

## Feature

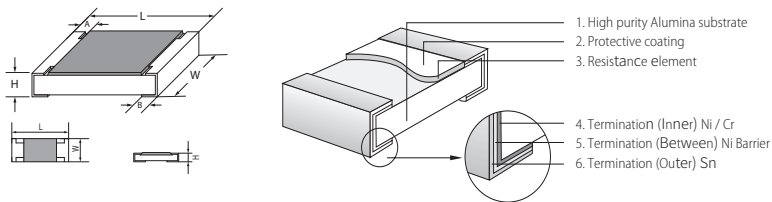
- Thin film NiCr Resistance element
- Very tight tolerance  $\pm 0.05\% \sim \pm 1\%$
- Extremely low TCR  $\pm 5\text{ppm} \sim \pm 50\text{ppm}$
- Completed Lead-free

## Application

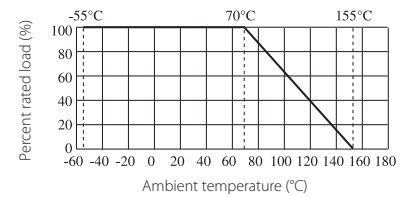
- Automotive
- Automatic equipment
- Communication & telecom
- Industrial
- Medical Equipment



## Figures



## Derating Curve



Type	Size	L (mm)	W (mm)	H (mm)	A (mm)	B (mm)
TC02	0402 (1005)	1.00±0.10	0.50±0.05	0.35±0.05	0.2±0.1	0.25±0.10
TC03	0603 (1608)	1.60±0.10	0.80±0.10	0.45±0.10	0.3±0.2	0.30±0.20
TC05	0805 (2012)	2.00±0.15	1.25 <sup>+0.15</sup> <sub>-0.10</sub>	0.55±0.10	0.3±0.2	0.40±0.20
TC06	1206 (3216)	3.10±0.15	1.55 <sup>+0.15</sup> <sub>-0.10</sub>	0.55±0.10	0.4±0.2	0.45±0.20
TC07	1210 (3225)	3.10±0.10	2.60±0.20	0.55±0.10	0.4±0.2	0.45±0.20
TC10	2010 (5025)	5.00±0.10	2.50±0.20	0.55±0.10	0.5±0.25	0.50±0.20
TC12	2512 (6432)	6.35±0.10	3.20±0.20	0.55±0.10	0.5±0.25	0.50±0.20

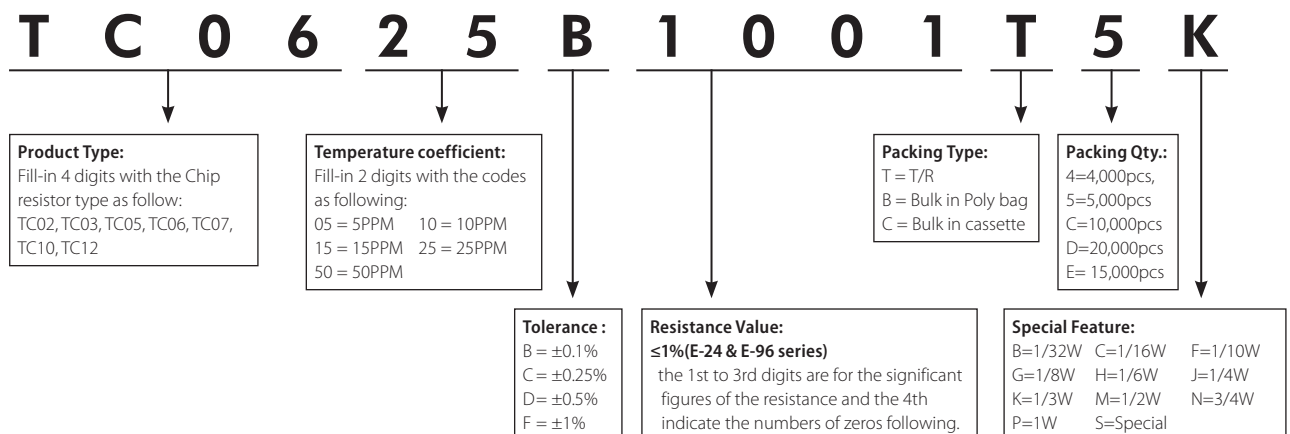
## Performance Specifications

Test Item	Test Methods	Evaluation Criteria
Short-time overload	2.5x Rated voltage or Max. Overload Voltage whichever is lower for 5 seconds, then check the resistance.	$\Delta R \leq \pm 0.5\%$
Insulation resistance	1. Chip Resistor : the measuring voltage shall be, measured with a direct voltage of (100±15)V or a voltage equal to the dielectric withstanding voltage, and apply for 1 min. 2. TH Resistor: the measuring voltage shall be equal to the dielectric withstanding voltage for resistor with an isolation voltage <500V or (500±50)V DC, for resistors with an isolation voltage ≥500V.	≥1,000MΩ
Load life in humidity	Resistance change after 1000 hours (1.5hours"ON", 0.5hours"OFF") at RCWW or Max.Working Voltage whichever less in a humidity test chamber controlled at 40±2°C and 90~95% RH.	$\Delta R \leq \pm 0.5\%$
Load life	Permanent Resistance change after 1000 hours operating at RCWW or Max.Working Voltage whichever less with duty cycle of 1.5 hours "ON", 0.5 hour "OFF" at 70±2°C ambient.	$\Delta R \leq \pm 0.2\%$ $>7K\Omega \Delta R \leq \pm 0.5\%$
Humidity (Steady State)	Temporary resistance change after 240 hours exposure in a humidity test chamber controlled at 40±2°C and 90~95% RH.	$\Delta R \leq \pm 0.3\%$
Terminal bending	Applicable for CHIP Resistors Twist of Test Board: Y/X=3/90mm 60 seconds.	$\Delta R \leq \pm 0.2\%$
Solderability	The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. Temperature of solder: 245±3°C; Dwell time in solder: 2~3 seconds.	Coverage must be over 95%.
Soldering heat	Applicable for TH Resistors Permanent resistor change when leads immersed to a point 2.0~2.5mm from the body in 260±5°C solder 10±1 seconds.	$\Delta R \leq \pm 0.2\%$

## Electrical Data

Type	Power Rating at 70°C	Operating Temperature	Max.Working Voltage	Max.Overload Voltage	Dielectric With-standing Voltage	Resistance Range			TCR
						±0.01%	±0.1%	±0.5%	
TC02	1/16W	-55°C~+155°C	25V	50V	100V	/	100Ω~2KΩ	100Ω~2KΩ	±5PPM/°C
						/	50Ω~12KΩ	50Ω~12KΩ	±10PPM/°C
						/	10Ω~332KΩ	10Ω~332KΩ	±25PPM/°C
						/	10Ω~332KΩ	10Ω~332KΩ	±50PPM/°C
TC03	1/10W	-55°C~+155°C	75V	150V	300V	/	100Ω~4KΩ	100Ω~4KΩ	±5PPM/°C
						/	10Ω~50KΩ	10Ω~50KΩ	±10PPM/°C
						4.7Ω~332K	4.7Ω~1MΩ	1Ω~1MΩ	±25PPM/°C
						4.7Ω~332K	4.7Ω~1MΩ	1Ω~1MΩ	±50PPM/°C
TC05	1/8W	-55°C~+155°C	150V	300V	500V	/	100Ω~15KΩ	100Ω~15KΩ	±5PPM/°C
						/	10Ω~100KΩ	10Ω~100KΩ	±10PPM/°C
						4.7Ω~511K	4.7Ω~2MΩ	1Ω~2MΩ	±25PPM/°C
						4.7Ω~511K	4.7Ω~2MΩ	1Ω~2MΩ	±50PPM/°C
TC06	1/4W	-55°C~+155°C	200V	400V	500V	/	100Ω~15KΩ	100Ω~15KΩ	±5PPM/°C
						/	10Ω~200KΩ	10Ω~200KΩ	±10PPM/°C
						4.7Ω~1M	4.7Ω~3MΩ	1Ω~3MΩ	±25PPM/°C
						4.7Ω~1M	4.7Ω~3MΩ	1Ω~3MΩ	±50PPM/°C
TC07	1/3W	-55°C~+155°C	200V	400V	500V	/	100Ω~15KΩ	100Ω~15KΩ	±5PPM/°C
						/	10Ω~200KΩ	10Ω~200KΩ	±10PPM/°C
						4.7Ω~1M	4.7Ω~3MΩ	1Ω~3MΩ	±25PPM/°C
						4.7Ω~1M	4.7Ω~3MΩ	1Ω~3MΩ	±50PPM/°C
TC10	1/3W	-55°C~+155°C	200V	400V	500V	/	100Ω~25KΩ	100Ω~25KΩ	±5PPM/°C
	1/2W					/	50Ω~200KΩ	50Ω~200KΩ	±10PPM/°C
						4.7Ω~1M	4.7Ω~3MΩ	1Ω~3MΩ	±25PPM/°C
						4.7Ω~1M	4.7Ω~3MΩ	1Ω~3MΩ	±50PPM/°C
TC12	3/4W	-55°C~+155°C	200V	400V	500V	/	100Ω~25KΩ	100Ω~25KΩ	±5PPM/°C
						/	50Ω~200KΩ	50Ω~200KΩ	±10PPM/°C
						10Ω~1M	4.7Ω~3MΩ	1Ω~3MΩ	±25PPM/°C
						10Ω~1M	4.7Ω~3MΩ	1Ω~3MΩ	±50PPM/°C

## Ordering Procedure (Example:Thin Film TC06 1/3W 0.1% 25PPM 1KΩ T/R-5000)



Remark: For more details, please check page 135, Part No. System

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