

## Temperature Sensing & Compensation - TDC SERIES

### NTC Thermistors Data Sheet

#### Features

- Body size:  $\Phi 3\text{mm}$ 、 $\Phi 5\text{mm}$
- Max. Power Rating : 250mW、500mW
- Operating temperature range:  $-20^{\circ}\text{C} \sim +125^{\circ}\text{C}$
- Wide range of electrical specifications
- Fast response
- Thermal and electrical characteristics with high stability
- RoHS & Halogen Free (HF) compliant
- Safety certification: UL.E482628



#### APPLICATIONS

- LED temperature display, Monitor control panel
- Motherboard temperature compensation
- IC temperature compensation
- Home appliances, Automotive electronics, Transformers, Coils, etc

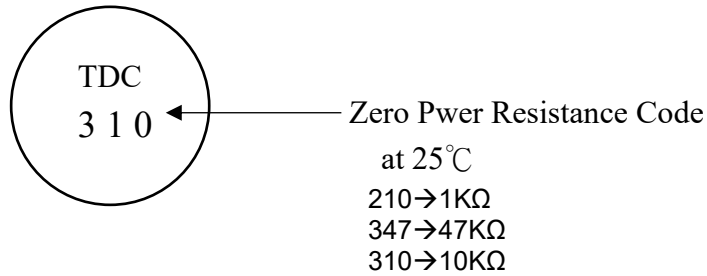
#### PART NUMBER CODE

TDC	05	C	310	J	—	5	X1	TR
Temperature NTC	Disc Diameter	Beta Range Process Code	Zero Power Resistance at 25°C R25 ( $\Omega$ )	Tolerance of R25		RoHS Code	Forming Type <KinK>	Packaging Type
Disc type	03 $\Phi$ 05 $\Phi$	1600 $\leq$ A $\leq$ 3300 3600 $\leq$ C<4200 D $\leq$ 4200	210 $\rightarrow$ 1K $\Omega$ 347 $\rightarrow$ 47K $\Omega$ 310 $\rightarrow$ 10K $\Omega$ 410 $\rightarrow$ 100K $\Omega$	J: $\pm$ 5% K: $\pm$ 10% L: $\pm$ 15%		Default <5>	2~3code <b>No Suffix:</b> Default straight <b>Others :</b> Refer to <Dimensions >	<b>No Suffix:</b> Bulk <b>TR:</b> Tape&Reel <b>TA:</b> Tape&Box

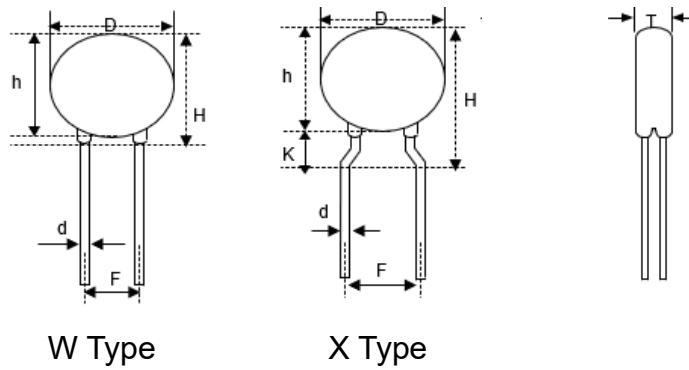
**Marking**

03 Series : No Marking

05Φ Series :

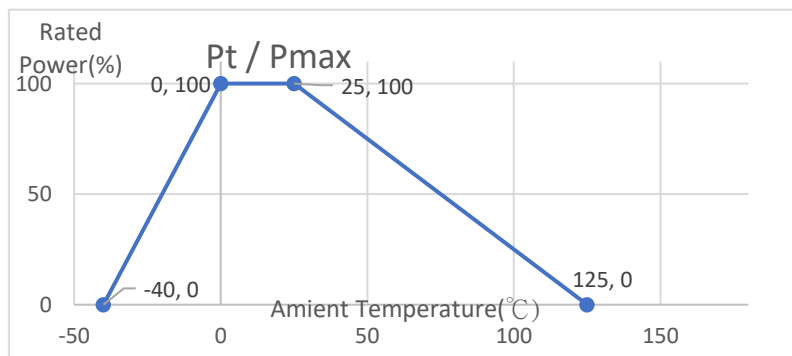


**DIMENSIONS**



Disc Diameter	Lead Type	d	F	D	T	h	K	H	Remark
		mm (±0.02)	mm (±1)	mm (max.)	mm (max.)	mm (max.)	mm (±1)	Mm (max.)	
3Φ	W1	0.5	2.5	4	3.5	5	--	8	3Φ default
5Φ	W2	0.5	3.5	6.5	4.0	7.5	--	10.3	5Φ default
5Φ	X1	0.5	0.5	6.5	4.0	7.5	5	12.5	--

**Maximum Power Rating**



## ELECTRICAL CHARACTERISTICS

### ■ TDCSeries-5Φ

Disc Diameter	Part No.	Zero Power Resistance at 25°C	$\beta$ Constant 25-50	Thermal Dissipation Constant Approx.	Thermal Time Constant Approx.	Max. Power Rating at 25°C	Operating Temperature Range	UL E482628
		R25 ( $\Omega$ )	(K)	$\delta$ (mW/°C)	$\tau$ (Sec.)	(mW)	(°C)	
5Φ	TDC05A010□-5	10	2600	6	20	450	-20 ~ +125	V
5Φ	TDC05A015□-5	15	2900	6	20	450	-20 ~ +125	V
5Φ	TDC05A020□-5	20	2900	6	20	450	-20 ~ +125	V
5Φ	TDC05A030□-5	30	2900	6	20	450	-20 ~ +125	
5Φ	TDC05A040□-5	40	3000	6	20	450	-20 ~ +125	V
5Φ	TDC05A045□-5	45	3000	6	20	450	-20 ~ +125	V
5Φ	TDC05A050□-5	50	3100	6	20	450	-20 ~ +125	V
5Φ	TDC05A060□-5	60	3100	6	20	450	-20 ~ +125	V
5Φ	TDC05A070□-5	70	3100	6	20	450	-20 ~ +125	V
5Φ	TDC05A085□-5	85	3100	6	20	450	-20 ~ +125	V
5Φ	TDC05A090□-5	90	3100	6	20	450	-20 ~ +125	V
5Φ	TDC05A110□-5	100	3150	6	20	450	-20 ~ +125	V
5Φ	TDC05A112□-5	120	3150	6	20	450	-20 ~ +125	V
5Φ	TDC05A115□-5	150	3150	6	20	450	-20 ~ +125	
5Φ	TDC05A120□-5	200	3300	6	20	450	-20 ~ +125	V
5Φ	TDC05A122□-5	220	3300	6	20	450	-20 ~ +125	V
5Φ	TDC05A125□-5	250	3300	6	20	450	-20 ~ +125	V
5Φ	TDC05A130□-5	300	3300	6	20	450	-20 ~ +125	V
5Φ	TDC05A135□-5	350	3300	6	20	450	-20 ~ +125	V
5Φ	TDC05C140□-5	400	3300	6	20	450	-20 ~ +125	V
5Φ	TDC05C150□-5	500	3600	6	20	450	-20 ~ +125	V
5Φ	TDC05C160□-5	600	3600	6	20	450	-20 ~ +125	
5Φ	TDC05C168□-5	680	3600	6	20	450	-20 ~ +125	V
5Φ	TDC05C180□-5	800	3700	6	20	450	-20 ~ +125	V
5Φ	TDC05C190□-5	900	3700	6	20	450	-20 ~ +125	V
5Φ	TDC05C210□-5	1.0K	3700	6	20	450	-20 ~ +125	V
5Φ	TDC05C215□-5	1.5K	3700	6	20	450	-20 ~ +125	V
5Φ	TDC05C220□-5	2.0K	3750	6	20	450	-20 ~ +125	V
5Φ	TDC05C222□-5	2.2K	3750	6	20	450	-20 ~ +125	V
5Φ	TDC05C225□-5	2.5K	3750	6	20	450	-20 ~ +125	V

Disc Diameter	Part No.	Zero Power Resistance at 25°C	$\beta$ Constant 25-50	Thermal Dissipation Constant Approx.	Thermal Time Constant Approx.	Max. Power Rating at 25°C	Operating Temperature Range	UL E482628
		R25 ( $\Omega$ )	(K)	$\delta$ (mW/°C)	$\tau$ (Sec.)	(mW)	(°C)	
5Φ	TDC05C227□-5	2.7K	3750	6	20	450	-20 ~ +125	V
5Φ	TDC05C230□-5	3.0K	3800	6	20	450	-20 ~ +125	V
5Φ	TDC05C233□-5	3.3K	3800	6	20	450	-20 ~ +125	V
5Φ	TDC05C235□-5	3.5K	3800	6	20	450	-20 ~ +125	V
5Φ	TDC05C240□-5	4.0K	3850	6	20	450	-20 ~ +125	V
5Φ	TDC05C245□-5	4.5K	3850	6	20	450	-20 ~ +125	V
5Φ	TDC05C247□-5	4.7K	3900	6	20	450	-20 ~ +125	V
5Φ	TDC05C250□-5	5.0K	3900	6	20	450	-20 ~ +125	V
5Φ	TDC05C260□-5	6.0K	3900	6	20	450	-20 ~ +125	V
5Φ	TDC05C268□-5	6.8K	3950	6	20	450	-20 ~ +125	
5Φ	TDC05C310□-5	10K	4100	6	20	450	-20 ~ +125	V
5Φ	TDC05C312□-5	12K	4100	6	20	450	-20 ~ +125	V
5Φ	TDC05C315□-5	15K	4150	6	20	450	-20 ~ +125	V
5Φ	TDC05C320□-5	20K	4150	6	20	450	-20 ~ +125	V
5Φ	TDC05C322□-5	22K	4200	6	20	450	-20 ~ +125	
5Φ	TDC05D330□-5	30K	4300	6	20	450	-20 ~ +125	V
5Φ	TDC05D333□-5	33K	4300	6	20	450	-20 ~ +125	V
5Φ	TDC05D347□-5	47K	4400	6	20	450	-20 ~ +125	V
5Φ	TDC05D350□-5	50K	4400	6	20	450	-20 ~ +125	V
5Φ	TDC05D410□-5	100K	4550	6	20	450	-20 ~ +125	V
5Φ	TDC05D415□-5	150K	4600	6	20	450	-20 ~ +125	V
5Φ	TDC05D420□-5	200K	4650	6	20	450	-20 ~ +125	V
5Φ	TDC05D422□-5	220K	4700	6	20	450	-20 ~ +125	V
5Φ	TDC05D433□-5	330K	4700	6	20	450	-20 ~ +125	V
5Φ	TDC05D440□-5	400K	4700	6	20	450	-20 ~ +125	V
5Φ	TDC05D447□-5	470K	4750	6	20	450	-20 ~ +125	V

Note : □ means tol.% of R25

■ **TDCSeries-3Φ**

Disc Diameter	Part No.	Zero Power Resistance at 25°C	β Constant 25-50	Thermal Dissipation Constant Approx.	Thermal Time Constant Approx.	Max. Power Rating at 25°C	Operating Temperature Range	UL E482628
		R25 (Ω)	(K)	δ(mW/°C)	τ(Sec.)	(mW)	(°C)	
3Φ	TDC03A110□-5	100	3000	5.5	10	250	-20 ~ +125	V
3Φ	TDC03A210□-5	1.0K	3300	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C220□-5	2.0K	3700	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C222□-5	2.2K	3700	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C225□-5	2.5K	3700	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C227□-5	2.7K	3700	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C230□-5	3.0K	3700	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C233□-5	3.3K	3700	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C240□-5	4.0K	3750	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C247□-5	4.7K	3750	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C250□-5	5.0K	3750	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C268□-5	6.8K	3800	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C275□-5	7.5K	3900	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C310□-5	10K	3900	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C312□-5	12K	3900	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C315□-5	15K	3950	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C320□-5	20K	4000	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C322□-5	22K	4000	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C330□-5	30K	4150	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C333□-5	33K	4150	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C347□-5	47K	4150	5.5	10	250	-20 ~ +125	V
3Φ	TDC03C350□-5	50K	4200	5.5	10	250	-20 ~ +125	V
3Φ	TDC03D368□-5	68K	4300	5.5	10	250	-20 ~ +125	
3Φ	TDC03D410□-5	100K	4400	5.5	10	250	-20 ~ +125	V
3Φ	TDC03D422□-5	220K	4550	5.5	10	250	-20 ~ +125	V
3Φ	TDC03D447□-5	470K	4600	5.5	10	250	-20 ~ +125	

Note : □ means tol% of R25

**Warehouse Storage Conditions**

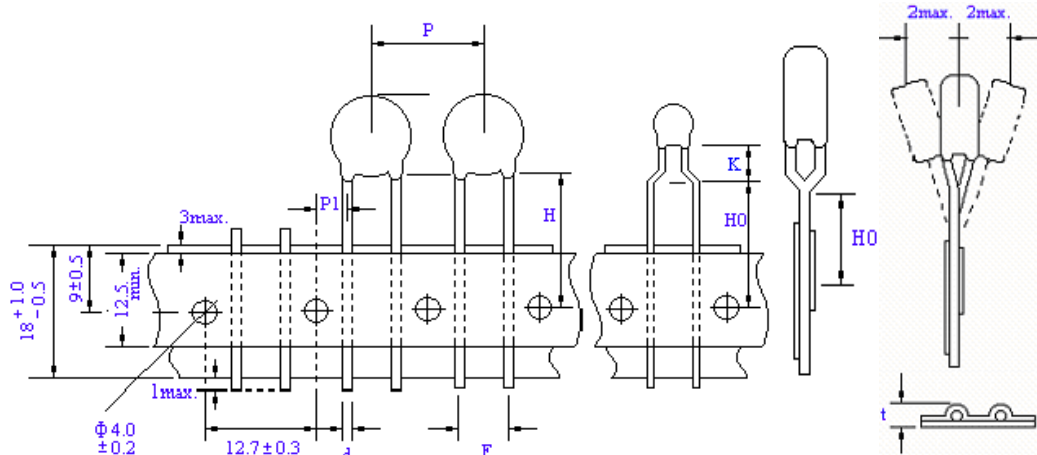
- Storage temperature: -10°C~+40°C.
- Relative humidity: ≤75%RH.
- Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.

**Packaging**

■ **Tape Packing** (Tape Reel or Tape Box)

Lead type		P (mm)	F (mm)	TR type (Tape & Reel)	TA type (Tape & Box)
05Φ	X1	12.7	5.0	1500pcs	1500pcs
<b>Tape Reel or Tape Box (Unit: mm)</b>					

**P=12.7**



Symbol	Dimension (mm)		Symbol	Dimension (mm)	
TA type (Tape & Box)	A	330	TR type (Tape & Reel)	A	30
	B	260		B	76
	C	50		C	340
				E	43

■ **Bulk Packing**

Bulk (Unit: mm)	Disc	SPQ (pcs / Bag)	Quantity	
			(Bags / Box)	(pcs / Box)
	03Φ	500	4	2,000
	05Φ	500	4	2,000