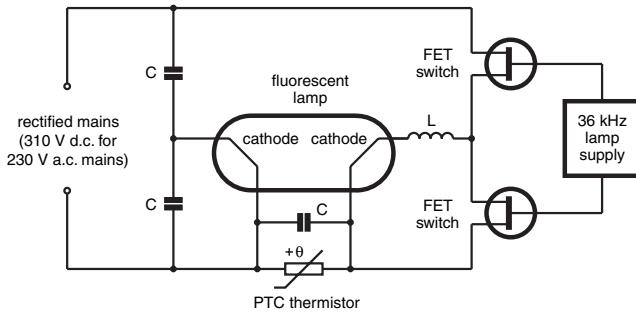


## PTC Thermistors, Time Delay For Lighting



Typical electronic ballast circuit.

### DESCRIPTION

The conventional fluorescent strip lamp is rapidly being superseded by a more compact fluorescent lamp in which the old troublesome starter is replaced by an electronic ballast circuit which pre-heats the cathode to make ignition easy.

Positive Temperature Coefficient (PTC) thermistors for overload protection have proved to be the ideal electronic ballast component for companies worldwide.

When the rectified mains is first applied, the PTC thermistor is cold, so its resistance is low. The lamp voltage will be below the necessary ignition value, so the current will flow through the cathodes, heating them to their emission temperature. At the same time, the PTC thermistor will heat up to its switch temperature, whereupon its resistance will rise rapidly, allowing the lamp voltage to reach its ignition value and light the lamp.

### FEATURES

- Reliable starting, time and time again
- Accurate resistance for ease of circuit design
- Small size and durable
- Available bulk-packed or taped-on-reel
- Long life: more than 20000 starts for a 20 W lamp
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

### APPLICATIONS

- Domestic electronics
- Industrial electronics

Once the lamp is lit, the cathodes are fed by a high-frequency (36 kHz) lamp supply, to avoid flicker, via two power FET switches. The PTC thermistor plays no further part until the lamp is switched off, whereupon it is ready to resume its smooth-starting function.

We supply a range of overload PTC thermistors for this application offering a wide choice of voltage and switch temperatures.

### MOUNTING

The leads are suitable for soldering in any position. The lacquer may cover the leads up to 1.0 mm from the seating plane.

### PACKAGING

All tape and reel specifications are in accordance with "IEC 60286-3".

ELECTRICAL DATA AND ORDERING INFORMATION							
R <sub>25</sub> (Ω)		SWITCH TEMPERATURE (°C)	MAXIMUM VOLTAGE (PEAK VALUE) (V)	TYPICAL <sup>1)</sup> TRIP TIME at 25 °C		CATALOG NUMBER	
MIN.	MAX.			Tt (s)	at It (mA)	12 NC	SAP CODING
500	750	≈ 110	700	0.4	200	2381 660 93049 <sup>2)</sup>	PTCLL05P131TBE <sup>2)</sup>
185	300	≈ 120	700	0.5	300	2381 660 93055 <sup>2)</sup>	PTCLL05P211TTE <sup>2)</sup>
75	125	≈ 80	700	0.7	300	2381 660 93066 <sup>2)</sup>	PTCLL05P251TTE <sup>2)</sup>
225	375	≈ 105	900	0.75	300	2381 661 93102 <sup>3)</sup>	PTCLL07P261VTE <sup>3)</sup>
75	125	≈ 105	1000	0.85	500	2381 661 93114 <sup>3)</sup>	PTCLL07P421WTE <sup>3)</sup>

### Notes

1. Ignition time of the lamp approximately equals the tripping time.
2. Specific for PLC-E lamp electronic starter.
3. Specific for HF-TL ballast.

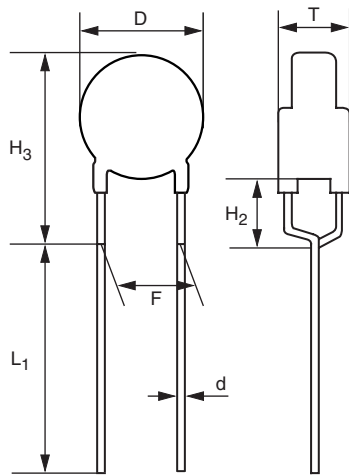
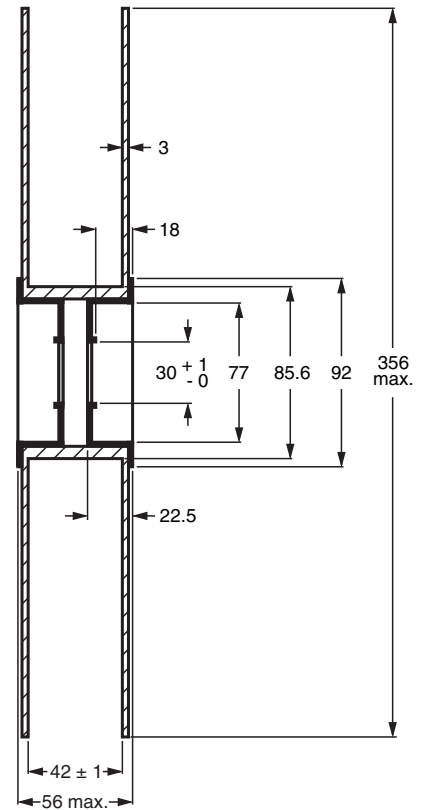
**DIMENSIONS** in millimeters


Fig. 1a



Dimensions of the reel

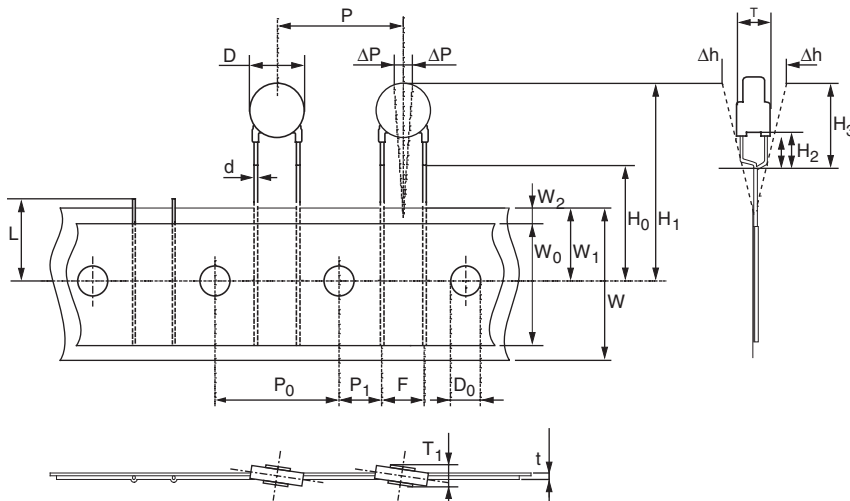


Fig. 1b

COMPONENT DIMENSIONS								
MAX. DIAMETER	MAX. THICKNESS	H <sub>3</sub>	WEIGHT (g)	FIGURES	PACKAGING	SPQ	CATALOG NUMBER	
							12 NC	SAP CODING
5.4	4.5	10	≈ 0.33	Fig. 1a	bulk	500	2381 660 93049	PTCLL05P131TBE
5.4	4.5	9	≈ 0.45	Fig. 1b	on tape	1500	2381 660 93055	PTCLL05P211TTE
5.4	4.5	10	≈ 0.45	Fig. 1b	on tape	1500	2381 660 93066	PTCLL05P251TTE
7.0	5.0	12	≈ 0.66	Fig. 1b	on tape	1500	2381 661 93102	PTCLL07P261VTE
7.0	5.0	12	≈ 0.66	Fig. 1b	on tape	1500	2381 661 93114	PTCLL07P421WTE

<b>CHARACTERISTICS CONCERNING TAPED THERMISTORS</b>	
<b>PARAMETER</b>	<b>VALUE</b>
Minimum pull out force of the component	5 N
Minimum pull off force of adhesive tape	6 N
Minimum tearing force tape	15 N
Maximum pull off force tape-reel	5 N
<b>STORAGE CONDITIONS</b>	
Storage temperature range	- 25 to + 40 °C
Maximum relative humidity	80 %

<b>TAPE AND OTHER DEVICE DIMENSIONS</b> in millimeters				
<b>SYMBOL</b>	<b>PARAMETER</b>	<b>DIMENSIONS</b>	<b>TOLERANCE</b>	<b>REMARKS</b>
D	body diameter	see table Component Dimensions		
T	total maximum thickness	see table Component Dimensions		
d	lead diameter	0.6	± 10 %	
P	pitch between thermistors	12.7	± 1	
P <sub>0</sub>	feed hole pitch	12.7	± 0.3	cumulative pitch error ± 1 mm/20 pitches
P <sub>1</sub>	feed hole centre to lead centre	3.81	± 0.7	guaranteed between component and tape
Δh	component alignment	0	± 1.3	
F	lead to lead distance	5	+ 0.6/- 0.1	guaranteed between component and tape
Δh	component alignment	0	± 2	
W	tape width	18	+ 1.0/- 0.5	
W <sub>0</sub>	hold down tape width	≥ 12.3	-	
W <sub>1</sub>	hole position	9	± 0.5	
W <sub>2</sub>	hold down tape position	≤ 3.0	-	
H <sub>2</sub>	component body to seating plane	4	± 1	
H <sub>3</sub>	component top to seating plane	see table Component Dimensions		
H <sub>0</sub>	lead-wire clinch height	16	± 0.5	
D <sub>0</sub>	feed hole diameter	4	± 0.2	
t	total tape thickness	≤ 0.9	-	with cardboard tape 0.5 ± 0.1 mm
L	length of snipped lead	≤ 11	-	



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