

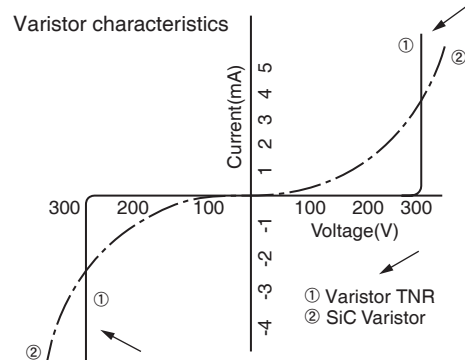
TNR is a our metal oxide varistor metal oxide varistor having steep non-linear V-I characteristics and high discharge current capability, as follows:

### ◆Metal oxide varistor Features

1. Excellent transient voltage suppression
2. High discharge current capability
3. Wide range of voltage ratings
4. Symmetrical V-I characteristics (Non Polarity)
5. Fast response
6. Steady operation for repeating surge
7. Low temperature coefficient
8. High reliability
9. UL recognized
10. CSA recognized

### ◆Applications

1. Electronics instrument protection
2. Telephone system protection
3. Relay contact point protection
4. Rectification diode protection
5. SCR protection
6. Reduction of abnormal voltage in high voltage current
7. Switching transistor protection
8. Reduction of switching surge in electromagnetic brake
9. Prevention of error in digital circuit
10. Reduction of noise from an abnormal voltage

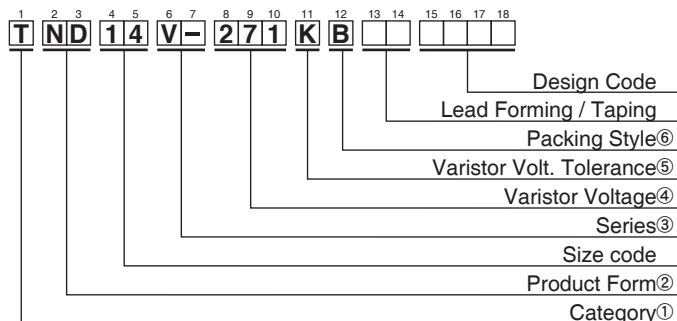


### ◆Group Chart



### ◆Part Numbering System

The current parts numbering system is changed to new system for global coding. Your cooperation will be very much appreciated.



①Category	
T	Metal Oxide Varistors TNR
②Product Form	
ND	Disk Type
NL	Sleeve Type
③Series	
V-	V Series

④Varistor Voltage	
The first two digits are significant figures and the third one denotes the number of following zeros.	
⑤Varistor Volt. Tolerance	
K	±10%
⑥Packing Style	
B	Bulk
T	Taping

Technical Term	Description
Varistor Voltage	Voltage across the varistor measured at CmA DC. C = 0.1 or 1.0 as specified.
Max. Allowable Voltage (ACrms)	Maximum continuous sinusoidal RMS voltage which may be applied.
Max. Allowable Voltage (DC)	Maximum continuous DC voltage which may be applied.
Maximum Clamping Voltage	Peak voltage across the varistor, measured under conditions of a specified peak impulse current and specified waveform (8/20µs) applied 1 time.
Rated Wattage	Maximum power that can be applied within the specified ambient temperature.
Maximum Peak Current	Surge current withstand refers to the maximum current value that is within 10% of the varistor voltage against an initial value when the standard impulse current at 8/20 µs in accordance with IEC standards is applied once or twice within a five-minute interval. If this value is exceeded, a Varistor malfunction may result. When selecting a Varistor, select one that has a higher rate for a surge current than the anticipated surge current rate.
Current Wave Form for Clamping Voltage Test and Maximum Peak Current	
Energy	Surge energy withstand refers to the maximum energy value that is within 10% of the varistor voltage against an initial value when a 2ms shortwave is applied once. When a Varistor absorbs energy exceeding this value, it may malfunction. Therefore, when selecting a Varistor, select one that can withstand a higher energy surge than the anticipated surge energy rate.
Capacitance	Typical value measured at a 1kHz test frequency. (Sin wave. Reference purpose only)