



## Features

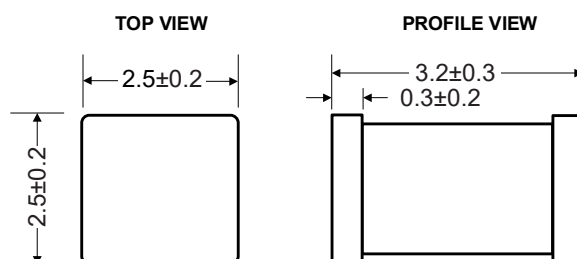
- 2-electrode arrester
- Very small size
- Excellent SMD handling
- Low capacitance ( $\leq 0.5\text{pF}$ )
- High insulation resistance
- Surge current capacity 2KA 8/20us
- Storage and operating temperature:  
 $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- RoHS compliant
- Meets MSL level 1



## Applications

- Repeaters, Modems
- Telephone Interface, Line cards
- Data communication equipment
- Line test equipment

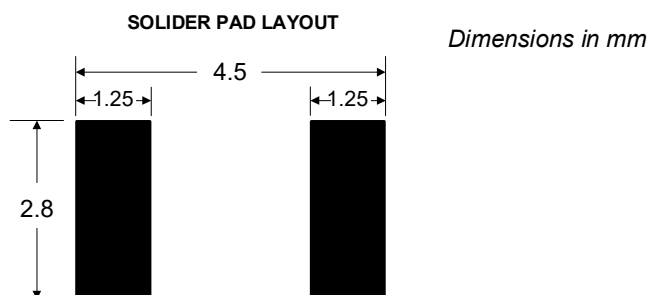
## Dimensional drawing



## PartNumber Code

**SMD3225-090M**

- SMD: Surface Mount Package
- 3225: Size: 1210(3.2mm\*2.5mm\*2.5mm)
- 090: DC Spark-over Voltage 90V
- M: Tolerance of DC Spark-Over Voltage  
M:20% N: 30%



## Electrical Characteristics

| Part Number  | DC Spark-over Voltage | Max.Impulse Spark-over Voltage | Impulse Discharge Current (8/20us) | AC discharge Current | Impulse Life | Minimum Insulation Resistance |      | Max. Capacitance 1MHz |
|--------------|-----------------------|--------------------------------|------------------------------------|----------------------|--------------|-------------------------------|------|-----------------------|
|              | 100V/S                | 1KV /us                        | 10 times                           | 50Hz, 1S             | 10/700us     |                               |      |                       |
|              | %                     | V                              | KA                                 | A                    | KV           | Test Voltage DC(V)            | (GΩ) | (pF)                  |
| SMD3225-090N | 90V±30%               | 700V                           | 1                                  | 1                    | 6            | 100                           | 1    | 0.5                   |
| SMD3225-120N | 90V±30%               | 700V                           | 1                                  | 1                    | 6            | 100                           | 1    | 0.5                   |
| SMD3225-150N | 150V±30%              | 750V                           | 1                                  | 1                    | 6            | 100                           | 1    | 0.5                   |
| SMD3225-200M | 200V±20%              | 750V                           | 1                                  | 1                    | 6            | 100                           | 1    | 0.5                   |
| SMD3225-230M | 230V±20%              | 750V                           | 1                                  | 1                    | 6            | 100                           | 1    | 0.5                   |
| SMD3225-300M | 300V±20%              | 800V                           | 1                                  | 1                    | 6            | 100                           | 1    | 0.5                   |
| SMD3225-350M | 350V±20%              | 900V                           | 1                                  | 1                    | 6            | 100                           | 1    | 0.5                   |
| SMD3225-400M | 400V±20%              | 1000V                          | 1                                  | 1                    | 6            | 250                           | 1    | 0.5                   |
| SMD3225-420M | 420V±20%              | 1050V                          | 1                                  | 1                    | 6            | 250                           | 1    | 0.5                   |
| SMD3225-500M | 500V±20%              | 1200V                          | 1                                  | 1                    | 6            | 250                           | 1    | 0.5                   |

## Electrical Ratings

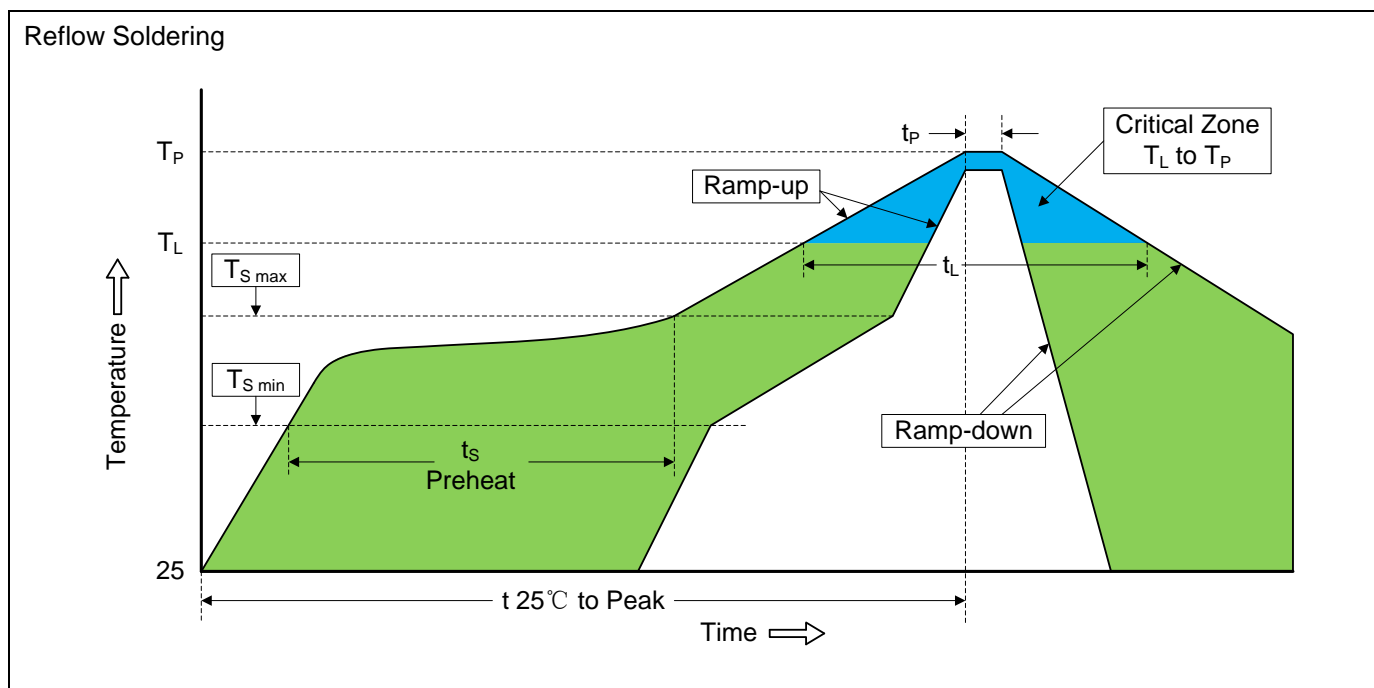
| Items                              | Test Condition/Description  | Requirement                 |
|------------------------------------|---|-----------------------------|
| DC Spark-over Voltage              | The voltage is measured with voltage ramp $dv/dt=100V/s$ .  | To meet the specified value |
| Maximum Impulse Spark-over Voltage | The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ .  |                             |
| Insulation Resistance              | The resistance of gas tube shall be measured between two electrodes.  |                             |
| Capacitance                        | The capacitance of gas tube shall be measured between two electrodes. Test frequency: 1MHz  |                             |
| Impulse Discharge Current          | Maximum $8/20\mu s$ surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time, without causing the DC spark-over voltage to change more than 30% from its initial value. |                             |
| Impulse Withstanding Voltage       | The maximum $10/700\mu s$ surge that can be applied to the Gas Tube, 5 positive and 5 negative surges, with 1 minute interval time, without causing the DC spark-over voltage to change more than 25% from its initial value.           |                             |

## Reliability

| Items               | Test conditions / Methods  | Standard                              |
|---------------------|--|---------------------------------------|
| Cold Resistance     | Measurement after $-40^{\circ}C/1000$ HRS & normal temperature/2 HRS.  | Features are conformed to rated spec. |
| Heat Resistance     | Measurement after $125^{\circ}C/1000$ HRS & normal temperature/2 HRS.  |                                       |
| Humidity Resistance | Measurement after humidity $90\sim95^{\circ}C(45^{\circ}C)/1000$ HRS & normal temperature/2 HRS.   |                                       |
| Temperature Cycle   | 10 times repetition of cycle $-40^{\circ}C/30min \rightarrow$ normal, temp/2 min $\rightarrow 125^{\circ}C/30min$ , measurement after normal temp/2 HRS. |                                       |
| Solder Ability      | Check for solder adhesion after $260\pm5^{\circ}C$ for 3sec, The body immersion depth 1.5mm in molten solder   | Evenly covered by solder.             |
| Solder Heat         | Measurement after $260\pm5^{\circ}C$ solder for 10sec, The body immersion depth 1.5mm in molten solder   | Conformed to rated spec.              |



## Recommended Soldering Conditions

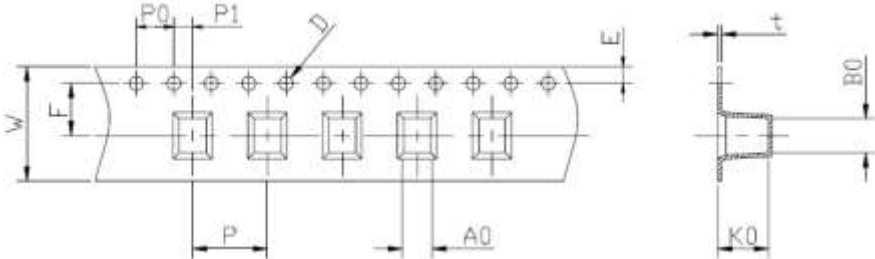
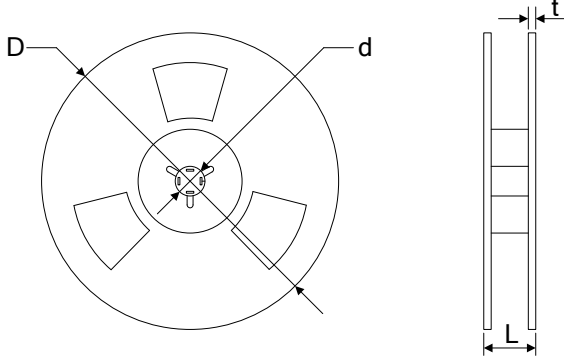


### Recommended Conditions

| Profile Feature                                      | Pb-Free Assembly |
|--|------------------|
| Average ramp-up rate ( $T_L$ to $T_P$ )              | 3°C/second max.  |
| Preheat  |                  |
| -Temperature Min ( $T_{S\ min}$ )                    | 150°C            |
| -Temperature Max ( $T_{S\ max}$ )                    | 200°C            |
| -Time (min to max) ( $t_s$ )                         | 60-180 seconds   |
| $T_{S\ max}$ to $T_L$                                |                  |
| -Ramp-up Rate  | 3°C/second max.  |
| Time maintained above:                               |                  |
| -Temperature ( $T_L$ )                               | 217°C            |
| -Time ( $t_L$ )                                      | 60-150 seconds   |
| Peak Temperature ( $T_P$ )                           | 260°C            |
| Time within 5°C of actual Peak Temperature ( $t_P$ ) | 20-40 seconds    |
| Ramp-down Rate                                       | 6°C/second max.  |
| Time 25°C to Peak Temperature                        | 8 minutes max.   |



Packaging

| Tape  | Items             | Dimension (mm) |           |
|---|-------------------|----------------|-----------|
|   |                   | Spec           | Tolerance |
|    | W                 | 12.00          | ±0.20     |
|   | A0                | 2.90           | ±0.10     |
|   | B0                | 3.60           | ±0.10     |
|   | K0                | 2.90           | ±0.10     |
|   | E                 | 1.75           | ±0.10     |
|   | F                 | 5.50           | ±0.10     |
|   | D                 | 1.55           | ±0.10     |
|   | P                 | 8.00           | ±0.10     |
|   | P0                | 4.00           | ±0.10     |
|   | P1                | 2.00           | ±0.10     |
|   | t                 | 0.40           | ±0.10     |
|  | D                 | 300.00         | ±1.00     |
|   | d                 | 13.00          | ±0.50     |
|   | L                 | 16.00          | ±0.50     |
|   | t                 | 2.00           | ±0.20     |
|   | Quantity: 2500pcs |                |           |