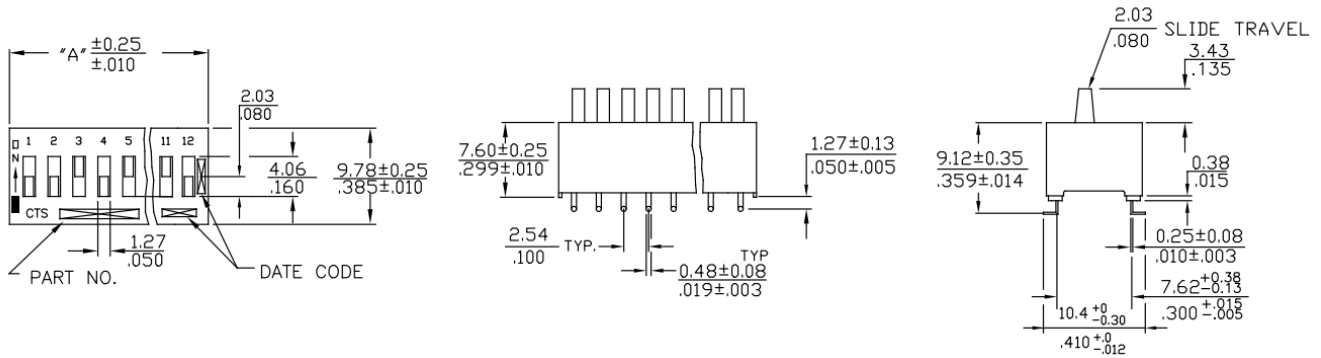


Figure 5 – Extended Profile Actuators (SPST only)



Packing: Tape and Reel

Unit: mm

SW Section	Fig	Bo	W	F	S
2	I	7.15	24.0	11.50	-
3	I	9.69	24.0	11.50	-
4	I	12.23	24.0	11.50	-
5	II	14.81	32.0	14.20	28.4
6	II	17.35	32.0	14.20	28.4
8	II	22.40	44.0	20.20	40.4
9	II	24.94	44.0	20.20	40.4
10	II	27.48	44.0	20.20	40.4
12	II	32.56	44.0	20.20	40.4

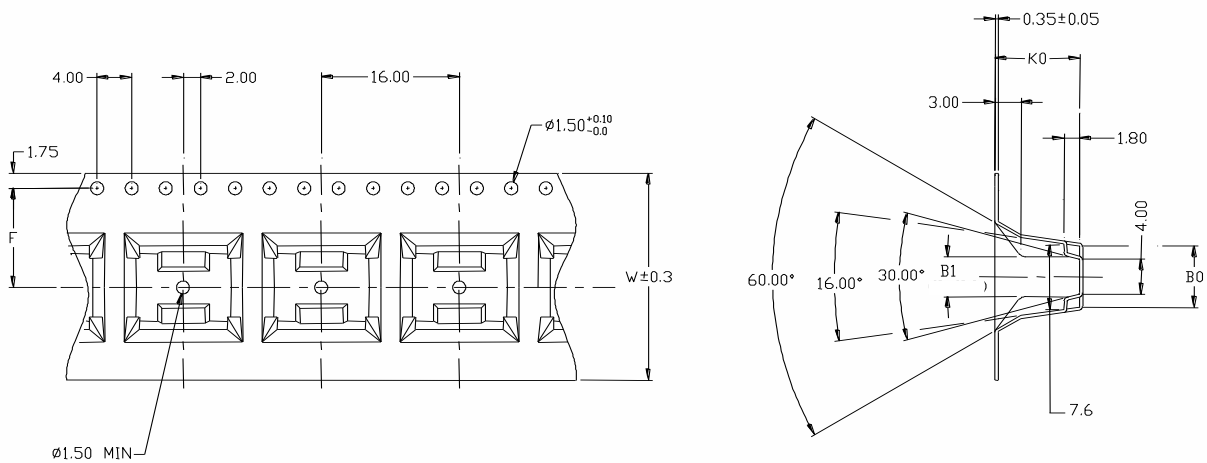
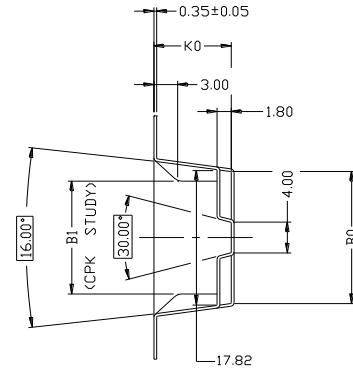
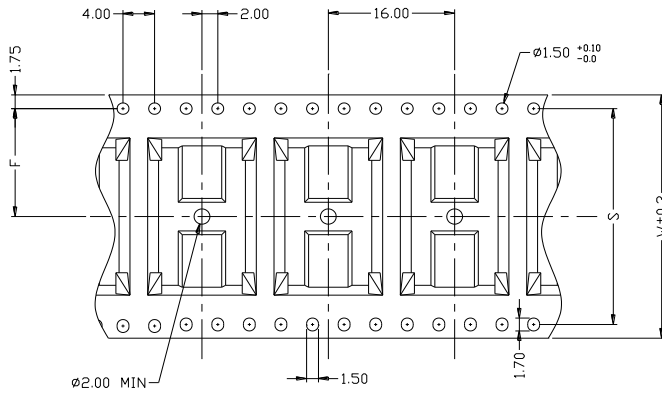


FIG I



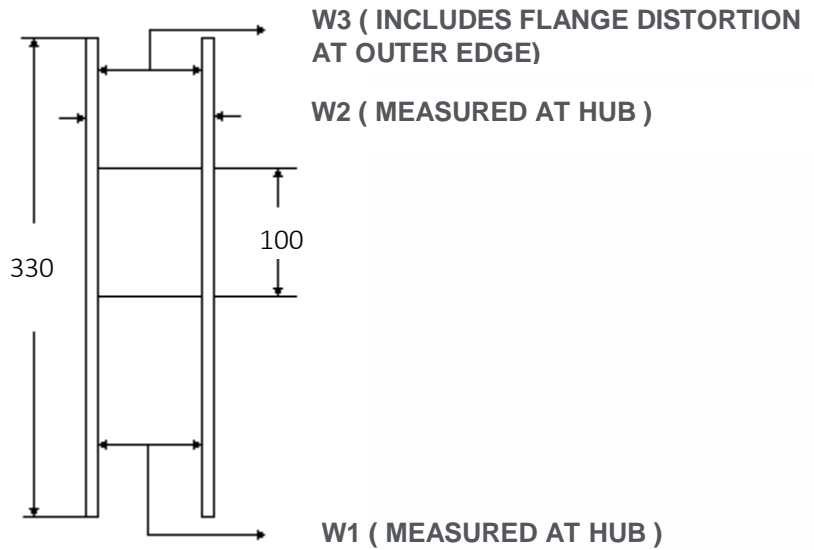
**FIG II**

**SPECIFIED REEL PARTS DIMENSIONS:**

Unit: mm

SW Section	W1	W2	W3
2~4	24.4	30.4 MAX.	23.9 MIN./27.4 MAX.
5~6	32.4	38.4 MAX.	31.9 MIN./35.4 MAX.
8~12	44.4	50.4 MAX.	43.9 MIN./47.4 MAX.

(SEE PICTURE FIG)



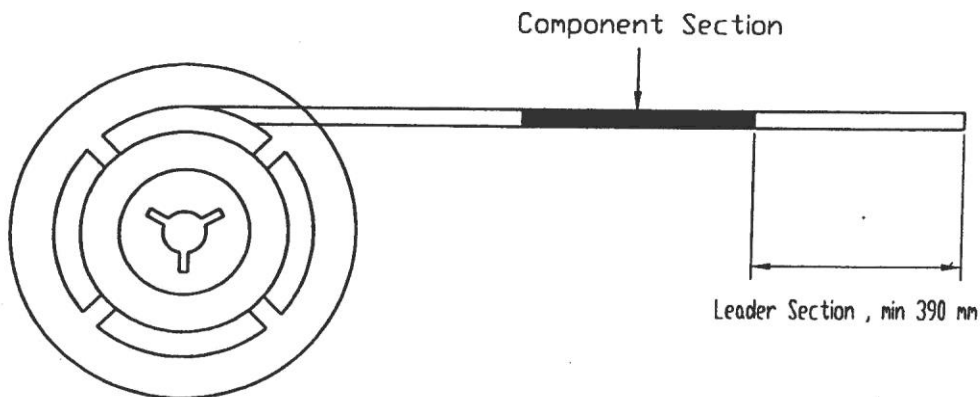
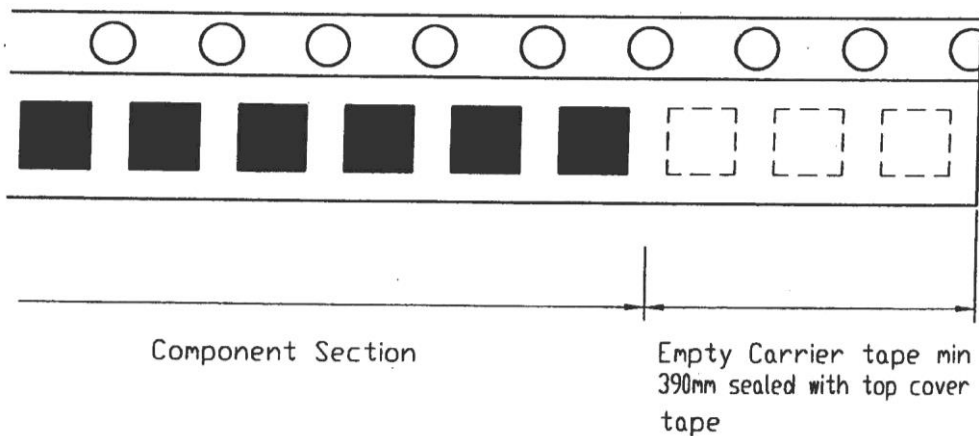
1. TAPE SPROCKET HOLE PITCH :  $4.0 \pm 0.1$ MM
2. ALL SMT ASSEMBLING MACHINES WILL PICK-UP THE COMPONENT FROM THE POINT, WHICH

3. IS LOCATED IN THE CENTRE OF TWO ADJACENT SPROCKET HOLES IN FEEDING DIRECTION. THIS MUST BE TAKE INTO ACCOUNT WHEN DESIGNING THE LOCATION OF THE COMPONENT IN T&R POCKET.
4. RECOMMENDED PART ORIENTATION IN TAPE & REEL POCKET.  
ORIENT SWITCH TERMINAL #1 TO THE SIDE OF ROUND SPROCKET HOLES, SEE PICTURE BELOW.



LENGTH OF TAPE

5. THERE SHALL BE A LEADER OF 390mm MINIMUM WHICH IS SEALED ONTO EMPTY CARRIER TAPE, SEE PICTURE BELOW.



(see enlargement underneath)