

# ALN Series

## Thick Film High Power Chip Resistor



### FEATURES

- Thick film resistive element on an aluminum nitride (AlN) substrates
- Lead (Pb)-free wraparound termination over nickel barrier
- Industry standard size 2512 for easy PCB application

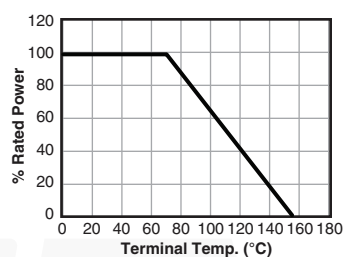
### APPLICATIONS

- Industrial
- Telecom markets

### CHARACTERISTICS

|                           |                                                                                                                                                                                                   |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Resistance Range</b>   | 10Ω – 2KΩ<br>±1% (E24 E96) / ±5% (E24)                                                                                                                                                            |
| <b>TCR</b>                | ±150 ppm/°C                                                                                                                                                                                       |
| <b>Oper. Temp. Range</b>  | -55°C to +155°C                                                                                                                                                                                   |
| <b>Max. Oper. Voltage</b> | 200                                                                                                                                                                                               |
| <b>Rated Voltage</b>      | $\sqrt{P \cdot R}$ or Max. Operating Voltage whichever is lower                                                                                                                                   |
| <b>Overload Voltage</b>   | 2.5* $\sqrt{P \cdot R}$ or Max. Operating Voltage whichever is lower                                                                                                                              |
| <b>Power Rating</b>       | 3.5W @70°C<br>22W (temp. control)<br>Depends on temperature of the resistive element. The maximum power rating only applies if the temperature of the resistive element is maintained below 155°C |
| <b>Storage Temp.</b>      | 15~28°C; Humidity < 80% RH                                                                                                                                                                        |

### Derating



### PERFORMANCE

| Item                                               | Requirement                      | Typical                          | Test Method                                                                                         |
|----------------------------------------------------|----------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------|
| <b>Temperature Coefficient of Resistance (TCR)</b> | As Spec.                         | ±120 ppm                         | JIS-C-5201-1 4.8; IEC-60115-1 4.8; At 25°C/-55°C and 25°C/+125°C, 25°C is the reference temperature |
| <b>Short Time Overload</b>                         | ±0.50%                           | ±0.10%                           | 7.7W applied for 5 sec.                                                                             |
| <b>Endurance</b>                                   | ±0.50%                           | ±0.20%                           | JIS-C-5201-1 4.25; IEC-60115-1 4.25.1; 70°C, RCWW for 1000 hrs with 1.5 hrs "ON" and 0.5 hr "OFF"   |
| <b>High Temp. Exposure</b>                         | ±0.50%                           | ±0.10%                           | MIL-STD-202 Method 108; +150°C for 100 hrs.                                                         |
| <b>Solderability</b>                               | 95% min. coverage                | 95% min. coverage                | JIS-C-5201-1 4.17; IEC-60115-1 4.17; 245°C ±5 for 3 seconds                                         |
| <b>Terminal Strength</b>                           | No evidence of mechanical damage | No evidence of mechanical damage | 3kg force applied                                                                                   |
| <b>Moisture Resistance</b>                         | ±0.50%                           | ±0.15%                           | ≥80% RH, 240 hrs                                                                                    |
| <b>Resistance to Soldering Heat</b>                | ±0.50%                           | ±0.20%                           | MIL-STD-202 Method 210; 260°C ±5 for 10 seconds                                                     |

(continued)

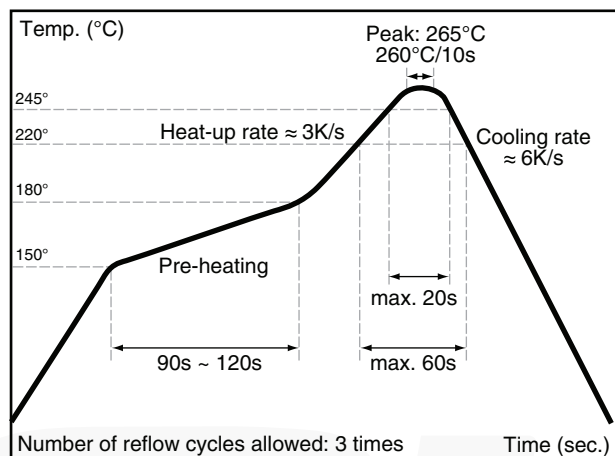
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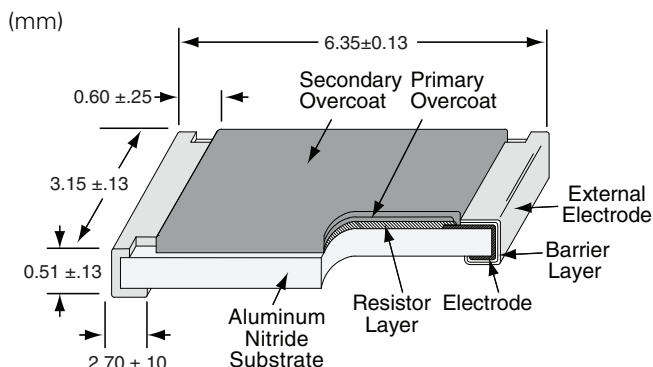
### SOLDERING

#### IR Reflow Soldering

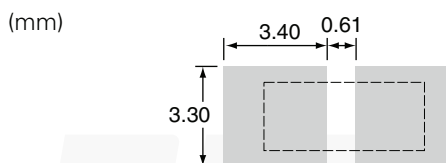
Time of IR reflow soldering at maximum temperature point 260°C: 10 sec.



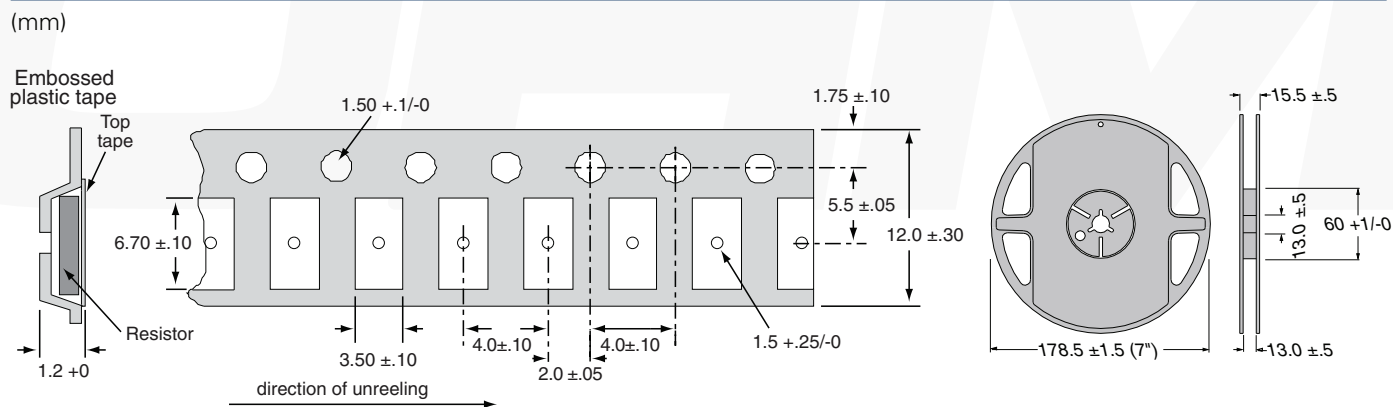
### DIMENSIONS



#### Land pattern



### TAPE AND REEL



### ORDERING INFORMATION

**ALN 2512F10R0E-1**

| Series | Size | Tolerance | Resistance           | RoHS      | Tape & Reel  |
|--------|------|-----------|----------------------|-----------|--------------|
|        |      | F = 1%    | 10R2 = 10.2 $\Omega$ | Compliant | 1 = 1,000 pc |
|        |      | J = 5%    | 1K00 = 1K $\Omega$   |           | 4 = 4,000 pc |
|        |      |           | 10K0 = 10K $\Omega$  |           |              |

#### Standard Values

| Ohms  | Part no.         |
|-------|------------------|
| 10    | ALN2512F10R0E-1  |
| 25    | ALN2512F25R0E-1  |
| 50    | ALN2512F50R0E-1  |
| 75    | ALN2512F75R0E-1  |
| 100   | ALN2512F100R0E-1 |
| 120   | ALN2512F120R0E-1 |
| 200   | ALN2512F200R0E-1 |
| 470   | ALN2512F470R0E-1 |
| 1,000 | ALN2512F1K00E-1  |
| 2,000 | ALN2512F2K00E-1  |