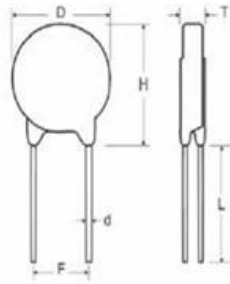




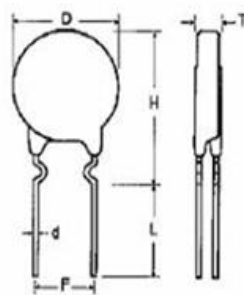


■ Dimensions

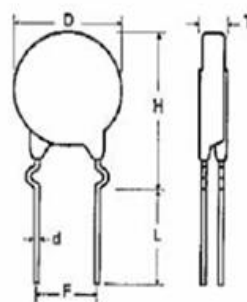
S Type(Straight Lead)



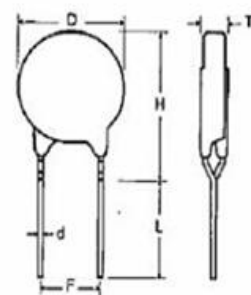
I Type(Inner Crimped Lead)



C Type(Out Crimped Lead)



Y Lead Type(Y Kink Lead)



Unit: mm

| Part No.    | Part No.     | T Max. | D Max. | H Max. |           | L min. | F ±0.8 | d ± 0.05 |
|-------------|--------------|--------|--------|--------|-----------|--------|--------|----------|
|             |              |        |        | S      | I / C / Y |        |        |          |
| VDR-14D180L | VDR-14D180LJ | 4.5    | 16.5   | 21.0   | 23.0      | 20.0   | 7.5    | 0.8      |
| VDR-14D220K | VDR-14D220KJ | 4.6    |        |        |           |        |        |          |
| VDR-14D270K | VDR-14D270KJ | 4.7    |        |        |           |        |        |          |
| VDR-14D330K | VDR-14D330KJ | 4.9    |        |        |           |        |        |          |
| VDR-14D390K | VDR-14D390KJ | 4.8    |        |        |           |        |        |          |
| VDR-14D470K | VDR-14D470KJ | 4.9    |        |        |           |        |        |          |
| VDR-14D560K | VDR-14D560KJ | 5.0    |        |        |           |        |        |          |
| VDR-14D680K | VDR-14D680KJ | 5.2    |        |        |           |        |        |          |
| VDR-14D820K | VDR-14D820KJ | 4.1    |        |        |           |        |        |          |
| VDR-14D101K | VDR-14D101KJ | 4.3    |        |        |           |        |        |          |
| VDR-14D121K | VDR-14D121KJ | 4.4    |        |        |           |        |        |          |
| VDR-14D151K | VDR-14D151KJ | 4.2    |        |        |           |        |        |          |
| VDR-14D181K | VDR-14D181KJ | 4.3    |        |        |           |        |        |          |
| VDR-14D201K | VDR-14D201KJ | 4.4    |        |        |           |        |        |          |
| VDR-14D221K | VDR-14D221KJ | 4.5    |        |        |           |        |        |          |
| VDR-14D241K | VDR-14D241KJ | 4.6    |        |        |           |        |        |          |
| VDR-14D271K | VDR-14D271KJ | 4.7    |        |        |           |        |        |          |
| VDR-14D301K | VDR-14D301KJ | 4.8    |        |        |           |        |        |          |
| VDR-14D331K | VDR-14D331KJ | 5.0    |        |        |           |        |        |          |
| VDR-14D361K | VDR-14D361KJ | 5.2    |        |        |           |        |        |          |
| VDR-14D391K | VDR-14D391KJ | 5.2    |        |        |           |        |        |          |
| VDR-14D431K | VDR-14D431KJ | 5.4    |        |        |           |        |        |          |
| VDR-14D471K | VDR-14D471KJ | 5.9    |        |        |           |        |        |          |
| VDR-14D511K | VDR-14D511KJ | 6.1    |        |        |           |        |        |          |
| VDR-14D561K | VDR-14D561KJ | 6.4    |        |        |           |        |        |          |
| VDR-14D621K | VDR-14D621KJ | 6.8    |        |        |           |        |        |          |
| VDR-14D681K | VDR-14D681KJ | 7.1    |        |        |           |        |        |          |
| VDR-14D751K | VDR-14D751KJ | 7.2    |        |        |           |        |        |          |
| VDR-14D781K | VDR-14D781KJ | 7.3    |        |        |           |        |        |          |
| VDR-14D821K | VDR-14D821KJ | 7.5    |        |        |           |        |        |          |
| VDR-14D911K | VDR-14D911KJ | 7.6    |        |        |           |        |        |          |
| VDR-14D102K | VDR-14D102KJ | 8.0    |        |        |           |        |        |          |
| VDR-14D112K | VDR-14D112KJ | 8.5    |        |        |           |        |        |          |
| VDR-14D122K | VDR-14D122KJ | 9.0    |        |        |           |        |        |          |
| VDR-14D142K | VDR-14D142KJ | 10.5   |        |        |           |        |        |          |
| VDR-14D162K | VDR-14D162KJ | 11.0   |        |        |           |        |        |          |
| VDR-14D182K | VDR-14D182KJ | 12.0   |        |        |           |        |        |          |



ELECTRICAL CHARACTERISTIC

| Part Number |            | Maximum Allowable Voltage |        | Varistor Voltage | Maximum Voltage |       | Withstanding Surge Current |                 | Energy 10/1000µS |                 | Rated Power | Typical Capacitance (Reference) |
|-------------|------------|---------------------------|--------|------------------|-----------------|-------|----------------------------|-----------------|------------------|-----------------|-------------|---------------------------------|
| Standard    | High Surge | AC (V)                    | DC (V) | V1mA(V)          | IP(A)           | VC(V) | I(A) Standard              | I(A) High Surge | I(A) Standard    | I(A) High Surge | (W)         | @1KHzPF                         |
| 14D180L     | 14D180LJ   | 11                        | 14     | 18(15.0~21.6)    | 10              | 36    | 1000                       | 2000            | 4.0              | 7.0             | 0.1         | 1100                            |
| 14D220K     | 14D220KJ   | 14                        | 18     | 22(19.5~26.0)    | 10              | 43    | 1000                       | 2000            | 5.0              | 8.0             | 0.1         | 9100                            |
| 14D270K     | 14D270KJ   | 17                        | 22     | 27(24-31)        | 10              | 53    | 1000                       | 2000            | 6.0              | 10.0            | 0.1         | 7400                            |
| 14D330K     | 14D330KJ   | 20                        | 26     | 33(29.5~36.5)    | 10              | 65    | 1000                       | 2000            | 7.5              | 12.0            | 0.1         | 6100                            |
| 14D390K     | 14D390KJ   | 25                        | 31     | 39(35~43)        | 10              | 77    | 1000                       | 2000            | 8.6              | 13.0            | 0.1         | 5100                            |
| 14D470K     | 14D470KJ   | 30                        | 38     | 47(42~52)        | 10              | 93    | 1000                       | 2000            | 10.0             | 17.0            | 0.1         | 4300                            |
| 14D560K     | 14D560KJ   | 35                        | 45     | 56(50~62)        | 10              | 110   | 1000                       | 2000            | 11.0             | 20.0            | 0.1         | 3600                            |
| 14D680K     | 14D680KJ   | 40                        | 56     | 68(61~75)        | 10              | 135   | 1000                       | 2000            | 14.0             | 24.0            | 0.1         | 2900                            |
| 14D820K     | 14D820KJ   | 50                        | 65     | 82(74~90)        | 50              | 135   | 4500                       | 6000            | 22.0             | 27.0            | 0.6         | 2400                            |
| 14D101K     | 14D101KJ   | 60                        | 85     | 100(90~110)      | 50              | 165   | 4500                       | 6000            | 28.0             | 33.0            | 0.6         | 2000                            |
| 14D121K     | 14D121KJ   | 75                        | 100    | 120(108~132)     | 50              | 200   | 4500                       | 6000            | 32.0             | 40.0            | 0.6         | 1700                            |
| 14D151K     | 14D151KJ   | 95                        | 125    | 150(135~165)     | 50              | 250   | 4500                       | 6000            | 40.0             | 53.0            | 0.6         | 1300                            |
| 14D181K     | 14D181KJ   | 115                       | 150    | 180(162~198)     | 50              | 300   | 4500                       | 6000            | 50.0             | 60.0            | 0.6         | 1100                            |
| 14D201K     | 14D201KJ   | 130                       | 170    | 200(185~225)     | 50              | 330   | 4500                       | 6000            | 57.0             | 70.0            | 0.6         | 1000                            |
| 14D221K     | 14D221KJ   | 140                       | 180    | 220(198~242)     | 50              | 360   | 4500                       | 6000            | 60.0             | 78.0            | 0.6         | 830                             |
| 14D241K     | 14D241KJ   | 150                       | 200    | 240(216~264)     | 50              | 395   | 4500                       | 6000            | 63.0             | 84.0            | 0.6         | 740                             |
| 14D271K     | 14D271KJ   | 175                       | 225    | 270(243~297)     | 50              | 455   | 4500                       | 6000            | 70.0             | 99.0            | 0.6         | 670                             |
| 14D301K     | 14D301KJ   | 190                       | 250    | 300(270~330)     | 50              | 505   | 4500                       | 6000            | 77.0             | 108             | 0.6         | 610                             |
| 14D331K     | 14D331KJ   | 210                       | 275    | 330(297~363)     | 50              | 550   | 4500                       | 6000            | 85.0             | 115             | 0.6         | 560                             |
| 14D361K     | 14D361KJ   | 230                       | 300    | 360(324~396)     | 50              | 595   | 4500                       | 6000            | 93.0             | 130             | 0.6         | 510                             |
| 14D391K     | 14D391KJ   | 250                       | 320    | 390(351~429)     | 50              | 650   | 4500                       | 6000            | 100              | 140             | 0.6         | 460                             |
| 14D431K     | 14D431KJ   | 275                       | 350    | 430(387~473)     | 50              | 710   | 4500                       | 6000            | 115              | 155             | 0.6         | 230                             |
| 14D471K     | 14D471KJ   | 300                       | 385    | 470(423~517)     | 50              | 775   | 4500                       | 6000            | 125              | 175             | 0.6         | 430                             |
| 14D511K     | 14D511KJ   | 320                       | 415    | 510(459~561)     | 50              | 845   | 4500                       | 6000            | 126              | 180             | 0.6         | 390                             |
| 14D561K     | 14D561KJ   | 350                       | 460    | 560(504~616)     | 50              | 920   | 4500                       | 6000            | 127              | 185             | 0.6         | 360                             |
| 14D621K     | 14D621KJ   | 385                       | 505    | 620(558~682)     | 50              | 1025  | 4500                       | 6000            | 128              | 190             | 0.6         | 320                             |
| 14D681K     | 14D681KJ   | 420                       | 560    | 680(612~748)     | 50              | 1120  | 4500                       | 6000            | 130              | 200             | 0.6         | 290                             |
| 14D751K     | 14D751KJ   | 460                       | 615    | 750(675~825)     | 50              | 1240  | 4500                       | 6000            | 143              | 210             | 0.6         | 270                             |
| 14D781K     | 14D781KJ   | 485                       | 640    | 780(702~858)     | 50              | 1290  | 4500                       | 6000            | 148              | 220             | 0.6         | 260                             |
| 14D821K     | 14D821KJ   | 510                       | 670    | 820(738~902)     | 50              | 1355  | 4500                       | 6000            | 157              | 235             | 0.6         | 240                             |
| 14D911K     | 14D911KJ   | 550                       | 745    | 910(819~1001)    | 50              | 1500  | 4500                       | 6000            | 175              | 255             | 0.6         | 220                             |
| 14D102K     | 14D102KJ   | 625                       | 825    | 1000(900~1100)   | 50              | 1650  | 4500                       | 6000            | 190              | 280             | 0.6         | 200                             |
| 14D112K     | 14D112KJ   | 680                       | 895    | 1100(990~1210)   | 50              | 1815  | 4500                       | 6000            | 213              | 310             | 0.6         | 180                             |
| 14D122K     | 14D122KJ   | 750                       | 990    | 1200(1080~1320)  | 50              | 1980  | 4500                       | 6000            | 232              | 324             | 0.6         | 160                             |
| 14D142K     | 14D142KJ   | 880                       | 1140   | 1400(1260~1540)  | 50              | 2310  | 4500                       | 6000            | 238              | 327             | 0.6         | 150                             |
| 14D162K     | 14D162KJ   | 1000                      | 1280   | 1600(1400~1760)  | 50              | 2640  | 4500                       | 6000            | 243              | 331             | 0.6         | 140                             |
| 14D182K     | 14D182KJ   | 1100                      | 1465   | 1800(1620~1980)  | 50              | 2970  | 4500                       | 6000            | 250              | 335             | 0.6         | 130                             |

The tolerance of varistor voltage between 18V and 68V is more than 10%.



## Reliability Test

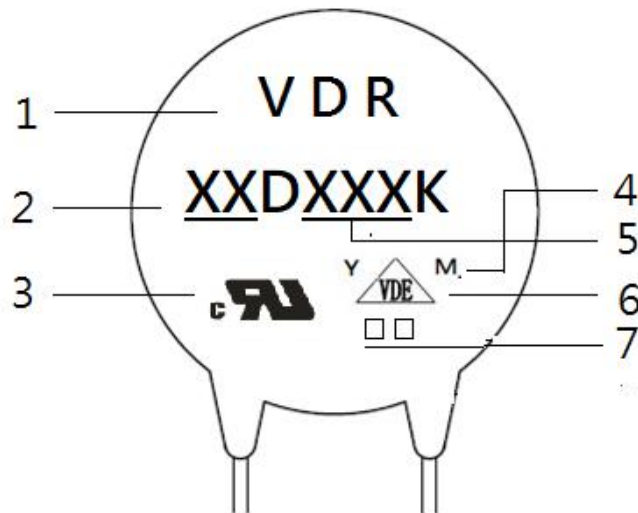
### Mechanical Ratings

| Test Parameter                      | Test Condition / Description  |          |         | Performance Requirements                           |
|-------------------------------------|---|----------|---------|--|
| Terminal Pull Strength              | After gradually applying the load specified below and keeping the unit fixed for ten seconds, the terminal shall be visually examined for any damage.   | Diameter | Loading | No visible damage                                  |
|                                     |   | 0.6mm    | 1.0 Kg  |  |
|                                     |   | 0.8mm    | 1.0 Kg  |  |
|                                     |   | 1.0mm    | 2.0 Kg  |  |
| Terminal Bending Strength           | The unit shall be secured with its terminal kept vertical and the weight specified below be applied in the axial direction. The terminal shall gradually be bent by 90° in one direction, then 90° in the opposite direction, and again back to the original position. The damage of the terminal shall be visually examined. | Diameter | Loading | No visible damage                                  |
|                                     |   | 0.6mm    | 0.5 Kg  |  |
|                                     |   | 0.8mm    | 0.5 Kg  |  |
|                                     |   | 1.0mm    | 1.0 Kg  |  |
| Vibration                           | The Specimen shall be vibrated by its lead wires with a total amplitude of 1.5mm and a varying frequency of 10~55~10HZ(each minutes) for a period of 2 hours respectively in each X,Y and Z directions.   |          |         | No visible damage<br>$\Delta VB/VB\% \leq \pm 5\%$ |
| Soldering-solderability             | After dipping the terminal to depth of approximately 3mm from the specimen in a soldering bath of 260°C for 10±1(D5: 5±1) seconds. Thereafter the terminal shall be visually examined.  |          |         | Terminations shall be uniformly tinned             |
| Soldering-Resistance to Solder Heat | After preheating the specimen, the specimen shall be completely immersed into a soldering bath having a temperature of 260±5°C for 10±1 (D5: 5±1) seconds or iron of 400±5°C for 3±0.5 seconds. There after the change of Vb and mechanical damage shall be examined.   |          |         | No visible damage<br>$\Delta VB/VB\% \leq \pm 5\%$ |

### ENVIRONMENTAL RATINGS

|                          |  |      |           |   |   |
|--------------------------|--|------|-----------|---|---|
| Dry Heat Loading         | The specimen shall be applied continuously the maximum allowable voltage at the specified conditions for specified period and then stored at room temperature and normal humidity over 2 hours. Thereafter, the change of Vb and mechanical damage shall be examined.<br>temp : 125±2°C ; Period : 1000±24hours.                     |      |           | $\Delta VB/VB\% \leq \pm 10\%$                      |   |
| High Temperature Storage | In a drying oven without load.<br>Ambient temp : 125±2°C ; period : 1000±24hours   |      |           | $\Delta VB/VB\% \leq \pm 5\%$                       |   |
| Damp Heat Loading        | The specimen shall be applied continuously the maximum allowable voltage at the specified conditions for specified period and then stored at room temperature and normal humidity over 2 hours. Thereafter, the change of Vb and mechanical damage shall be examined.<br>condition : 40±2°C , 90 to 95%R.H. ; period : 1000±24 hours |      |           | $\Delta VB/VB\% \leq \pm 10\%$                      |   |
| Temperature Cycle        | Condition the specimen to each temperature form step 1 to step 4 in this order for the period shown in the table of specifications. The change of Vb and mechanical damage shall be examined after 2 hours.  | Step | Temp°C    | Period  | No visible damage<br>$\Delta VB/VB\% \leq \pm 10\%$ |
|                          |  | 1    | -40±3°C   | 30 min.   |   |
|                          |  | 2    | Room Temp | 15 min.   |   |
|                          |  | 3    | 85±2°C    | 30 min.   |   |
|                          |  | 4    | Room Temp | 15 min.   |   |
| Surge Lifetime Rating    | The change of Vb shall be measured after the impulse listed below is applied 10,000 times continuously with the interval of ten seconds at room temperature.   |      |           | No visible damage<br>$\Delta VB/VB\% \leq \pm 10\%$ |   |
| Voltage Proof            | Voltage : 2500VAC Leakage Current ≤ 0.5mA Time : 60 Seconds  |      |           | No Breakdown  |   |

### MARKING CODE



- 1 SongLong Lishang Logo
- 2 Disk Size
- 3 CUL Accreditation Logo
- 4 “Y” & “M” Product Line Code
- 5 Varistor Voltage
- 6 VDE Accreditation Logo
- 7 Energy and frequency of combined wave  
 “J” is High Surge Code, not “J” is Standard Surge  
 “H” is High temperature range, not “H” is Standard

### Packaging specification / bulk packaging quantity

Unit:Pcs

| Dimension       | Part No.     | Bag | Small Carton | Carton |
|-----------------|--------------|-----|--------------|--------|
| 14D             | 180L to 112K | 500 | 3,000        | 6,000  |
| 14D (Short leg) | 180L to 112K | 500 | 4,000        | 8,000  |

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