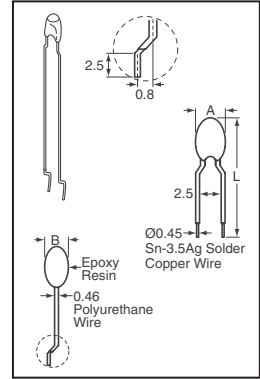


# NTSD1 Series - NTC Thermistors for Temperature Sensing



**Features:** • Electric insulation on lead wire • Excellent bending resistance and easy handling due to suitable hardness of surface coating • High-accuracy of  $\pm 1\%$  of resistance and B-Constant tolerance are realized due to uniform thickness by the precise sheet forming method **Specifications:** • Thermal Time Constant (25°C): 7 seconds • Operating Temperature Range: -40°C - 125°C

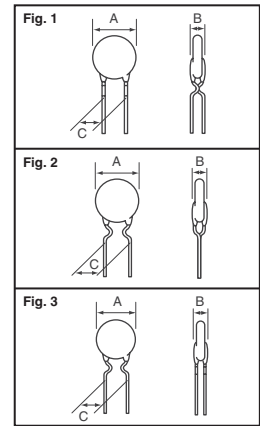
Resistance 25°C (k $\Omega$ ) $\pm 1\%$	B-Constant 25-50°C (k) $\pm 1\%$	Permissible Operating Current 25°C (mA)	Rated Electric Power 25°C (mW)	Typical Dissipation Constant 25°C (mW/°C)	Dimensions - mm			Digi-Key Part No.	Pricing			Murata Part No.
					A	B	L		1	10	100	
2.0	3500	1.05	21	2.1	3.8	2.5	30	490-4651-ND	.41	2.49	18.83	NTSD1XM202FPB30
5.0	3700	0.68	21	2.1	3.0	2.0	30	490-4652-ND	.40	2.43	18.39	NTSD1XR502FPB30
10	3380	0.38	15	1.5	3.0	2.0	30	490-4653-ND	.41	2.49	18.83	NTSD1XH103FPB30
20	4050	0.31	21	2.1	3.8	2.5	30	490-4654-ND	.43	2.61	19.75	NTSD1WB203FPB30
30	4100	0.26	21	2.1	3.8	2.5	30	490-4655-ND	.44	2.73	20.61	NTSD1WC303FPB30
50	4150	0.20	21	2.1	3.0	2.0	30	490-4656-ND	.40	2.43	18.39	NTSD1WD503FPB30
100	4250	0.14	21	2.1	3.0	2.0	30	490-4657-ND	.40	2.43	18.39	NTSD1WF104FPB30
2.0	3500	1.05	21	2.1	3.8	2.5	40	490-4658-ND	.38	2.32	17.47	NTSD1XM202FPB40
5.0	3700	0.68	21	2.1	3.0	2.0	40	490-4659-ND	.43	2.61	19.75	NTSD1XR502FPB40
10	3380	0.38	15	1.5	3.0	2.0	40	490-4660-ND	.50	3.08	23.28	NTSD1XH103FPB40
20	4050	0.31	21	2.1	3.8	2.5	40	490-4661-ND	.41	2.49	18.83	NTSD1WB203FPB40
30	4100	0.26	21	2.1	3.8	2.5	40	490-4662-ND	.43	2.61	19.75	NTSD1WC303FPB40
50	4150	0.20	21	2.1	3.0	2.0	40	490-4663-ND	.24	1.45	10.98	NTSD1WD503FPB40
100	4250	0.14	21	2.1	3.0	2.0	40	490-4664-ND	.40	2.43	18.39	NTSD1WF104FPB40
2.0	3500	1.05	21	2.1	3.8	2.5	50	490-4665-ND	.43	2.61	19.75	NTSD1XM202FPB50
5.0	3700	0.68	21	2.1	3.0	2.0	50	490-4666-ND	.44	2.73	20.61	NTSD1XR502FPB50
10	3380	0.38	15	1.5	3.0	2.0	50	490-4667-ND	.50	3.08	23.28	NTSD1XH103FPB50
20	4050	0.31	21	2.1	3.8	2.5	50	490-4668-ND	.40	2.43	18.39	NTSD1WB203FPB50
30	4100	0.26	21	2.1	3.8	2.5	50	490-4669-ND	.43	2.61	19.75	NTSD1WC303FPB50
50	4150	0.20	21	2.1	3.0	2.0	50	490-4670-ND	.40	2.43	18.39	NTSD1WD503FPB50
100	4250	0.14	21	2.1	3.0	2.0	50	490-4671-ND	.44	2.73	20.61	NTSD1WF104FPB50



## NTPA Series - Inrush Current Limiters



Fig.	Resistance 25°C (Ω) $\pm 15\%$	Permissible Maximum Current 25°C (A)	Permissible Maximum Current 55°C (A)	Thermal Time Constant 25°C (s)	Thermal Dissipation Constant (mW/°C)	Permissible Electrolytic Capacitor (μF)	Dimensions - mm			Digi-Key Part No.	Pricing			Murata Part No.
							A	B	C		1	10	100	
1	3.0	5.4	4.7	135	26.8	8,600 @ 100V	23.0	5.5	10.0	490-3942-ND	1.14	7.00	52.86	NTPAN3R0LDK80
	4.0	4.7	4.1	130	26.8	8,600 @ 100V	23.0	5.5	10.0	490-3943-ND	1.14	7.00	52.86	NTPAN4R0LDK80
	6.0	3.9	3.4	130	26.8	8,600 @ 100V	23.0	5.5	10.0	490-3944-ND	1.14	7.00	52.86	NTPAN6R0LDK80
	4.0	4.0	3.5	125	21.8	5,000 @ 100V	20.0	5.5	10.0	490-3945-ND	.79	4.87	36.78	NTPAJ4R0LDK80
	6.0	3.4	2.9	125	21.8	5,000 @ 100V	20.0	5.5	10.0	490-3946-ND	.79	4.87	36.78	NTPAJ6R0LDK80
	8.0	3.0	2.6	130	21.8	5,000 @ 100V	20.0	5.5	10.0	490-3947-ND	.79	4.87	36.78	NTPAJ8R0LDK80
2	10.0	2.6	2.2	130	21.8	5,000 @ 100V	20.0	5.5	10.0	490-3948-ND	.79	4.87	36.78	NTPAJ100LDK80
	3.9	3.3	2.9	65	18.2	2,700 @ 100V	16.0	5.5	7.5	490-3949-ND	.54	3.29	24.84	NTPAD3R9LDNB0
	5.1	3.0	2.6	85	18.8	2,700 @ 100V	16.0	5.5	7.5	490-3950-ND	.54	3.29	24.84	NTPAD5R1LDNB0
	8.0	2.7	2.3	65	18.7	2,700 @ 100V	16.0	5.5	7.5	490-3951-ND	.54	3.29	24.84	NTPAD8R0LDNB0
	16.0	2.0	1.7	100	19.1	2,700 @ 100V	16.0	5.5	7.5	490-3952-ND	.54	3.30	24.91	NTPAD160LDNB0
	2.2	3.7	3.2	70	13.5	1,400 @ 100V	12.0	5.0	7.5	490-3953-ND	.38	2.30	17.42	NTPAA2R2LDNB0
	3.9	2.7	2.3	70	13.5	1,400 @ 100V	12.0	5.0	7.5	490-3954-ND	.38	2.30	17.42	NTPAA3R9LDNB0
	5.1	2.5	2.2	70	13.5	1,400 @ 100V	12.0	5.0	7.5	490-3955-ND	.38	2.30	17.42	NTPAA5R1LDNB0
	8.2	2.0	1.7	70	13.5	1,400 @ 100V	12.0	5.0	7.5	490-3956-ND	.38	2.30	17.42	NTPAA8R2LDNB0
	10.0	1.7	1.5	70	13.5	1,400 @ 100V	12.0	5.0	7.5	490-3957-ND	.44	2.74	20.70	NTPAA100LDNB0
3	16.0	1.4	1.2	65	11.6	800 @ 100V	11.0	5.0	5.0	490-3958-ND	.38	2.30	17.40	NTPA9160LMB0
	4.0	2.3	2.0	40	9.4	700 @ 100V	9.0	5.0	5.0	490-3959-ND	.22	1.33	10.02	NTPA74R0LMB0
	8.0	1.7	1.5	40	9.5	570 @ 100V	9.0	5.0	5.0	490-3960-ND	.22	1.33	10.02	NTPA78R0LMB0
	16.0	1.2	1.0	40	9.9	400 @ 100V	9.0	5.0	5.0	490-3961-ND	.22	1.33	10.02	NTPA7160LMB0
	22.0	1.0	0.8	40	9.1	400 @ 100V	9.0	5.0	5.0	490-3962-ND	.22	1.33	10.02	NTPA720LMB0



## POSISTOR® PTC Thermistors for Heaters

**Features:** • The heater element regulates designated temperature range • Output wattage is decreased automatically when heat radiation is decreased • Compact and flat surface shall realize easy to install for various set • Depending on application, these PTC realize dual voltage use  
**Applications:** • Heated Vessels • Contact Lens Cleaner • Portable Travel Iron • Massager • Fragrance • Electric Pot

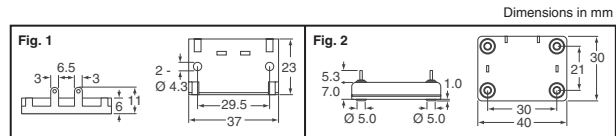


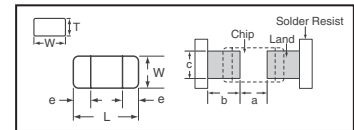
Fig.	Maximum Voltage (Vrms)	Curie Point (°C)	Inrush Current (Maximum)	Minimum Resistance Value @ 25°C (Ω)	Maximum Resistance Value @ 25°C (Ω)	Digi-Key Part No.	Price Each			Murata Part No.
							1	10	100	
1	260	90 $\pm 7$	5.0A	200	1200	490-4811-ND	8.08	7.26	5.72	PTWSB1BC201T260A00
		135 $\pm 7$				8.08	7.26	5.72	PTWSB1AS201T260A00	
		200 $\pm 7$				8.08	7.26	5.72	PTWSB2AH201T260A00	
		225 $\pm 7$				8.08	7.26	5.72	PTWSB2AG201T260A00	
						13.57	12.20	9.61	PTWTA1AD201T260A00	
2	260	280 $\pm 7$	10.0A	200	1200	490-4815-ND	13.57	12.20	9.61	PTWTA1AD201T260A00

## POSISTOR® Circuit Protection for Overcurrent Protection

Overcurrent Protection device with resettable function suitable for current limiting resistor. This product is chip type PTC thermistor for overcurrent protection. Suitable for counter-measure for short circuit testing in portable equipment and current limiting resistor.

**Features:** • Rapid operation to protect the circuit in an overcurrent condition abnormality such as a short circuit • By removing the overcurrent condition, these products automatically return to the initial condition and can be used repeatedly • Stable resistance after operation due to ceramic PTC • 0603 SMD type for reflow soldering • Lead is not contained in the terminations

Part No.	Dimensions (mm)						
	L	W	T	e	a	b	c
PRG18_RB	1.6 $\pm 0.15$	0.8 $\pm 0.15$	0.8 $\pm 0.15$	0.1 - 0.6	0.6 - 0.8	0.6 - 0.7	0.6 - 0.8
PRG21_RA	2.0 $\pm 0.2$	1.25 $\pm 0.2$	0.9 $\pm 0.2$	0.2 min.	1.0 - 1.2	0.5 - 0.7	1.0 - 1.2
PRG21_RK	2.0 $\pm 0.2$	1.25 $\pm 0.2$	1.25 $\pm 0.2$	0.2 min.	1.0 - 1.2	0.5 - 0.7	1.0 - 1.2

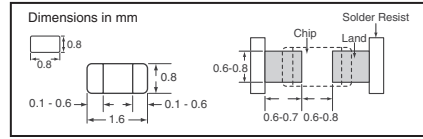


Maximum Voltage (V)	Non-operating Current @ 60°C (mA)	Trip Current @ -10°C (mA)	Max. Current (mA)	Resistance @ 25°C (Ω) $\pm 20\%$	Curie Point (°C)	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape and Reel		Murata Part No.
							1	10	100		Qty.	Pricing	
24	7	25	60	470	100	490-2473-1-ND	.24	.21	.17	490-2473-2-ND	4,000	89.30/M	PRG18BB471MB1RB
						490-2470-1-ND	.24	.21	.17	490-2470-2-ND	4,000	89.30/M	PRG18BB221MB1RB
						490-2469-1-ND	.24	.21	.17	490-2469-2-ND	4,000	89.30/M	PRG18BB101MB1RB
						490-2472-1-ND	.24	.21	.17	490-2472-2-ND	4,000	89.30/M	PRG18BB470MB1RB
						490-2471-1-ND	.24	.21	.17	490-2471-2-ND	4,000	89.30/M	PRG18BB330MB1RB
20	40	110	1,100	22	100	490-3989-1-ND	.33	.28	.25	490-3989-2-ND	3,000	166.26/M	PRG21BB220MB1RK
						490-3990-1-ND	.33	.28	.25	490-3990-2-ND	3,000	166.26/M	PRG21BB150MB1RK
						490-4673-1-ND	.57	.51	.40	490-4673-2-ND	4,000	215.63/M	PRG21BC6R8MM1RA
						490-4672-1-ND	.57	.51	.40	490-4672-2-ND	4,000	215.63/M	PRG21BC4R7MM1RA
6	500	2,000	10,000	0.2	90	490-3988-1-ND	.46	.40	.35	490-3988-2-ND	4,000	215.63/M	PRG21BC0R2MM1RA

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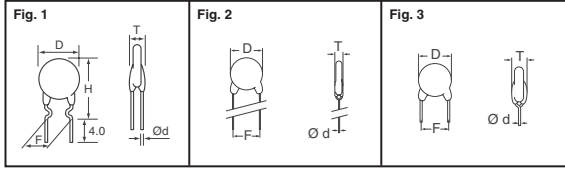
# POSISTOR® Circuit Protection for Overheat Sensing Chip Type



This chip PTC Thermistor is reflow soldering SMD type for overheat sensing for power transistors, power diodes and power ICs in hybrid circuits. **Features:** • Excellent thermal response because of no coating • Solid-state construction provides excellent mechanical vibration and impact resistance • Contact-less operation provides prolonged service life and noiseless operation • Lead is not contained in the terminations

Sensing Temp. @ 4.7kΩ (°C)	Maximum Voltage (V)	Resistance @ 25°C (Ω) ±50%	Curie Point (°C)	Operating Temperature Range (°C)	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape and Reel Pricing 4,000			Murata Part No.
						1	10	100		1	10	100	
65 ±5	32	470	50	-20 - 80	490-2468-1-ND	.28	.25	.20	490-2468-2-ND	104.55/M			PRF18BG471QB1RB
75 ±5			60	-20 - 90	490-2467-1-ND	.28	.25	.20	490-2467-2-ND	104.55/M			PRF18BF471QB1RB
85 ±5			70	-20 - 100	490-2466-1-ND	.28	.25	.20	490-2466-2-ND	104.55/M			PRF18BE471QB1RB
95 ±5			80	-20 - 110	490-2465-1-ND	.28	.25	.20	490-2465-2-ND	104.55/M			PRF18BD471QB1RB
105 ±5			90	-20 - 120	490-2464-1-ND	.28	.25	.20	490-2464-2-ND	104.55/M			PRF18BC471QB1RB
115 ±5	32	470	100	-20 - 130	490-2463-1-ND	.28	.25	.20	490-2463-2-ND	104.55/M			PRF18BB471QB1RB
125 ±5			110	-20 - 140	490-2462-1-ND	.28	.25	.20	490-2462-2-ND	104.55/M			PRF18BA471QB1RB
135 ±5			120	-20 - 150	490-2460-1-ND	.28	.25	.20	490-2460-2-ND	104.55/M			PRF18AA471QB1RB
145 ±5			130	-20 - 160	490-2461-1-ND	.28	.25	.20	—	—			PRF18AS471QB1RB
85 ±3	32	470	—	-20 - 100	490-4807-1-ND	.32	.28	.22	490-4807-2-ND	119.79/M			PRF18BE471RB1RB
95 ±3			—	-20 - 110	490-4806-1-ND	.32	.28	.22	490-4806-2-ND	119.79/M			PRF18BD471RB1RB
105 ±3			—	-20 - 120	490-4805-1-ND	.32	.28	.22	490-4805-2-ND	119.79/M			PRF18BC471RB1RB
115 ±3			—	-20 - 130	490-4804-1-ND	.32	.28	.22	490-4804-2-ND	119.79/M			PRF18BB471RB1RB

## POSISTOR® Narrow Current Band – PTC Thermistors For Overcurrent Protection

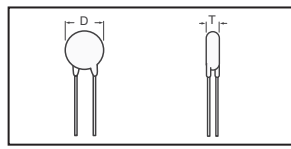


This product is leaded type PTC thermistor for overcurrent protection which is suitable for the current limiting resistor. **Features:** • Small fluctuation in the circuit due to resistance tolerance ±10% • Narrow current range between operating and non-operating current at -10°C - 60°C • Quick operating time due to small size compared with conventional products • Best suited to meet the requirements for power supply and motor protector • Circuit is protected until current is turned off

Fig.	Max. Voltage (V)	Non-Operating Current @ 60°C (mA)	Trip Current @ -10°C (mA)	Max. Current (A)	Resistance @ 25°C (Ω) ±%	Curie Point (°C)	Body Diameter Dim. D (mm)	Thickness Dim. T (mm)	Height Dim. H (mm)	Lead Space Dim. F (mm)	Lead Diameter (phi d) (mm)	Digi-Key Part No.	1	Price Each 10	100	Murata Part No.
1	30	122	240	1.5	10 ±10	130	4.5	3.5	9.5	5.0	0.5	490-3963-ND	.38	.34	.27	PTGL04AS100K2N51B0
		167	330	2.0	10 ±10	130	4.5	3.5	9.5	5.0	0.6	490-3964-ND	.38	.34	.27	PTGL04AS100K2B51B0
		269	530	3.5	3.9 ±10	130	5.5	3.5	10.5	5.0	0.6	490-3965-ND	.41	.37	.29	PTGL05AS3R9K2B51B0
		336	663	4.5	2.7 ±10	130	7.3	3.5	12.3	5.0	0.6	490-3966-ND	.44	.40	.32	PTGL07AS2R7K2B51B0
		420	829	5.0	1.8 ±10	130	7.3	3.5	12.3	5.0	0.6	490-3967-ND	.49	.44	.35	PTGL07AS1R8K2B51B0
		556	1097	6.0	1.2 ±10	130	9.3	3.5	14.3	5.0	0.6	490-3968-ND	.64	.58	.46	PTGL09AS1R2K2B51B0
	685	1352	7.0	0.8 ±10	130	11.5	3.5	16.5	5.0	0.6	490-3969-ND	.94	.85	.67	PTGL12AS0R8K2B51B0	
	168	332	1.0	10 ±10	130	4.5	4.5	9.5	5.0	0.6	490-3970-ND	.38	.34	.27	PTGL04AS100K3B51B0	
	197	388	1.5	6.8 ±10	130	5.5	4.5	10.5	5.0	0.6	490-3971-ND	.42	.38	.30	PTGL05AS6R8K3B51B0	
	307	606	3.0	3.3 ±10	130	7.3	7.3	12.3	5.0	0.6	490-3972-ND	.44	.40	.32	PTGL07AS3R3K3B51B0	
	412	814	4.0	2.2 ±10	130	9.3	9.3	14.3	5.0	0.6	490-3973-ND	.64	.58	.46	PTGL09AS2R2K3B51B0	
	592	1168	5.0	1.2 ±10	130	11.5	11.5	16.5	5.0	0.6	490-3974-ND	.93	.84	.66	PTGL12AS1R2K3B51B0	
	88	175	1.0	22 ±10	130	4.5	4.5	9.5	5.0	0.5	490-3975-ND	.38	.34	.27	PTGL04AS220K4N51B0	
	115	226	1.0	22 ±10	130	4.5	4.5	9.5	5.0	0.6	490-3976-ND	.38	.34	.27	PTGL04AS220K4B51B0	
	170	335	1.5	10 ±10	130	5.5	5.5	10.5	5.0	0.6	490-3977-ND	.41	.37	.29	PTGL05AS100K4B51B0	
	186	368	2.2	5.6 ±10	130	7.3	7.3	12.3	5.0	0.5	490-3978-ND	.44	.40	.32	PTGL07AS5R6K4N51B0	
	229	452	3.0	5.6 ±10	130	7.3	7.3	12.3	5.0	0.6	490-3979-ND	.49	.44	.35	PTGL07AS5R6K4B51B0	
	333	656	4.0	3.3 ±10	130	9.3	9.3	14.3	5.0	0.6	490-3980-ND	.72	.65	.51	PTGL09AS3R3K4B51B0	
439	867	5.0	2.2 ±10	130	11.5	11.5	16.5	5.0	0.6	490-3981-ND	.92	.83	.66	PTGL12AS2R2K4B51B0		
74	147	0.5	56 ±10	130	5.5	5.5	10.5	5.0	0.6	490-3982-ND	.38	.35	.27	PTGL04AS560K6B51B0		
106	209	1.0	27 ±10	130	5.5	5.5	10.5	5.0	0.6	490-3983-ND	.42	.38	.30	PTGL05AS270K6B51B0		
148	292	1.5	15 ±10	130	7.3	7.3	12.3	5.0	0.6	490-3984-ND	.52	.48	.38	PTGL07AS150K6B51B0		
192	380	2.0	12 ±10	130	9.3	9.3	14.3	5.0	0.6	490-3985-ND	.80	.72	.57	PTGL09AS120K6B51B0		
227	447	2.2	7.6 ±10	130	9.3	9.3	14.3	5.0	0.6	490-3986-ND	.89	.80	.63	PTGL09AS7R6K6B51B0		
310	613	3.5	4.7 ±10	130	11.5	11.5	16.5	5.0	0.6	490-3987-ND	.91	.83	.65	PTGL12AS4R7K6B51B0		
2	250	90	300	0.5	22 ±30	—	8.0	6.0	—	5.0	0.6	490-4808-1-ND†	.38	.34	.27	PTGL07BB220N0B52A0
		90	300	0.5	22 ±30	—	8.0	6.0	—	5.0	0.6	490-4808-3-ND‡	143.02/1,000			PTGL07BB220N0B52A0
		100	280	0.6	39 ±30	—	10.0	6.0	—	5.0	0.6	490-4809-1-ND†	.42	.37	.29	PTGL09AR390N0B52A0
		100	280	0.6	39 ±30	—	10.0	6.0	—	5.0	0.6	490-4809-3-ND‡	156.82/1,000			PTGL09AR390N0B52A0
3	265	118	330	1.0	25 ±25	—	10.0	6.0	—	5.0	0.6	490-4810-ND	.79	.72	.57	PTGL09AR250H8B52B0

† Cut Tape ‡ Tape and Box

## Honeywell Inrush Current Limiters Sensing and Control



Honeywell ICL Inrush Current Limiters are a cost-effective way of limiting the inrush of current that can damage components in a switching power supply and other power devices when the equipment is turned on. **Features:** • PC board mountable • Rugged design • Solderable leads • High quality • Low cost **Specifications:** • Operating Temperature -40°C - 185°C • Lead Construction: Straight tinned copper (kinked available)

Resistance @ 25°C (Ω)	Max. Steady State Current (A)	Resistance @ Steady State Current (Ω)	Max. Coated Diameter Dim. D (mm)	Max. Coated Thickness Dim. T (mm)	Lead Diameter (mm)	Digi-Key Part No.	1	Price Each 10	100	Honeywell Sensing Part No.
0.5	30	0.01	32	8	1	480-3176-ND	3.81	2.83	2.34	ICL320R030-01
1	30	0.02	32	6	1	480-3177-ND	4.72	3.50	2.89	ICL321R030-01
2.5	8	0.06	22	6	1	480-3175-ND	3.73	2.70	2.22	ICL222R508-01
5	6	0.1	15	6	0.8	480-3172-ND	2.48	1.66	1.35	ICL155R006-01
5	7	0.07	15	6	0.8	480-3173-ND	3.65	2.55	2.09	ICL155R007-01
10	8	0.1	22	6	1	480-3174-ND	3.73	2.70	2.22	ICL2210008-01
16	4	0.27	15	6	0.8	480-3171-ND	3.60	2.49	2.03	ICL1516004-01
50	2	0.72	11.5	5	0.8	480-3170-ND	2.99	2.07	1.69	ICL1250002-01

Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

**Free shipping on orders over £50! All prices are in British pound sterling and include duties.**

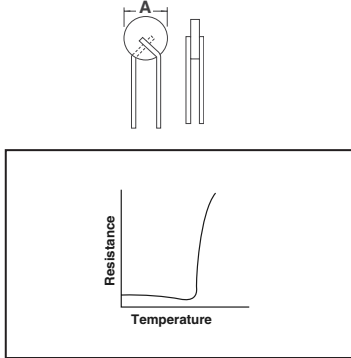
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(UK091) 1929

## PTC Thermistors

PTC (Positive Temperature Coefficient) Thermistors are thermally sensitive resistors made of polycrystalline ceramic materials. They are characterized by an extremely large resistance change in a small temperature span.

- All PTC resistances  $\pm 30\%$  at 25°C
- Tolerance on transition temperature is  $\pm 7^\circ\text{C}$



Oper. Volt.	R @ 25°C (Ω)	Transition Temperature	D.C.†	Dimension A (mm)	Digi-Key Part No.	Price Each		
						1	10	100
12	2	120°C	14.0	15.24	235-1130-ND	2.75	2.48	1.95
12	10	110°C	7.0	8.89	235-1131-ND	1.35	1.22	.96
12	25	110°C	7.0	8.89	235-1132-ND	1.35	1.22	.96
25	50	30°C	7.0	7.62	235-1120-ND*	1.35	1.22	.96
25	50	40°C	7.0	7.62	235-1121-ND*	1.35	1.22	.96
25	50	50°C	7.0	7.62	235-1122-ND*	1.35	1.22	.96
25	50	60°C	7.0	7.62	235-1123-ND*	1.35	1.22	.96
25	50	70°C	7.0	8.89	235-1124-ND*	1.35	1.22	.96
25	50	80°C	7.0	8.89	235-1125-ND*	1.35	1.22	.96
25	50	90°C	7.0	8.89	235-1126-ND*	1.35	1.22	.96
25	50	100°C	7.0	7.62	235-1127-ND*	1.35	1.22	.96
25	50	110°C	7.0	7.62	235-1128-ND*	1.35	1.22	.96
50	5	65°C	14.0	15.24	235-1133-ND	2.75	2.48	1.95
50	10	110°C	10.0	11.43	235-1134-ND	1.82	1.63	1.29
50	50	110°C	12.0	11.43	235-1135-ND	2.29	2.06	1.62
50	200	110°C	9.0	10.16	235-1136-ND	1.82	1.63	1.29
120	10	120°C	20.0	20.32	235-1137-ND	3.29	2.96	2.33
120	20	120°C	18.0	16.51	235-1138-ND	2.56	2.31	1.82
120	25	60°C	15.0	15.24	235-1139-ND	2.56	2.31	1.82
120	50	120°C	12.0	12.70	235-1140-ND	2.29	2.06	1.62
240	50	65°C	17.0	15.24	235-1142-ND	2.82	2.53	2.00
240	50	110°C	18.0	16.51	235-1143-ND	2.82	2.53	2.00
240	100	120°C	18.0	16.51	235-1144-ND	2.82	2.53	2.00
240	1,500	100°C	12.0	8.89	235-1145-ND	2.50	2.23	1.75
480	1,000	100°C	18.0	19.05	235-1146-ND	3.29	2.96	2.33
480	2,000	100°C	15.0	13.97	235-1147-ND	2.75	2.48	1.95
480	5,000	100°C	12.0	8.89	235-1148-ND	1.82	1.63	1.29

◆ RoHS Compliant † D.C. – Dissipation Constant (MW/°C)

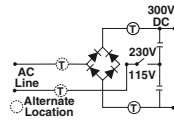
\* KCPTC1-KIT-ND Digi-Key® PTC Thermistors Kits

2 each of all values denoted (12 total pieces). Notebook style storage case and bin storage guide included ..... 17.55

## Inrush Current Limiters

**SPECIFICATIONS:** • Inrush Current Limiters protect against high peak inrush current, especially in AC/DC switching power supplies • All resistances  $\pm 25\%$  @ 25°C • All parts insulated with a protective coating

Resistance under load is for reference only. Actual values may vary due to ambient temperature, air flow, or mounting conditions.



No Load Res. @ 25°C (Ω)	Maximum* Steady State Current (Amps)	Approximately Res. @ I Max. (Ω)	Diameter (mm)	Digi-Key Part No.	Price Each		
					1	10	100
0.7	12.0	.02	19.56	KC022L-ND	3.09	2.78	2.19
1.3	8.0	.04	13.97	KC023L-ND	2.02	1.82	1.43
2.5	8.0	.06	19.56	KC003L-ND	1.70	1.53	1.21
5.0	6.0	.11	19.56	KC004L-ND	1.70	1.53	1.21
7.0	5.0	.16	19.56	KC005L-ND	1.70	1.53	1.21
10.0	5.0	.18	19.56	KC006L-ND	1.70	1.53	1.21
16.0	4.0	.27	19.56	KC007L-ND	1.70	1.53	1.21
47.0	3.0	.49	19.56	KC008L-ND	1.70	1.53	1.21
120.0	2.0	1.18	23.62	KC009L-ND	1.97	1.78	1.40
0.5	16.0	.02	23.62	KC024L-ND	3.93	3.54	2.79
10.0	3.2	.18	10.16	KC011L-ND	1.50	1.35	1.06
10.0	1.7	.34	10.16	KC012L-ND	1.50	1.35	1.06
50.0	1.6	.75	11.43	KC013L-ND	1.50	1.35	1.06
50.0	1.1	.89	11.43	KC014L-ND	1.50	1.35	1.06
5.0	4.7	.11	13.97	KC015L-ND	1.52	1.38	1.09
5.0	2.8	.20	13.97	KC016L-ND	1.52	1.38	1.09
16.0	2.7	.33	13.97	KC017L-ND	1.52	1.38	1.09
16.0	1.7	.49	13.97	KC018L-ND	1.52	1.38	1.09
25.0	2.4	.41	13.97	KC019L-ND	1.52	1.38	1.09
25.0	1.7	.49	13.97	KC020L-ND	1.52	1.38	1.09
30.0	1.5	.60	10.16	KC021L-ND	1.50	1.35	1.06

◆ RoHS Compliant \* These values are suggested maximums based upon 25°C ambient, no air flow environment with the thermistor mounted 1/2" from circuit board.

## PTC Resettable Fuses

- Telephone line fault protection
- Over-current protection for transformers
- Locked rotor protection for FHP motors

Minimum Limit Current: The minimum amount of current required by the PTC to guarantee switching at the minimum ambient temperatures.

Maximum Limit Current: The maximum amount of current the PTC must be able to pass without switching at the maximum ambient temperature.



Oper. Volt. @ 25°C	No Ld. Res. (Ω)	Dim. A (mm)	Min. Switch Current 0°C 25°C	Max. No-Switch Current 25°C 55°C	Digi-Key Part No.	Price Each			GE Sensing Part No.
						1	10	100	
12	1	15.24	1.45 1.29	0.87 0.64	235-1149-ND	1.66	1.49	1.18	RL5305-1-110-12-PTF
	2.5	15.24	0.92 0.82	0.55 0.40	235-1160-ND	1.88	1.70	1.34	RL5305-2.5-110-12-PTF
	5	11.43	0.55 0.49	0.33 0.24	235-1150-ND	1.67	1.51	1.19	RL4005-5-110-12-PTF
	10	8.89	0.32 0.30	0.19 0.14	235-1151-ND	1.39	1.26	.99	RL3005-10-110-12-PTF
	25	8.89	0.20 0.19	0.12 0.09	235-1159-ND	1.39	1.26	.99	RL3005-25-110-12-PTF
25	1.5	19.05	1.34 1.19	0.81 0.59	235-1161-ND	3.29	2.96	2.33	RL7008-1.5-110-25-PTF
	3.0	13.97	0.84 0.74	0.50 0.37	235-1162-ND	2.09	1.89	1.49	RL5008-3.0-110-25-PTF
50	5.0	15.24	0.65 0.58	0.39 0.29	235-1152-ND	1.88	1.69	1.34	RL5506-5-110-50-PTF
	10	11.43	0.39 0.34	0.23 0.17	235-1153-ND	1.88	1.70	1.34	RL4006-10-110-50-PTF
	25	12.70	0.27 0.24	0.16 0.12	235-1163-ND	2.09	1.89	1.49	RL4508-25-110-50-PTF
	50	11.43	0.19 0.17	0.11 0.08	235-1158-ND	1.88	1.70	1.34	RL4010-50-110-12-PTF
	100	10.67	0.13 0.12	0.08 0.06	235-1154-ND	1.57	1.42	1.12	RL3810-100-110-50-PTF
120	10	20.32	0.55 0.49	0.33 0.24	235-1155-ND	3.43	3.08	2.43	RL7510-10-110-120-PTF
	20	16.51	0.37 0.33	0.22 0.16	235-1164-ND	1.88	1.70	1.34	RL6010-20-110-120-PTF
	50	12.70	0.19 0.17	0.11 0.08	235-1156-ND	2.09	1.89	1.49	RL4510-50-110-120-PTF
	100	10.16	0.13 0.11	0.08 0.06	235-1157-ND	1.57	1.42	1.12	RL3510-100-110-120-PTF
240	50	16.51	0.23 0.21	0.14 0.10	235-1165-ND	3.43	3.08	2.43	RL6315-50-110-240-PTF
	100	16.51	0.16 0.15	0.10 0.07	235-1166-ND	3.43	3.08	2.43	RL6315-100-110-240-PTF
	250	16.51	0.10 0.09	0.06 0.05	235-1167-ND	3.43	3.08	2.43	RL6315-250-110-240-PTF

◆ RoHS Compliant

## PTC Thermistors YM120 Series

This range of PTC thermistors is designed to operate at main voltages and is intended for general purpose usage in over-current, over-voltage and direct over-temperature protection.

Each device in the range consists of a disc of barium titanate thermistor material with silvered faces and solder coated copper lead wires. A painted finish is applied which is not intended to confer insulating properties.



R25	Resistance at 25°C
20%	Tolerance on Resistance at 25°C
I <sub>nt</sub> (25°C)	Current which will not trip thermistor (25°C ambient)
I <sub>t</sub> (25°C)	Current which will trip thermistor (25°C ambient)
I <sub>nt</sub> (55°C)	Current which will not trip thermistor (55°C ambient)
I <sub>t</sub> (10°C)	Current which will trip thermistor (10°C ambient)
I <sub>mo</sub>	Maximum Overload Current at 265V rms (10° ambient)
V Max.	Maximum Voltage Vrms
D Max.	Maximum Disc Diameter
T Max.	Maximum Overall Thickness

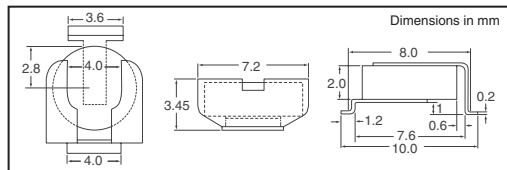
Res. @ 25°C Ω	Electrical Specifications				Dim. A Max.	Digi-Key Part No.	Price Each			GE Sensing Part No.		
	I <sub>nt</sub> (25°C) mA	I <sub>t</sub> (25°C) mA	I <sub>nt</sub> (55°C) mA	I <sub>t</sub> (10°C) mA			1	10	100			
1800	16	23	12	25	0.1	265	4.0mm	235-1072-ND	2.18	1.91	1.48	YM120C15N182
1200	20	28	16	31	0.1	265	4.0mm	235-1073-ND	2.18	1.91	1.48	YM120C20N122
600	28	40	22	44	0.2	265	4.0mm	235-1074-ND	2.18	1.91	1.48	YM120C30N601
300	39	55	30	60	0.2	265	4.0mm	235-1075-ND	2.18	1.91	1.48	YM120C45N301
150	57	80	44	88	0.2	265	4.0mm	235-1076-ND	2.18	1.91	1.48	YM120C60N151
100	70	98	54	108	0.4	265	4.5mm	235-1077-ND	1.31	1.15	.90	YM120C80N101
60	93	131	72	144	0.6	265	6.0mm	235-1078-ND	1.31	1.15	.90	YM120D105N600
45	110	155	85	170	0.7	265	7.0mm	235-1079-ND	1.31	1.15	.90	YM120D125N450
33	128	181	99	198	0.9	265	7.5mm	235-1080-ND	1.87	1.64	1.28	YM120D150N330
20	192	265	149	298	1.3	265	9.5mm	235-1082-ND	1.87	1.64	1.28	YM120D200N200
15	234	330	181	362	1.7	265	11.5mm	235-1083-ND	2.61	2.28	1.77	YM120D260N150
10	314	444	243	486	2.7	265	14.0mm	235-1084-ND	3.77	3.30	2.56	YM120D370N100
6	407	575	315	630	3.9	265	16.5mm	235-1085-ND	4.63	4.06	3.15	YM120D480N060

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## Surface Mount PTC Thermistors For Overload Protection



The component consists of a high-performance PTC ceramic disc mounted in a lead-frame, for direct soldering onto a printed-circuit board (PCB) or substrate. The ceramic is soldered to the lead-frame by a local reflow process, during which the solder layer is melted to the metallized ceramic surface using a low residue flux.

**Features:** • Ideal for pick-and-place circuit assembly • Low mounting height • Suitable for reflow soldering • Small ceramic diameter for faster response • Low heat transfer to substrate • Flat terminations for stable positioning and good solderability

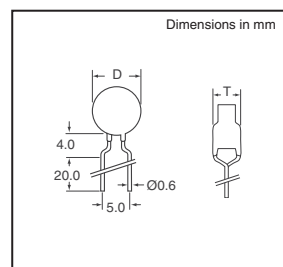
Res. @ 25°C (Ω)	Voltage Maximum (V)	I <sub>nt</sub> @		I <sub>t</sub> @ 25°C	Ceramic Size Inch (mm)	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape and Reel Pricing 1,500	Vishay Part No.
		25°C	70°C				1	10	100			
<b>Telecommunication Type</b>												
10	245	165	100	270	0.25 (6.5)	BC1566CT-ND	1.17	1.03	.81	—	—	2322 661 97012
10	245	165	100	270	0.25 (6.5)	BC1568CT-ND	1.17	1.03	.81	BC1568TR-ND	438.87/M	2322 661 97016
17.5	300	150	100	250	0.25 (6.5)	BC1561CT-ND	1.17	1.03	.81	BC1561TR-ND	438.87/M	2322 661 97003
17.5	300	150	100	250	0.25 (6.5)	BC1562CT-ND	1.40	1.23	.97	BC1562TR-ND	525.99/M	2322 661 97004
20	300	120	70	250	0.25 (6.5)	BC1569CT-ND	1.17	1.03	.81	BC1569TR-ND	438.87/M	2322 661 97018
25	265	120	70	220	0.25 (6.5)	BC1563CT-ND	1.40	1.23	.97	—	—	2322 661 97005
35	425	110	70	175	0.25 (6.5)	BC1564CT-ND	1.17	1.03	.81	BC1564TR-ND	438.87/M	2322 661 97009
40	265	80	50	130	0.25 (6.5)	BC1560CT-ND	1.17	1.03	.81	BC1560TR-ND	438.87/M	2322 661 97002
<b>General Industrial Type</b>												
3.3	24	400	—	650	0.25 (6.5)	BC1567CT-ND	1.17	1.03	.81	BC1567TR-ND	438.87/M	2322 661 97013
9.4	60	150	100	300	0.25 (6.5)	BC1565CT-ND	1.17	1.03	.81	BC1565TR-ND	438.87/M	2322 661 97011

## Leaded PTC Thermistors For Overload Protection

These directly heated thermistors have a positive temperature coefficient and are primarily intended for overload protection. **Features:** • Switch Temperature: T<sub>s</sub> = 140°C, (Series 2322 660 5: T<sub>s</sub> = 120°C) • Small ratio between trip and non-trip currents • High maximum inrush current • Excellent long term behavior, also in humidity • UL approved PTCs are guaranteed to withstand severe test programs • UL file E148885 according to XGPEU2 standard UL1434

Res. @ 25°C ±20% (Ω)	I <sub>nt</sub> Max. @ 25°C (mA)	I <sub>t</sub> Min. @ 25°C (mA)	Voltage Max. (V)	Typical øD (mm)	Dimensions - mm		Digi-Key Part No.	Price Each			Vishay Part No.
					Maximum	T		1	10	100	
0.9	920	1380	30	12	12.5	4.0	BC2323-ND◆	1.27	1.15	.91	2381 662 59211
50	94	145	60	4.5	5.0	4.0	BC2319-ND◆	.82	.74	.58	2381 660 59491
1.3	1000	1500	145	20	20.5	5.0	BC1359-ND	3.94	3.55	2.79	2322 664 51022
3.8	450	675	145	12	12.5	5.0	BC1355-ND	1.21	1.09	.86	2322 662 54512
3.8	450	675	145	12	12.5	5.0	BC2322-ND◆	1.21	1.09	.86	2381 662 54512
40	110	165	145	4.5	5.0	5.0	BC1348-ND	.93	.84	.66	2322 660 51112
240	47	70	145	4.5	5.0	5.0	BC1346-ND	.79	.72	.57	2322 660 54792
48	110	165	265	6.5	7.0	5.5	BC2321-ND◆	.93	.84	.66	2381 661 51113
56	95	143	265	4.5	5.0	5.5	BC2320-ND◆	.52	.47	.37	2381 660 59593
120	63	95	265	4.5	5.0	5.5	BC2318-ND◆	.82	.74	.58	2381 660 56393
500	28	42	265	4.5	5.0	5.5	BC2316-ND◆	.76	.68	.54	2381 660 52893
1200	19	29	265	4.5	5.0	5.5	BC2315-ND◆	.82	.74	.58	2381 660 51993

◆ RoHS Compliant



## Surface Mount Linear PTC Chip Thermistors – TFPT Series

**Features:** • Solderable wraparound terminations • Alumina substrate base with PTC thin film element • 0603, 0805 and 1206 sizes available **Specifications:** • TCR at 25°C: 4110 ppm/K • TCR Tolerance: ±400 ppm/K • Operation Temperature Range: -55°C ~ 125°C • Short Time Overload: 2.5 x Maximum Working Voltage for 5 seconds



Case Size	Dimensions - mm				
	A	B	C	D	E
0603	1.60 ± 0.10	0.85 ± 0.10	0.45 ± 0.10	0.30 ± 0.20	0.30 ± 0.20
0805	2.00 ± 0.15	1.25 ± 0.15	0.45 ± 0.10	0.40 ± 0.20	0.40 ± 0.20
1206	3.20 ± 0.15	1.60 ± 0.15	0.55 ± 0.10	0.50 ± 0.25	0.50 ± 0.25

Case Size	Resistance Values (Ω)	Tolerance	Maximum Working Voltage (VDC)†	Power Rating (mW)	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape and Reel Pricing 1,000	Vishay Dale Part No.
						1	10	100			
0603	100	±5%	30	75	541-1164-1-ND	1.31	1.15	.90	541-1164-2-ND	474.08	TFPT0603L1000JV
	1K	±0.5%	30	75	541-1165-1-ND	1.74	1.53	1.20	541-1165-2-ND	631.62	TFPT0603L1001DV
	1K	±1%	30	75	541-1166-1-ND	1.45	1.28	1.00	541-1166-2-ND	526.35	TFPT0603L1001FV
	1K	±5%	30	75	541-1198-1-ND	1.31	1.15	.90	541-1198-2-ND	474.08	TFPT0603L1001JV
	150	±1%	30	75	541-1167-1-ND	1.45	1.28	1.00	541-1167-2-ND	526.35	TFPT0603L1500FV
	220	±1%	30	75	541-1168-1-ND	1.45	1.28	1.00	541-1168-2-ND	526.35	TFPT0603L2200FV
	330	±1%	30	75	541-1169-1-ND	1.45	1.28	1.00	541-1169-2-ND	526.35	TFPT0603L3300FV
	390	±5%	30	75	541-1170-1-ND	1.31	1.15	.90	541-1170-2-ND	474.08	TFPT0603L3900JV
	470	±1%	30	75	541-1171-1-ND	1.45	1.28	1.00	541-1171-2-ND	526.35	TFPT0603L4700FV
	820	±1%	30	75	541-1199-1-ND	1.45	1.28	1.00	541-1199-2-ND	526.35	TFPT0603L8200FV
0805	100	±5%	40	100	541-1200-1-ND	1.31	1.15	.90	541-1200-2-ND	368.81	TFPT0805L1000JV
	1K	±1%	40	100	541-1172-1-ND	1.45	1.28	1.00	541-1172-2-ND	526.35	TFPT0805L1001FV
	1K	±5%	40	100	541-1173-1-ND	1.31	1.15	.90	541-1173-2-ND	474.08	TFPT0805L1001JV
	1.2K	±1%	40	100	541-1174-1-ND	1.45	1.28	1.00	541-1174-2-ND	526.35	TFPT0805L1201FV
	1.5K	±1%	40	100	541-1175-1-ND	1.45	1.28	1.00	541-1175-2-ND	526.35	TFPT0805L1501FV
	1.8K	±1%	40	100	541-1176-1-ND	1.45	1.28	1.00	541-1176-2-ND	526.35	TFPT0805L1801FV
	1.8K	±5%	40	100	541-1177-1-ND	1.31	1.15	.90	541-1177-2-ND	474.08	TFPT0805L1801JV
	2.2K	±1%	40	100	541-1178-1-ND	1.45	1.28	1.00	541-1178-2-ND	526.35	TFPT0805L2201FV
	2.2K	±5%	40	100	541-1179-1-ND	1.31	1.15	.90	541-1179-2-ND	474.08	TFPT0805L2201JV
	2.7K	±1%	40	100	541-1180-1-ND	1.45	1.28	1.00	541-1180-2-ND	526.35	TFPT0805L2701FV
	3.3K	±1%	40	100	541-1181-1-ND	1.45	1.28	1.00	541-1181-2-ND	526.35	TFPT0805L3301FV
	3.3K	±5%	40	100	541-1182-1-ND	1.31	1.15	.90	541-1182-2-ND	474.08	TFPT0805L3301JV
	3.9K	±1%	40	100	541-1183-1-ND	1.45	1.28	1.00	541-1183-2-ND	526.35	TFPT0805L3901FV
	3.9K	±5%	40	100	541-1184-1-ND	1.31	1.15	.90	541-1184-2-ND	474.08	TFPT0805L3901JV
	470	±1%	40	100	541-1185-1-ND	1.45	1.28	1.00	541-1185-2-ND	526.35	TFPT0805L4700FV
4.7K	±1%	40	100	541-1186-1-ND	1.45	1.28	1.00	541-1186-2-ND	526.35	TFPT0805L4701FV	
4.7K	±5%	40	100	541-1187-1-ND	1.31	1.15	.90	541-1187-2-ND	474.08	TFPT0805L4701JV	
5K	±1%	40	100	541-1201-1-ND	1.45	1.28	1.00	541-1201-2-ND	526.35	TFPT0805L5001FV	
5K	±5%	40	100	541-1202-1-ND	1.31	1.15	.90	541-1202-2-ND	474.08	TFPT0805L5001JV	
680	±5%	40	100	541-1188-1-ND	1.31	1.15	.90	541-1188-2-ND	474.08	TFPT0805L6800JV	
1206	10K	±1%	50	125	541-1189-1-ND	1.45	1.28	1.00	541-1189-2-ND	526.35	TFPT1206L1002FV
	10K	±5%	50	125	541-1190-1-ND	1.31	1.15	.90	541-1190-2-ND	474.08	TFPT1206L1002JV
	220	±1%	50	125	541-1191-1-ND	1.45	1.28	1.00	541-1191-2-ND	526.35	TFPT1206L2200FV
	2.2K	±5%	50	125	541-1192-1-ND	1.31	1.15	.90	541-1192-2-ND	474.08	TFPT1206L2201JV
	3.9K	±5%	50	125	541-1193-1-ND	1.31	1.15	.90	541-1193-2-ND	474.08	TFPT1206L3901JV
	4.7K	±1%	50	125	541-1194-1-ND	1.45	1.28	1.00	541-1194-2-ND	526.35	TFPT1206L4701FV
	5.6K	±5%	50	125	541-1195-1-ND	1.31	1.15	.90	541-1195-2-ND	474.08	TFPT1206L5601JV
	6.8K	±1%	50	125	541-1196-1-ND	1.45	1.28	1.00	541-1196-2-ND	526.35	TFPT1206L6801FV
6.8K	±5%	50	125	541-1197-1-ND	1.31	1.15	.90	541-1197-2-ND	474.08	TFPT1206L6801JV	

† Rated continuous Working Voltage is maximum working voltage or square root of the power rating times resistance value, whichever is less.

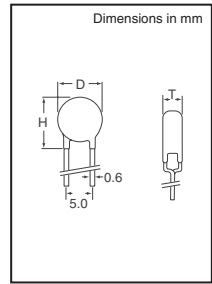
Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

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(UK091) 1931

## Leaded PTC Thermistors Overload Protection for Telecommunication



Advanced developments in telephone equipment in recent years have radically altered the protection requirements for both exchange and subscriber equipment. The range of Positive Temperature Coefficient (PTC) thermistors includes devices specially designed to provide overcurrent protection.

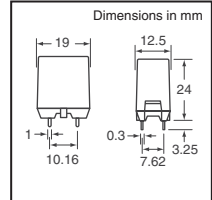
**Features:** • Fast protection against power contact faults • Withstand high overload currents of up to 10A • High voltage withstanding capabilities for the larger sized thermistors • Good tracking over a wide temperature range for all matched or binned types • Excellent stability over extended time • All telecom PTCs are coated with a high temperature silicon lacquer (UL94V0) to protect them from any harsh environments and to improve their lifetime

Res. @ 25°C (Ω)	Voltage Max. (V)	Non-Trip Current Int (mA)	Trip Current Int (mA)	Dimensions - mm Maximum			Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape and Reel Pricing 1,500	Vishay Part No.
				D	T	H		1	10	100			
4	100	85	280	7.0	4.0	11.0	BC1553CT-ND	.73	.64	.50	—	—	2322 661 91066
25	220	70	200	8.5	5.0	11.5	BC1554CT-ND	.86	.76	.60	—	323.44/M	2322 661 93048
25	245	70	200	8.3	4.0	11.0	BC1555CT-ND	.86	.76	.60	—	—	2322 661 93043

## PTC Thermistors – For Capacitor Charging

**Features:** • Self-protecting in case of malfunction of short-circuit relay or internal short-circuit of capacitor • Encased thermistor disk with clamp contacts • For high pulse currents and high number of operating cycles • Flame-retardant plastic case • Case material UL-listed • Sn-plated lead-free solder pins

**Applications:** • In-rush current limiter (charging resistor) for smoothing and DC link capacitors • To replace high-power fixed resistors for capacitor charging

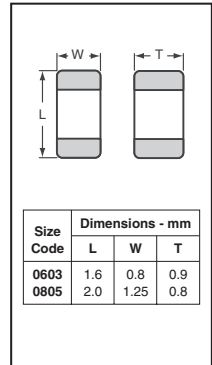


Vmax (VDC)	Rated Resistance (Ω)	Max. Pulse Current (A)	Breakdown Voltage (V)	Digi-Key Part No.	Pricing			Epcos Part No.
					1	10	100	
550	20	50	>700	495-3449-ND	2.48	17.67	141.37	B59201J0140B010
650	56	25	>700	495-3450-ND	2.48	17.67	141.37	B59202J0135B010
800	100	20	>900	495-3451-ND	2.48	17.67	141.37	B59204J0130B010

## Surface Mount PTC Thermistors – For Temperature Protection

**Features:** • Thermistor chip with lead-free tinned terminations • Small size • Fast and reliable response • Suitable for reflow soldering

**Applications:** • DC/DC converters • Home appliances • Dimmers • Electronic ballasts • Temperature management in automotive electronics • Over temperature protection of power transistors and power IC's (e.g. in battery pack, notebook) • SMPS



Size Code	Nominal Threshold Temperature (°C)	Rated Resistance (Ω)	Maximum Operating Voltage (VDC)	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape and Reel Pricing 4,000	Epcos Part No.
					1	10	100			
0603	75	470	32	495-2408-1-ND	.58	.51	.40	495-2408-2-ND	210.54/M	B59601A0075A062
	85			495-2409-1-ND	.58	.51	.40	495-2409-2-ND	210.54/M	B59601A0085A062
	95			495-2410-1-ND	.58	.51	.40	495-2410-2-ND	210.54/M	B59601A0095A062
	105			495-2411-1-ND	.58	.51	.40	495-2411-2-ND	210.54/M	B59601A0105A062
	115			495-2412-1-ND	.58	.51	.40	495-2412-2-ND	210.54/M	B59601A0115A062
	125			495-2413-1-ND	.58	.51	.40	495-2413-2-ND	210.54/M	B59601A0125A062
0805	70	≤1K	25	495-2414-1-ND	.58	.51	.40	495-2414-2-ND	210.54/M	B59601A0135A062
	90			495-2415-1-ND	.62	.55	.43	495-2415-2-ND	225.06/M	B59701A0070A062
	100			495-2608-1-ND	.70	.41	.30	495-2608-2-ND	221.43/M	B59701A0090A062
	110			495-2609-1-ND	.70	.41	.30	495-2609-2-ND	221.43/M	B59701A0100A062
	120			495-2610-1-ND	.70	.41	.30	495-2610-2-ND	221.43/M	B59701A0110A062
	130			495-2612-1-ND	.70	.41	.30	495-2612-2-ND	221.43/M	B59701A0130A062

## Surface Mount PTC Thermistors – For Overcurrent Protection



**Features:** • Suitable for reflow soldering and for automatic placement

**Applications:** • Overcurrent protection • Short-circuit protection

Dimensions in mm

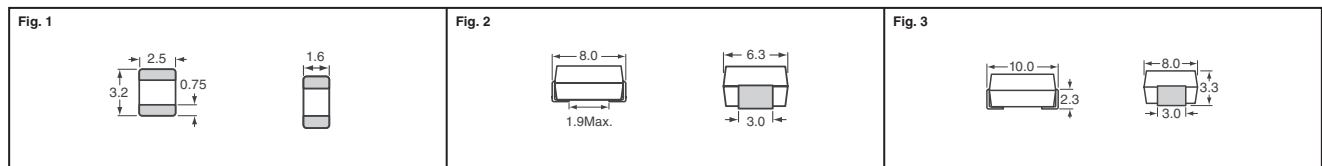
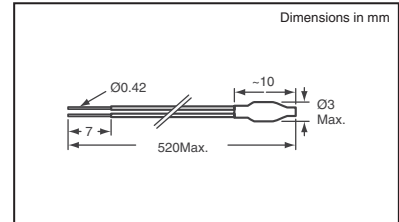


Fig.	Size Code	Rated Resistance (Ω)	Rated Current (mA)	Switch Current (mA)	Maximum Switch Current (A)	Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape and Reel		Epcos Part No.
							1	10	100		Qty.	Pricing	
1	1210	27	90	180	0.5	495-2416-1-ND	.99	.87	.68	495-2416-2-ND	2,000	357.19/M	B59606A0110A062
		55	70	130	0.4	495-2417-1-ND	.91	.80	.63	495-2417-2-ND	2,000	328.15/M	B59607A0120A062
		125	50	90	0.3	495-2418-1-ND	.91	.80	.63	495-2418-2-ND	2,000	328.15/M	B59707A0120A062
		400	15	40	0.2	495-3878-1-ND	1.08	.95	.75	495-3878-2-ND	2,000	391.32/M	B59807A0090A062
2	3225	55	40	85	0.7	495-2419-1-ND	1.52	1.34	1.05	495-2419-2-ND	1,000	553.21	B59115P1080A062
		25	65	135	1.0	495-2421-1-ND	1.52	1.34	1.05	495-2421-2-ND	1,000	553.21	B59215P1080A062
		4.6	165	340	1.0	495-2420-1-ND	1.52	1.34	1.05	495-2420-2-ND	1,000	553.21	B59201P1080A062
3	3225	16	150	310	1.6	495-3877-1-ND	2.28	2.00	1.57	495-3877-2-ND	1,000	826.91	B59315P1120A062

## Leaded PTC Thermistors – For Temperature Protection

**Features:** • Thermistor pellet with insulating encapsulation • Low-resistance • Steep R/T curve • Silver-plated and Insulated AWG 26 litz wires • Extremely fast response due to small dimensions • UL approved to UL 1434 (file number E69802)

**Applications:** • Thermal protection of winding in electric motors • Limit temperature monitoring



Nominal Threshold Temperature (°C)	Rated Resistance (Ω)	Maximum Operating Voltage (VDC)	Digi-Key Part No.	Price Each			Epcos Part No.
				1	10	100	
70	≤100	30	495-2615-ND	3.12	2.23	1.79	B59100M1070A070
120	≤100	30	495-2617-ND	2.90	2.08	1.66	B59100M1120A070
155	≤100	30	495-2618-ND	2.90	2.08	1.66	B59100M1155A070

Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

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# Leaded PTC Thermistors For Overcurrent Protection

Dimensions in mm

- Features:**
- Short response times
  - UL approval for UL 1434 (file number E69802)
  - VDE approval (license number 104843 E)

- Applications:**
- Overcurrent and short-circuit protection

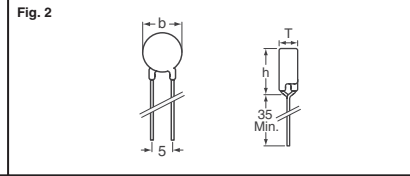
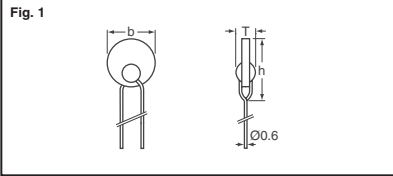


Fig.	Rated Resistance (Ω)	Rated Voltage (V)	Rated Current (mA)	Switch Current (mA)	Maximum Switch Current (A)	Dimensions mm			Digi-Key Part No.	Price Each			Epcos Part No.
						b	T	h		1	10	100	
1	25	380	123	245	2.0	12.5	7.0	16.5	495-3879-ND	2.92	1.88	1.45	B59750B0120A070
	50	380	87	173	2.0	12.5	7.0	16.5	495-3880-ND	2.92	1.88	1.45	B59751B0120A070
	70	380	64	127	1.4	8.5	7.0	12.0	495-3886-ND	1.73	1.12	.86	B59770B0120A070
	80	380	69	137	2.0	12.5	7.0	16.5	495-3881-ND	2.92	1.88	1.45	B59752B0120A070
	120	380	56	112	2.0	12.5	7.0	16.5	495-3882-ND	2.92	1.88	1.45	B59753B0120A070
	120	380	49	97	1.4	8.5	7.0	12.0	495-3887-ND	1.73	1.12	.86	B59771B0120A070
	150	380	43	86	1.4	8.5	7.0	12.0	495-3888-ND	1.73	1.12	.86	B59772B0120A070
	150	380	50	100	2.0	12.5	7.0	16.5	495-3883-ND	2.92	1.88	1.45	B59754B0120A070
	500	500	28	55	1.4	12.5	7.0	16.5	495-3884-ND	2.92	1.88	1.45	B59755B0115A070
	500	500	24	48	1.0	8.5	7.0	12.0	495-3889-ND	1.73	1.12	.86	B59773B0120A070
2	1100	500	16	32	1.0	8.5	7.0	12.0	495-3890-ND	1.73	1.12	.86	B59774B0115A070
	7500	1000	8	17	0.5	12.5	7.0	16.5	495-3885-ND	7.02	4.52	3.48	B59758B0110A070
	0.8	24	850	1700	5.5	13.5	3.5	17.0	495-3897-ND	1.64	1.06	.81	B59955C0120A070
	1.2	24	600	1200	4.3	11.0	3.5	14.5	495-3899-ND	1.39	.90	.69	B59965C0120A070
	1.8	24	450	900	3.0	9.0	3.5	12.5	495-3901-ND	1.19	.77	.59	B59975C0120A070
	3.7	63	320	640	5.5	13.5	3.5	17.0	495-3896-ND	1.64	1.06	.81	B59950C0120A070
	4.6	24	250	500	1.0	6.5	3.5	10.0	495-3904-ND	1.02	.66	.51	B59985C0120A070
	5.6	63	250	500	4.3	11.0	3.5	14.5	495-3898-ND	1.40	.90	.70	B59960C0120A070
	9.4	63	150	300	3.0	9.0	3.5	12.5	495-3900-ND	1.19	.77	.59	B59970C0120A070
	10	230	200	400	2.2	13.5	5.0	17.0	495-3891-ND	1.80	1.16	.89	B59850C0120A070
2	13	24	120	240	0.7	4.0	3.5	7.5	495-3907-ND	.86	.56	.43	B59995C0120A070
	15	230	140	280	1.5	11.0	5.0	14.5	495-3892-ND	1.47	.95	.74	B59860C0120A070
	25	63	50	110	1.0	6.5	3.5	10.0	495-3902-ND	1.02	.66	.51	B59980C0080A070
	25	63	85	170	1.0	6.5	3.5	10.0	495-3903-ND	1.02	.66	.51	B59980C0120A070
	25	230	100	200	1.0	9.0	5.0	12.5	495-2613-ND	1.40	.90	.70	B59870C0120A070
	55	63	30	60	0.7	4.0	3.5	7.5	495-3905-ND	.86	.56	.43	B59990C0080A070
	55	63	50	100	0.7	4.0	3.5	7.5	495-3906-ND	.86	.56	.43	B59990C0120A070
	70	230	55	110	0.4	6.5	5.0	10.0	495-2614-1-ND†	2.08	1.21	.88	B59880C0120A051
	70	230	55	110	0.4	6.5	5.0	10.0	495-2614-2-ND‡	1179.93/1,500			B59880C0120A051
	150	230	30	60	0.2	4.0	5.0	7.5	495-3895-ND	1.03	.67	.51	B59890C0120A070
1200	500	15	30	0.1	6.5	5.0	10.0	495-3893-ND	1.31	.85	.65	B59885C0120A070	
1500	500	12	24	0.1	6.5	5.0	10.0	495-3894-ND	1.31	.85	.65	B59886C0120A070	

† Cut Tape ‡ Tape and Reel

## Inrush Current Limiters

- Features:** • Usable in series connections up to 265Vrms • Coated thermistor disk • UL Approval (E69802)

- Applications:** • Switch-mode power supplies

- Specifications:** • Climatic category: 55/170/21 • Tolerance: ±20%

Dimensions in mm

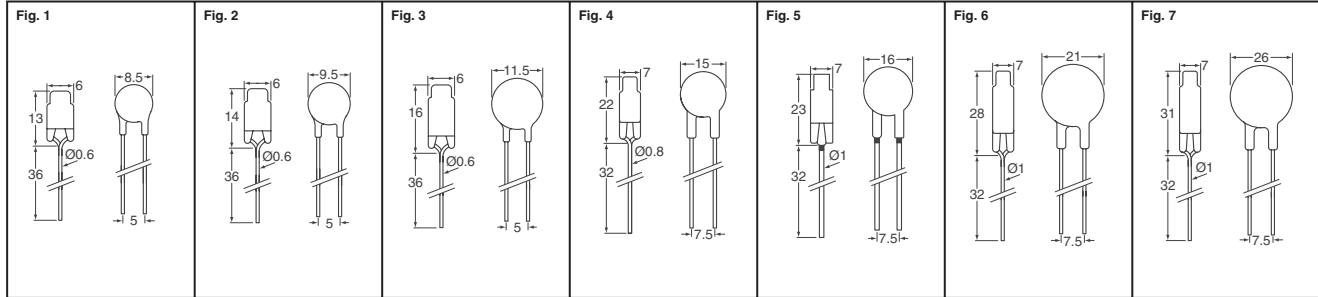


Fig.	Res. @ 25°C (Ω)	I <sub>max</sub> (A) 0°C - 65°C	B25/100 (K)	Digi-Key Part No.	Pricing			Epcos Part No.
					1	10	100	
1	4.7	3.0	2800	495-2079-ND	9.29	81.31	639.23	B57153S0479M000
	10	2.0	2800	495-2076-ND	2.90	25.44	199.68	B57153S0100M000
	15	1.8	2900	495-2077-ND	9.29	81.31	639.23	B57153S0150M000
	33	1.3	3000	495-2078-ND	8.71	76.67	602.17	B57153S0330M000
2	5	4.2	2800	495-2093-ND	13.46	118.00	927.57	B57235S0509M000
	6	4.0	2800	495-3043-ND	12.94	112.78	885.88	B57235S0609M000
	8	3.5	2900	495-3044-ND	12.94	112.78	885.88	B57235S0809M000
	10	3.0	2900	495-2092-ND	31.36	273.91	2152.30	B57236S0100M000
3	2.5	5.5	2700	495-3049-ND‡	17.25	150.54	1183.05	B57236S0259L002
	3	5.0	2700	495-3050-ND‡	17.25	150.54	1183.05	B57236S0309L002
	5	4.5	2800	495-3051-ND‡	17.25	150.54	1183.05	B57236S0509L002
	5	4.5	2800	495-2096-ND	17.77	155.90	1224.73	B57236S0509M000
	8	3.7	2900	495-3052-ND‡	17.25	150.54	1183.05	B57236S0809L002
	10	3.5	2900	495-2094-ND	17.77	155.90	1224.73	B57236S0100M000
3	12	3.2	2900	495-3045-ND	17.25	150.54	1183.05	B57236S0120M000
	16	2.9	2965	495-3046-ND	17.25	150.54	1183.05	B57236S0160M000
	20	2.8	3065	495-3047-ND	17.77	155.90	1224.73	B57236S0200M000
	25	2.5	3065	495-3048-ND	16.60	145.32	1141.36	B57236S0250M000
	50	1.9	3165	495-2095-ND	16.60	145.32	1141.36	B57236S0500M000
	4	1	9.0	2700	495-2098-ND	2.15	18.75	147.30
2.2		7.0	2800	495-3055-ND	2.15	18.75	147.30	B57237S0229M000
4	2.5	6.5	2800	495-3056-ND	2.21	19.36	152.10	B57237S0259M000
	4.7	5.1	2900	495-2099-ND	2.15	18.75	147.30	B57237S0479M000
	5	5.0	2900	495-2100-ND	2.21	19.36	152.10	B57237S0509M000
	10	3.7	3060	495-2097-ND	1.71	14.93	117.31	B57237S0100M000
	15	3.0	3000	495-3053-ND	2.15	18.75	147.30	B57237S0150M000
5	2.2	2.8	3300	495-3054-ND	2.15	18.75	147.30	B57237S0220M000
	3.3	2.5	3300	495-3057-ND	2.15	18.75	147.30	B57237S0330M000
	2.5	8.4	2800	495-3062-ND	2.34	20.46	160.68	B57238S0259M000
	4.7	6.6	2965	495-2102-ND	2.34	20.46	160.68	B57238S0479M000
	5	6.4	2965	495-2103-ND	2.34	20.46	160.68	B57238S0509M000
5	10	5.0	3065	495-2101-ND	2.34	20.46	160.68	B57238S0100M000
	15	4.4	3165	495-3058-ND	2.26	19.77	155.31	B57238S0150M000
	16	4.0	3165	495-3059-ND	2.34	20.46	160.68	B57238S0160M000
	22	4.0	3265	495-3060-ND	2.53	22.08	173.53	B57238S0220M000
	25	3.4	3265	495-3061-ND	2.34	20.46	160.68	B57238S0250M000
6	1	16.0	2800	495-1871-ND	46.13	403.28	3168.21	B57364S0109M000
	2.5	11	2900	495-3063-ND	44.69	390.60	3069.41	B57364S0259M000
	5	8.5	3060	495-2114-ND	44.69	390.60	3069.41	B57364S0509M000
	10	7.5	3300	495-2112-ND	22.74	199.03	1563.32	B57364S0100M000
7	1	20.0	2800	495-2123-ND	38.55	337.23	2649.39	B57464S0109M000

‡ Tolerance ±15%

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