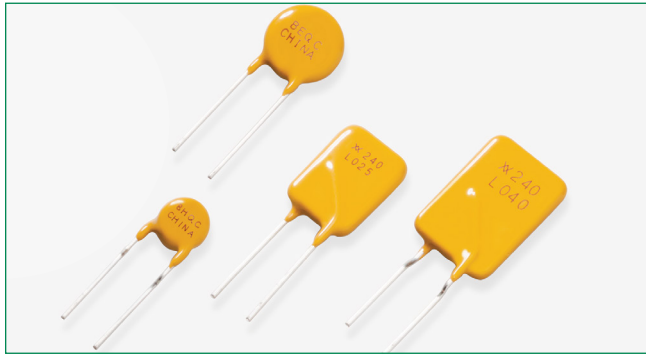






## Line-Voltage-Rated Devices



### Agency Approvals

| Agency  | Agency File Number |
|---|--------------------|
|  | E74889             |
|  | 78165              |
|  | 72161781           |
|  | CQC16001159721     |

### Applications

- Electromagnetic loads
- Game machines
- Industrial controls
- Lighting ballasts
- Loudspeakers
- Medical equipment
- Motors, fans and blowers
- POS equipment
- Satellite video receivers
- Security and fire alarm systems
- Test and measurement equipment
- Transformers
- USB hubs, ports and peripherals
- Intelligent appliance
- Robotic machine

### Description

Littelfuse PolySwitch line-voltage-rated (LVR) devices help protect electric motors and transformers used in commercial and home appliances from damage caused by mechanical overloads, overheating, stall, lost neutral and other potentially harmful conditions.

The LVR line-voltage product line of polymeric positive temperature coefficient (PPTC) devices includes components that are rated for line voltages of 120V<sub>AC</sub>, V<sub>DC</sub> and 240V<sub>AC</sub>, V<sub>DC</sub> for up to 2A of operating current at 20°C. They help protect against damage caused by both overcurrent surges and overtemperature faults. They also offer low resistance and are compatibly sized with fuse solutions.

### Features

- RoHS and Halogen-free compliant
- Broadest range of radial-leaded resettable devices available in the industry
- Current ratings from 50mA to 2A
- Line voltage rating of 120V<sub>AC</sub>, V<sub>DC</sub> and 240V<sub>AC</sub>, V<sub>DC</sub>
- Fast time-to-trip
- Low resistance
- UL Recognized to UL 1434
- CSA Approved to CSA TIL No. CA-3A
- TUV Approved to EN 60730-1
- CQC Approved to GB 8898, GB/T 7153, GB 14536.1

### Additional Information



Datasheet



Resources



Samples

### Electrical Characteristics

| Part Number          | Ordering Part Number     | I <sub>H</sub><br>(A) | I <sub>T</sub><br>(A) | V <sub>MAX</sub> †                                |   | I <sub>MAX</sub> †<br>Interrupt<br>(A) | P <sub>D</sub> Typ<br>(W) | Max Time-to-trip |      | R <sub>MIN</sub><br>(Ω) | R <sub>MAX</sub><br>(Ω) | R <sub>1MAX</sub><br>(Ω) | Lead Size<br>(mm <sup>2</sup> /<br>AWG) |
|----------------------|--------------------------|-----------------------|-----------------------|---|---|--|---------------------------|------------------|------|-------------------------|-------------------------|--------------------------|---|
|                      |                          |                       |                       | Operating<br>(V <sub>AC</sub> , V <sub>DC</sub> ) | Interrupt<br>(V <sub>AC</sub> , V <sub>DC</sub> ) |  |                           | (A)              | (s)  |                         |                         |                          |   |
| <b>LVR</b>           |                          |                       |                       |   |   |  |                           |                  |      |                         |                         |                          |   |
| LVR005NK<br>LVR005NS | RF1251-000<br>RF1245-000 | 0.05                  | 0.12                  | 240   | 265   | 1.0                                    | 0.9                       | 0.25             | 10.0 | 18.5                    | 31.0                    | 65.0                     | 0.51/24                                 |
|                      |                          |                       |                       | 120   | 135   | 20.0                                   |                           |                  |      |                         |                         |                          |   |
| LVR008NK<br>LVR008NS | RF1252-000<br>RF1246-000 | 0.08                  | 0.19                  | 240   | 265   | 1.2                                    | 0.9                       | 0.40             | 10.0 | 7.4                     | 12.0                    | 26.0                     | 0.51/24                                 |
|                      |                          |                       |                       | 120   | 135   | 20.0                                   |                           |                  |      |                         |                         |                          |   |

### Electrical Characteristics

(Cont'd)

| Part Number | Ordering Part Number | I <sub>H</sub><br>(A) | I <sub>T</sub><br>(A) | V <sub>MAX</sub> †                                |   | I <sub>MAX</sub> † | P <sub>D Typ</sub><br>(W) | Max Time-to-trip |      | R <sub>MIN</sub><br>(Ω) | R <sub>MAX</sub><br>(Ω) | R <sub>1MAX</sub><br>(Ω) | Lead Size<br>(mm <sup>2</sup> /<br>AWG) |     |
|-------------|----------------------|-----------------------|-----------------------|---|---|--------------------|---------------------------|------------------|------|-------------------------|-------------------------|--------------------------|---|-----|
|             |                      |                       |                       | Operating<br>(V <sub>AC</sub> , V <sub>DC</sub> ) | Interrupt<br>(V <sub>AC</sub> , V <sub>DC</sub> ) | Interrupt          |                           | (A)              | (A)  |                         |                         |                          |   | (s) |
|             |                      |                       |                       |   |   | (A)                |                           |                  |      |                         |                         |                          |   |     |
| <b>LVR</b>  |                      |                       |                       |   |   |                    |                           |                  |      |                         |                         |                          |   |     |
| LVR012K     | 122814-000           | 0.12                  | 0.30                  | 240   | 265   | 1.2                | 1.0                       | 0.60             | 15.0 | 3.0                     | 6.5                     | 12.0                     | 0.51/24                                 |     |
| LVR012S     | D63011-000           |                       |                       | 120   | 135   | 20.0               |                           |                  |      |                         |                         |                          |   |     |
| LVR016K     | 887538-000           | 0.16                  | 0.37                  | 240   | 265   | 2.0                | 1.4                       | 0.80             | 15.0 | 2.5                     | 4.1                     | 7.8                      | 0.51/24                                 |     |
| LVR016S     | 224962-000           |                       |                       | 120   | 135   | 20.0               |                           |                  |      |                         |                         |                          |   |     |
| LVR025K     | 657076-000           | 0.25                  | 0.56                  | 240   | 265   | 3.5                | 1.5                       | 1.25             | 18.5 | 1.3                     | 2.1                     | 3.8                      | 0.64/22                                 |     |
| LVR025S     | 543478-000           |                       |                       | 120   | 135   | 20.0               |                           |                  |      |                         |                         |                          |   |     |
| LVR033K     | F74007-000           | 0.33                  | 0.74                  | 240   | 265   | 4.5                | 1.7                       | 1.65             | 21.0 | 0.77                    | 1.24                    | 2.60                     | 0.64/22                                 |     |
| LVR033S     | F71843-000           |                       |                       | 120   | 135   | 20.0               |                           |                  |      |                         |                         |                          |   |     |
| LVR040K     | 598204-000           | 0.40                  | 0.90                  | 240   | 265   | 5.5                | 2.0                       | 2.00             | 24.0 | 0.60                    | 0.97                    | 1.90                     | 0.64/22                                 |     |
| LVR040S     | 336638-000           |                       |                       | 120   | 135   | 20.0               |                           |                  |      |                         |                         |                          |   |     |
| LVR055K     | F17956-000           | 0.55                  | 1.25                  | 240   | 265   | 7.0                | 3.4                       | 2.75             | 26.0 | 0.45                    | 0.73                    | 1.45                     | 0.81/20                                 |     |
| LVR055S     | 758968-000           |                       |                       | 120   | 135   | 20.0               |                           |                  |      |                         |                         |                          |   |     |
| LVR075K-240 | RF4176-000           | 0.75                  | 1.50                  | 240   | 265   | 7.5                | 2.6                       | 3.75             | 18.0 | 0.316                   | 0.483                   | 0.839                    | 0.81/20                                 |     |
| LVR075S-240 | RF3174-000           |                       |                       |   |   |                    |                           |                  |      |                         |                         |                          |   |     |
| LVR100K-240 | RF4177-000           | 1.00                  | 2.00                  | 240   | 265   | 10.0               | 2.9                       | 5.00             | 21.0 | 0.218                   | 0.334                   | 0.580                    | 0.81/20                                 |     |
| LVR100S-240 | RF3175-000           |                       |                       |   |   |                    |                           |                  |      |                         |                         |                          |   |     |
| LVR125K-240 | RF4178-000           | 1.25                  | 2.50                  | 240   | 265   | 12.5               | 3.3                       | 6.25             | 23.0 | 0.165                   | 0.253                   | 0.440                    | 0.81/20                                 |     |
| LVR125S-240 | RF3176-000           |                       |                       |   |   |                    |                           |                  |      |                         |                         |                          |   |     |
| LVR200K-240 | RF4179-000           | 2.00                  | 4.00                  | 240   | 265   | 20.0               | 4.5                       | 10.00            | 28.0 | 0.089                   | 0.131                   | 0.221                    | 0.81/20                                 |     |
| LVR200S-240 | RF3177-000           |                       |                       |   |   |                    |                           |                  |      |                         |                         |                          |   |     |

**Notes:**

- I<sub>H</sub> : Hold current: maximum current device will pass without interruption in 20°C still air.
- I<sub>T</sub> : Trip current: minimum current that will switch the device from low resistance to high resistance in 20°C still air.
- V<sub>MAX</sub> Operating : Maximum continuous voltage device can withstand without damage at rated current.
- V<sub>MAX</sub> Interrupt : Under specified conditions this is the highest voltage that can be applied to the device at the maximum interrupt current.
- I<sub>MAX</sub> Interrupt : Maximum fault current device can withstand without damage at rated voltage.
- P<sub>D</sub> : Power dissipated from device when in the tripped state in 20°C still air.
- R<sub>MIN</sub> : Minimum resistance of device as supplied at 20°C unless otherwise specified.
- R<sub>MAX</sub> : Maximum resistance of device as supplied at 20°C unless otherwise specified.
- R<sub>1MAX</sub> : Maximum resistance of device when measured one hour post trip at 20°C unless otherwise specified.

\* Electrical characteristics determined at 25°C.

† See Application Limitations on next page.

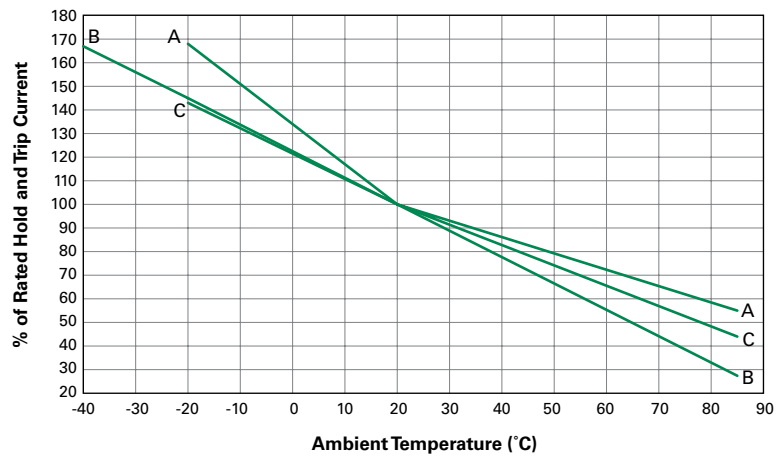
**Temperature Rerating**

| Maximum Ambient Temperature |       |       |      |      |      |      |      |      |      |      |
|-----------------------------|-------|-------|------|------|------|------|------|------|------|------|
|                             | -40°C | -20°C | 0°C  | 20°C | 25°C | 40°C | 50°C | 60°C | 70°C | 85°C |
| Hold Current (A)            |       |       |      |      |      |      |      |      |      |      |
| LVR                         |       |       |      |      |      |      |      |      |      |      |
| LVR005N                     | —     | 0.08  | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.03 | 0.03 | 0.02 |
| LVR008N                     | —     | 0.12  | 0.10 | 0.08 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 |
| LVR012                      | —     | 0.18  | 0.15 | 0.12 | 0.12 | 0.10 | 0.09 | 0.07 | 0.06 | 0.04 |
| LVR016                      | —     | 0.24  | 0.20 | 0.16 | 0.16 | 0.13 | 0.11 | 0.10 | 0.08 | 0.05 |
| LVR025                      | —     | 0.38  | 0.32 | 0.25 | 0.25 | 0.21 | 0.18 | 0.15 | 0.13 | 0.09 |
| LVR033                      | —     | 0.50  | 0.42 | 0.33 | 0.33 | 0.27 | 0.23 | 0.20 | 0.17 | 0.11 |
| LVR040                      | —     | 0.61  | 0.51 | 0.40 | 0.40 | 0.33 | 0.28 | 0.24 | 0.20 | 0.14 |
| LVR055                      | —     | 0.80  | 0.68 | 0.55 | 0.54 | 0.46 | 0.40 | 0.35 | 0.29 | 0.22 |
| LVR075-240                  | —     | 1.23  | 0.98 | 0.75 | 0.74 | 0.60 | 0.56 | 0.49 | 0.45 | 0.41 |
| LVR100-240                  | —     | 1.65  | 1.30 | 1.00 | 0.94 | 0.80 | 0.75 | 0.65 | 0.60 | 0.55 |
| LVR125-240                  | —     | 2.06  | 1.63 | 1.25 | 1.20 | 1.00 | 0.94 | 0.81 | 0.75 | 0.69 |
| LVR150-240                  | —     | 2.48  | 1.95 | 1.50 | 1.46 | 1.20 | 1.13 | 0.97 | 0.90 | 0.83 |
| LVR200-240                  | —     | 3.30  | 2.60 | 2.00 | 1.97 | 1.60 | 1.50 | 1.30 | 1.20 | 1.10 |

**Temperature Derating Curve**

**LVR / LVB**

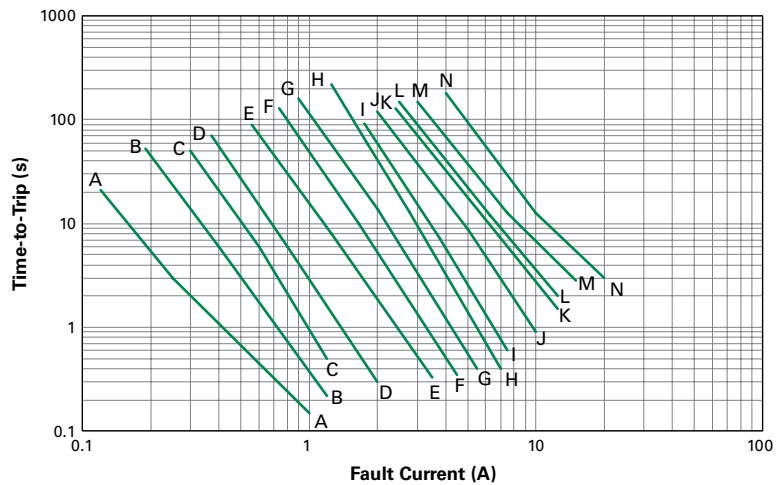
- A = LVR075-LVR200
- C = LVR005N-LVR055



**Typical Time-to-Trip Curves at 20°C**

**LVR / LVB**

- A = LVR005N      I = LVR075-240
- B = LVR008N      J = LVR100-240
- C = LVR012        K = LVR125-240
- D = LVR016        N = LVR200-240
- E = LVR025
- F = LVR033
- G = LVR040
- H = LVR055



**Physical Specifications**

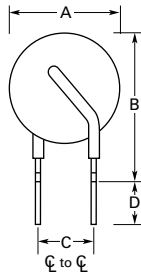
|                                  |  |  |
|----------------------------------|--|--|
| <b>Lead Material</b>             | LVR005N to LVR016  | : Tin-plated Copper, (24AWG), ø0.51mm (0.020in)        |
|                                  | LVR025 to LVR040   | : Tin-plated Copper, (22AWG), ø0.64mm (0.025in)        |
|                                  | LVR055   | : Tin-plated Copper, (20AWG), ø0.81mm (0.032in)        |
|                                  | LVR075-240 to LVR200-240   | : Tin-plated Copper, (20AWG), ø0.81mm (0.032in)        |
| <b>Soldering Characteristics</b> | Solderability per ANSI/J-STD-002 Category 3  |  |
| <b>Solder Heat Withstand</b>     | per IEC-STD 68-2-20, Test Tb, Method 1a, Condition b;<br>Can Withstand 10s at 260°C ±5°C |  |
| <b>Insulating Material</b>       | LVR005N to LVR055  | : Cured, Flame-retardant Epoxy Polymer, Meets UL 94V-0 |
|                                  | LVR075-240 to LVR200-240   | : Cured, Flame-retardant Epoxy Polymer, Meets UL 94V-0 |

**Note:** Devices are not designed to be placed through a reflow process.

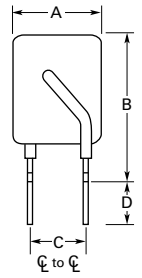
**Environmental Specifications**

| Test                             | Conditions   | Resistance Change |
|----------------------------------|--|-------------------|
| <b>Passive Aging</b>             | 70°C, 1000 hrs   | ±10%              |
|                                  | 85°C, 1000 hrs   | ±10%              |
| <b>Humidity Aging</b>            | 85°C, 85% R.H., 1000 hrs   | ±20%              |
| <b>Thermal Shock</b>             | 85°C, -40°C (10 Times)   | ±25%              |
| <b>Solvent Resistance</b>        | MIL-STD-202, Method 215F   | No change         |
| <b>Moisture Resistance Level</b> | Level 1, J-STD-020   |                   |
| <b>Storage Conditions</b>        | 40°C max, 70% RH max; devices should remain in original sealed bags prior to use.<br>Devices may not meet specified values if these storage conditions are exceeded. |                   |

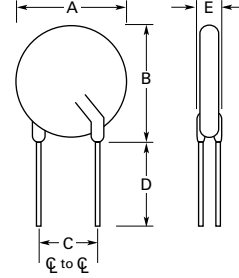
**Dimension Figures**



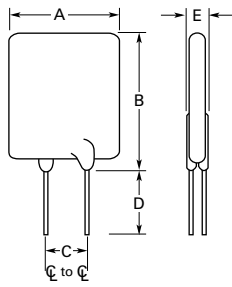
**Figure 1**



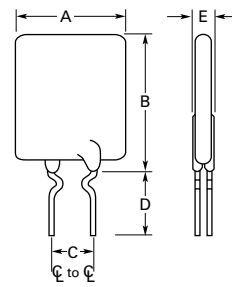
**Figure 2**



**Figure 3**



**Figure 4**



**Figure 5**

**Dimensions and Weights**

| Part Number | Dimensions in Millimeters (Inches) |                |     |                |               |               |               |     |     |               | Figure | Device Mass (g)<br>(Only for Reference) |
|-------------|------------------------------------|----------------|-----|----------------|---------------|---------------|---------------|-----|-----|---------------|--------|---|
|             | A                                  |                | B   |                | C             |               | D             |     | E   |               |        |   |
|             | Min                                | Max            | Min | Max            | Min           | Max           | Min           | Max | Min | Max           |        |   |
| <b>LVR</b>  |                                    |                |     |                |               |               |               |     |     |               |        |   |
| LVR005NK    | —                                  | 6.9<br>(0.27)  | —   | 12.1<br>(0.48) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 4.6<br>(0.18) | 1      | 0.177                                   |
| LVR005NS    | —                                  | 6.9<br>(0.27)  | —   | 9.9<br>(0.39)  | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 4.6<br>(0.18) | 3      | 0.211                                   |
| LVR008NK    | —                                  | 7.2<br>(0.28)  | —   | 12.4<br>(0.49) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 4.6<br>(0.18) | 1      | 0.233                                   |
| LVR008NS    | —                                  | 7.2<br>(0.28)  | —   | 10.2<br>(0.40) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 4.6<br>(0.18) | 3      | 0.211                                   |
| LVR012K     | —                                  | 8.3<br>(0.33)  | —   | 12.9<br>(0.51) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 3.8<br>(0.15) | 1      | 0.231                                   |
| LVR012S     | —                                  | 8.3<br>(0.33)  | —   | 10.7<br>(0.43) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 3.8<br>(0.15) | 3      | 0.235                                   |
| LVR016K     | —                                  | 9.9<br>(0.39)  | —   | 13.8<br>(0.54) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 3.8<br>(0.15) | 1      | 0.253                                   |
| LVR016S     | —                                  | 9.9<br>(0.39)  | —   | 12.5<br>(0.50) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 3.8<br>(0.15) | 3      | 0.291                                   |
| LVR025K     | —                                  | 9.6<br>(0.38)  | —   | 18.8<br>(0.74) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 3.8<br>(0.15) | 2      | 0.508                                   |
| LVR025S     | —                                  | 9.6<br>(0.38)  | —   | 17.4<br>(0.69) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 3.8<br>(0.15) | 4      | 0.472                                   |
| LVR033K     | —                                  | 11.4<br>(0.45) | —   | 19.0<br>(0.75) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 3.8<br>(0.15) | 2      | 0.628                                   |
| LVR033S     | —                                  | 11.4<br>(0.45) | —   | 16.5<br>(0.65) | 4.3<br>(0.17) | 5.8<br>(0.23) | 7.6<br>(0.30) | —   | —   | 3.8<br>(0.15) | 4      | 0.600                                   |

**Dimensions and Weights**
**(Cont'd)**

| Part Number | Dimensions in Millimeters (Inches) |                |     |                 |               |                |               |     |     |               | Figure | Device Mass (g)<br>(Only for Reference) |
|-------------|------------------------------------|----------------|-----|-----------------|---------------|----------------|---------------|-----|-----|---------------|--------|---|
|             | A                                  |                | B   |                 | C             |                | D             |     | E   |               |        |   |
|             | Min                                | Max            | Min | Max             | Min           | Max            | Min           | Max | Min | Max           |        |   |
| <b>LVR</b>  |                                    |                |     |                 |               |                |               |     |     |               |        |   |
| LVR040K     | —                                  | 11.5<br>(0.46) | —   | 20.9<br>(0.82)  | 4.3<br>(0.17) | 5.8<br>(0.23)  | 7.6<br>(0.30) | —   | —   | 3.8<br>(0.15) | 2      | 0.698                                   |
| LVR040S     | —                                  | 11.5<br>(0.44) | —   | 19.5<br>(0.77)  | 4.3<br>(0.17) | 5.8<br>(0.23)  | 7.6<br>(0.30) | —   | —   | 3.8<br>(0.15) | 4      | 0.688                                   |
| LVR055K     | —                                  | 14.0<br>(0.55) | —   | 22.4<br>(0.88)  | 4.3<br>(0.17) | 5.8<br>(0.23)  | 7.6<br>(0.30) | —   | —   | 4.1<br>(0.16) | 2      | 1.100                                   |
| LVR055S     | —                                  | 14.0<br>(0.55) | —   | 21.7<br>(0.85)  | 4.3<br>(0.17) | 5.8<br>(0.23)  | 7.6<br>(0.30) | —   | —   | 4.1<br>(0.16) | 4      | 1.060                                   |
| LVR075S-240 | —                                  | 11.5<br>(0.45) | —   | 23.4<br>(0.92)  | 4.1<br>(0.16) | 6.1<br>(0.24)  | 5.1<br>(0.20) | —   | —   | 4.8<br>(0.19) | 4      | 1.088                                   |
| LVR100S-240 | —                                  | 18.7<br>(0.74) | —   | 24.4<br>(0.96)  | 8.9<br>(0.35) | 11.4<br>(0.45) | 5.1<br>(0.20) | —   | —   | 5.1<br>(0.20) | 3      | 1.345                                   |
| LVR125S-240 | —                                  | 21.2<br>(0.84) | —   | 27.4<br>(1.08)  | 8.9<br>(0.35) | 11.4<br>(0.45) | 5.1<br>(0.20) | —   | —   | 5.3<br>(0.21) | 3      | 1.800                                   |
| LVR200S-240 | —                                  | 24.9<br>(0.98) | —   | 33.8<br>(1.33)  | 8.9<br>(0.35) | 11.4<br>(0.45) | 5.1<br>(0.20) | —   | —   | 6.1<br>(0.24) | 4      | 2.777                                   |
| LVR075K-240 | —                                  | 11.5<br>(0.45) | —   | 25.4<br>(1.00)  | 4.1<br>(0.16) | 6.1<br>(0.24)  | 7.6<br>(0.30) | —   | —   | 4.1<br>(0.16) | 2      | 1.088                                   |
| LVR100K-240 | —                                  | 18.7<br>(0.74) | —   | 28.8<br>(1.13)  | 8.9<br>(0.35) | 11.4<br>(0.45) | 7.6<br>(0.30) | —   | —   | 4.1<br>(0.16) | 1      | 1.345                                   |
| LVR125K-240 | —                                  | 21.2<br>(0.84) | —   | 31.8<br>(1.25)  | 8.9<br>(0.35) | 11.4<br>(0.45) | 7.6<br>(0.30) | —   | —   | 4.1<br>(0.16) | 1      | 1.800                                   |
| LVR200K-240 | —                                  | 24.9<br>(0.98) | —   | 34.80<br>(1.37) | 8.9<br>(0.35) | 11.4<br>(0.45) | 7.6<br>(0.30) | —   | —   | 4.1<br>(0.16) | 5      | 2.777                                   |

### Packaging and Marking Information

| Part Number    | Bag Quantity | Tape and Reel Quantity | Ammo Pack Quantity | Standard Package Quantity | Part Marking | Agency Recognition |
|----------------|--------------|------------------------|--------------------|---------------------------|--------------|--------------------|
| <b>LVR</b>     |              |                        |                    |                           |              |                    |
| LVR005NK       | 500          | —                      | —                  | 10,000                    | L005         | UL, CSA, TÜV       |
| LVR005NK-2     | —            | 1,500                  | —                  | 7,500                     | L005         | UL, CSA, TÜV       |
| LVR005NS       | 500          | —                      | —                  | 10,000                    | L005         | UL, CSA, TÜV       |
| LVR005NS-2     | —            | 1,500                  | —                  | 7,500                     | L005         | UL, CSA, TÜV       |
| LVR008NK       | 500          | —                      | —                  | 10,000                    | L008         | UL, CSA, TÜV       |
| LVR008NK-2     | —            | 1,500                  | —                  | 7,500                     | L008         | UL, CSA, TÜV       |
| LVR008NS       | 500          | —                      | —                  | 10,000                    | L008         | UL, CSA, TÜV       |
| LVR008NS-2     | —            | 1,500                  | —                  | 7,500                     | L008         | UL, CSA, TÜV       |
| LVR012K        | 500          | —                      | —                  | 10,000                    | L012         | UL, CSA, TÜV       |
| LVR012K-2      | —            | 2,000                  | —                  | 10,000                    | L012         | UL, CSA, TÜV       |
| LVR012S        | 500          | —                      | —                  | 10,000                    | L012         | UL, CSA, TÜV       |
| LVR012S-2      | —            | 2,000                  | —                  | 10,000                    | L012         | UL, CSA, TÜV       |
| LVR016K        | 500          | —                      | —                  | 10,000                    | L016         | UL, CSA, TÜV       |
| LVR016K-2      | —            | 2,000                  | —                  | 10,000                    | L016         | UL, CSA, TÜV       |
| LVR016S        | 500          | —                      | —                  | 10,000                    | L016         | UL, CSA, TÜV       |
| LVR016S-2      | —            | 2,000                  | —                  | 10,000                    | L016         | UL, CSA, TÜV       |
| LVR025K        | 500          | —                      | —                  | 10,000                    | L025         | UL, CSA, TÜV       |
| LVR025K-2      | —            | 2,000                  | —                  | 10,000                    | L025         | UL, CSA, TÜV       |
| LVR025S        | 500          | —                      | —                  | 10,000                    | L025         | UL, CSA, TÜV       |
| LVR025S-2      | —            | 2,000                  | —                  | 10,000                    | L025         | UL, CSA, TÜV       |
| LVR033K        | 500          | —                      | —                  | 10,000                    | L033         | UL, CSA, TÜV       |
| LVR033K-2      | —            | 2,000                  | —                  | 10,000                    | L033         | UL, CSA, TÜV       |
| LVR033S        | 500          | —                      | —                  | 10,000                    | L033         | UL, CSA, TÜV       |
| LVR033S-2      | —            | 2,000                  | —                  | 10,000                    | L033         | UL, CSA, TÜV       |
| LVR040K        | 500          | —                      | —                  | 10,000                    | L040         | UL, CSA, TÜV       |
| LVR040K-2      | —            | 2,000                  | —                  | 10,000                    | L040         | UL, CSA, TÜV       |
| LVR040S        | 500          | —                      | —                  | 10,000                    | L040         | UL, CSA, TÜV       |
| LVR040S-2      | —            | 2,000                  | —                  | 10,000                    | L040         | UL, CSA, TÜV       |
| LVR055K        | 500          | —                      | —                  | 10,000                    | L055         | UL, CSA, TÜV       |
| LVR055S        | 500          | —                      | —                  | 10,000                    | L055         | UL, CSA, TÜV       |
| LVR055S-2      | —            | 1,000                  | —                  | 5,000                     | L055         | UL, CSA, TÜV       |
| LVR075S-240    | 500          | —                      | —                  | 10,000                    | L075         | UL, CSA, TÜV       |
| LVR075S-240-2  | —            | 1,000                  | —                  | 5,000                     | L075         | UL, CSA, TÜV       |
| LVR075S-240-AP | —            | —                      | 1,000              | 5,000                     | L075         | UL, CSA, TÜV       |
| LVR100S-240    | 250          | —                      | —                  | 5,000                     | L100         | UL, CSA, TÜV       |
| LVR100S-240-2  | —            | 1,000                  | —                  | 5,000                     | L100         | UL, CSA, TÜV       |
| LVR100S-240-AP | —            | —                      | 1,000              | 5,000                     | L100         | UL, CSA, TÜV       |

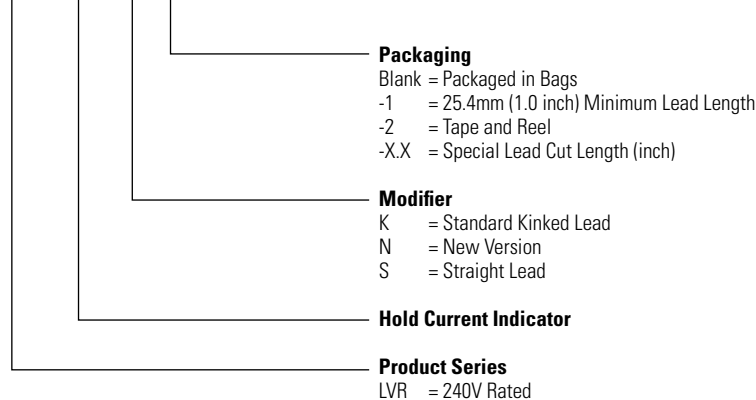
**Packaging and Marking Information**

(Cont'd)

| Part Number    | Bag Quantity | Tape and Reel Quantity | Ammo Pack Quantity | Standard Package Quantity | Part Marking | Agency Recognition |
|----------------|--------------|------------------------|--------------------|---------------------------|--------------|--------------------|
| <b>LVR</b>     |              |                        |                    |                           |              |                    |
| LVR125S-240    | 250          | —                      | —                  | 5,000                     | L125         | UL, CSA, TÜV       |
| LVR125S-240-2  | —            | 1,000                  | —                  | 5,000                     | L125         | UL, CSA, TÜV       |
| LVR125S-240-AP | —            | —                      | 1,000              | 5,000                     | L125         | UL, CSA, TÜV       |
| LVR200S-240    | 250          | —                      | —                  | 5,000                     | L200         | UL, CSA, TÜV       |
| LVR200S-240-2  | —            | 1,000                  | —                  | 5,000                     | L200         | UL, CSA, TÜV       |
| LVR200S-240-AP | —            | —                      | 1,000              | 5,000                     | L200         | UL, CSA, TÜV       |
| LVR075K-240    | 500          | —                      | —                  | 10,000                    | L075         | UL, CSA, TÜV       |
| LVR075K-240-2  | —            | 1,000                  | —                  | 5,000                     | L075         | UL, CSA, TÜV       |
| LVR075K-240-AP | —            | —                      | 1,000              | 5,000                     | L075         | UL, CSA, TÜV       |
| LVR100K-240    | 250          | —                      | —                  | 5,000                     | L100         | UL, CSA, TÜV       |
| LVR100K-240-2  | —            | 1,000                  | —                  | 5,000                     | L100         | UL, CSA, TÜV       |
| LVR100K-240-AP | —            | —                      | 1,000              | 5,000                     | L100         | UL, CSA, TÜV       |
| LVR125K-240    | 250          | —                      | —                  | 5,000                     | L125         | UL, CSA, TÜV       |
| LVR125K-240-2  | —            | 1,000                  | —                  | 5,000                     | L125         | UL, CSA, TÜV       |
| LVR125K-240-AP | —            | —                      | 1,000              | 5,000                     | L125         | UL, CSA, TÜV       |
| LVR200K-240    | 250          | —                      | —                  | 5,000                     | L200         | UL, CSA, TÜV       |
| LVR200K-240-2  | —            | 1,000                  | —                  | 5,000                     | L200         | UL, CSA, TÜV       |
| LVR200K-240-AP | —            | —                      | 1,000              | 5,000                     | L200         | UL, CSA, TÜV       |

**Part Ordering Number System**

**LVR 055 S - 2**





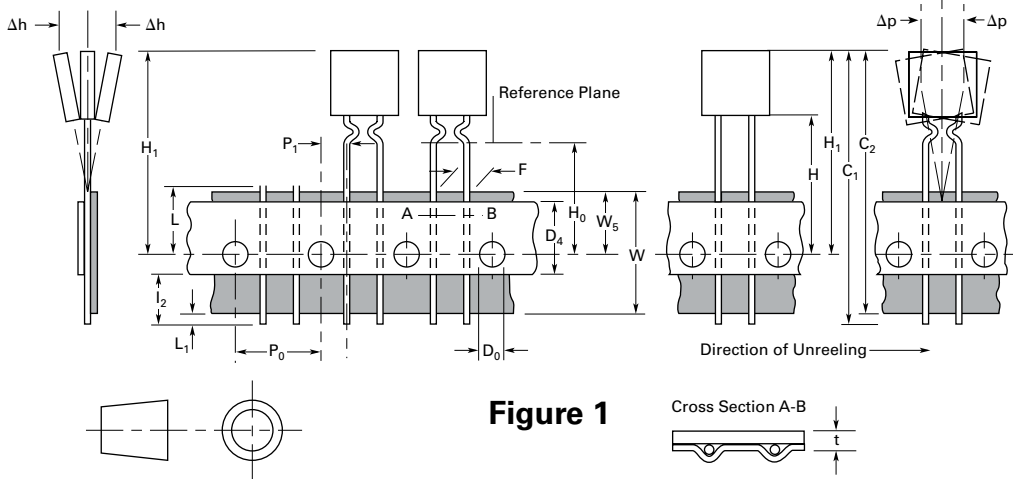
### Tape and Reel Specifications

LVR devices are available in tape and reel packaging per EIA468-B/IEC60286-2 standards. See Figures 1 and 2 for details.

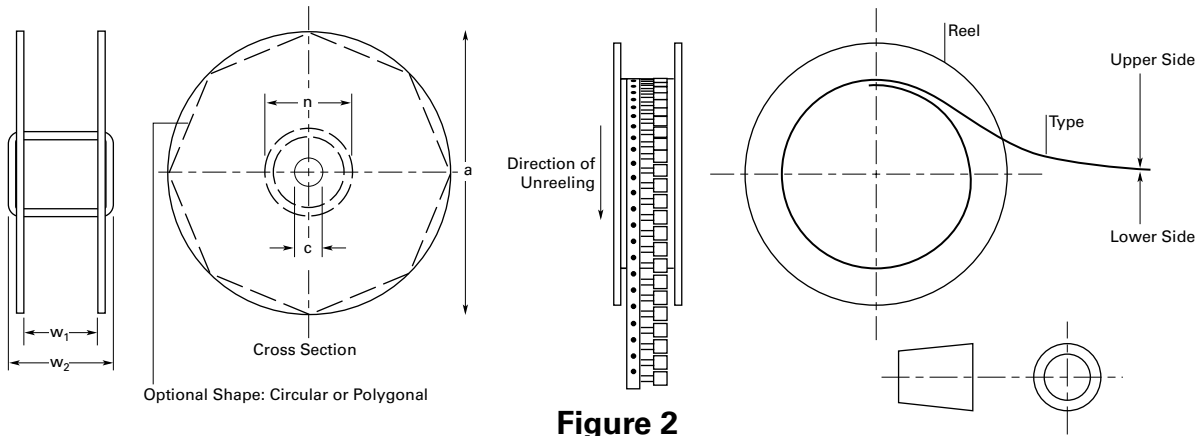
| Description   | EIA Mark       | Dimension (mm) | Tolerance  |
|---|----------------|----------------|------------|
| Carrier Tape Width  | W              | 18             | -0.5/+1.0  |
| Hold-down Tape Width                                      | W <sub>4</sub> | 11             | Minimum    |
| Top Distance between Tape Edges                           | W <sub>6</sub> | 3              | Maximum    |
| Sprocket Hole Position                                    | W <sub>5</sub> | 9              | -0.5/+0.75 |
| Sprocket Hole Diameter                                    | D <sub>0</sub> | 4              | ± 0.2      |
| Abscissa to Plane (Straight Lead) (LVR005N to LVR200)     | H              | 18.5           | ± 2.5      |
| Abscissa to Plane (Kinked Lead) (LVR005N to LVR055)       | H <sub>0</sub> | 16.0           | ± 0.5      |
| Abscissa to Top (LVR005N to LVR016)                       | H <sub>1</sub> | 32.2           | Maximum    |
| Abscissa to Top* (LVR025 to LVR200)                       | H <sub>1</sub> | 45.0           | Maximum    |
| Overall Width with Lead Protrusion (LVR005N to LVR016)    | C <sub>1</sub> | 43.2           | Maximum    |
| Overall Width with Lead Protrusion (LVR025 to LVR200)     | C <sub>1</sub> | 55             | Maximum    |
| Overall Width without Lead Protrusion (LVR005N to LVR016) | C <sub>2</sub> | 42.5           | Maximum    |
| Overall Width without Lead Protrusion (LVR025 to LVR200)  | C <sub>2</sub> | 54             | Maximum    |
| Lead Protrusion   | L <sub>1</sub> | 1.0            | Maximum    |
| Protrusion of Cut-out                                     | L              | 11             | Maximum    |
| Protrusion beyond Hold-down Tape                          | l <sub>2</sub> | Not Specified  | —          |
| Sprocket Hole Pitch                                       | P <sub>0</sub> | 12.7           | ± 0.3      |
| Device Pitch (LVR005N to LVR040)                          | —              | 25.4           | ± 0.61     |
| Device Pitch (LVR055 to LVR200)                           | —              | 25.4           | ± 0.6      |
| Pitch Tolerance   | —              | 20 Consecutive | ± 1        |
| Tape Thickness  | T              | 0.9            | Maximum    |
| Overall Tape and Lead Thickness (LVR005N to LVR040)       | T <sub>1</sub> | 2.0            | Maximum    |
| Overall Tape and Lead Thickness (LVR055 to LVR200)        | T <sub>1</sub> | 2.3            | Maximum    |
| Splice Sprocket Hole Alignment                            | —              | 0              | ± 0.3      |
| Body Lateral Deviation                                    | Δh             | 0              | ± 1.0      |
| Body Tape Plane Deviation                                 | Δp             | 0              | ± 1.3      |
| Ordinate to Adjacent Component Lead                       | P <sub>1</sub> | 3.81           | ± 0.7      |
| Lead Spacing*   | F              | 10.15          | ± 0.75     |
| Reel Width (LVR005N to LVR040)                            | W <sub>2</sub> | 56.0           | Maximum    |
| Reel Width* (LVR055 to LVR200)                            | W <sub>2</sub> | 63.5           | Maximum    |
| Reel Diameter   | A              | 370.0          | Maximum    |
| Space between Flanges* (LVR005N to LVR040)                | W <sub>1</sub> | 48.0           | Maximum    |
| Space between Flanges* (LVR055 to LVR200)                 | W <sub>1</sub> | 55.0           | Maximum    |
| Arbor Hold Diameter                                       | C              | 26.0           | ± 12.0     |
| Core Diameter*  | N              | 91.0           | Maximum    |
| Box   | —              | 64/372/362     | Maximum    |
| Consecutive Missing Places                                | —              | None           | —          |
| Empty Places per Reel                                     | —              | 0.1%           | Maximum    |

\*Differs from EIA specification.

**Tape and Reel Diagrams**



**Figure 1**



**Figure 2**

**WARNING**

- Users should independently evaluate the suitability of and test each product selected for their own application.
- Operation beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
- These devices are intended for protection against damage caused by occasional overcurrent or overtemperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- Contamination of the PPTC material with certain silicone-based oils or some aggressive solvents can adversely impact the performance of the devices.
- Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, and mechanical procedures for electronic components.
- PPTC devices are not recommended for installation in applications where the device is constrained such that its PTC properties are inhibited, for example in rigid potting materials or in rigid housings, which lack adequate clearance to accommodate device expansion.
- Operation in circuits with a large inductance can generate a circuit voltage ( $Ldi/dt$ ) above the rated voltage of the device.