

## Features

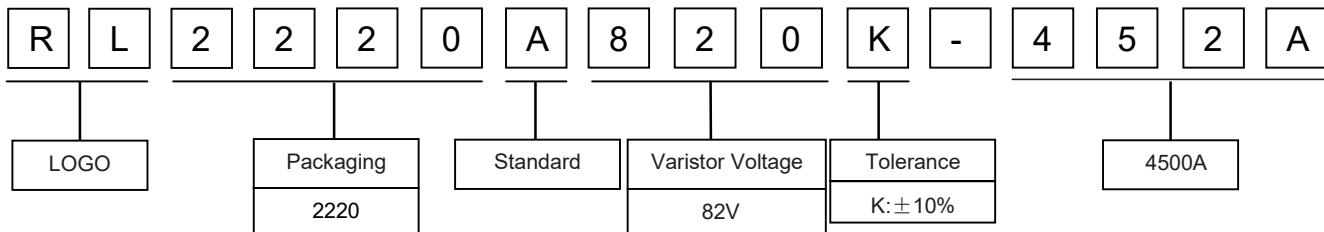
- EIA size:2220
- Variable capacitance
- Operating voltage: 65VDC
- High surge suppress capability
- Bidirectional and symmetrical V/I characteristics
- Multilayer ceramic construction technology
- RoHS & Halogen Free (HF) compliant
- Operating temperature range: -55°C ~ +125°C
- Storage temperature range: 5°C ~ +40°C



## Applications

- Used to Help Achieve Electromagnetic Compliance of End Products
- Provides On-Board Transient Voltage Protection for ICs, CMOS and MOSFET
- Suppression of Inductive Switching or Other Transient Events Such as EFT and Surge Voltage at the Circuit Board.
- Protection of Components and Circuits Sensitive to ESD Transients Occurring on Power supplies, Control and Signal Lines.

## Part Number Code



**Electrical Characteristics**

Type Number	Varistor Voltage	Max. Allowable Voltage		I <sub>L</sub> (μA)	Max. Energy (10/1000μs)	Max. Clamping Voltage (8/20μs)		Withstanding Surge Current (8/20μs)	Typ Cp(nF) 1.0V 1kHz
	V <sub>1mA</sub> (V)	V <sub>AC</sub> (V)	V <sub>DC</sub> (V)			(J)	I <sub>p</sub> (A)	V <sub>c</sub> (V)	
RL2220A820K-452A	82±10%	50	65	≤30	15	5	135	4500	9.5

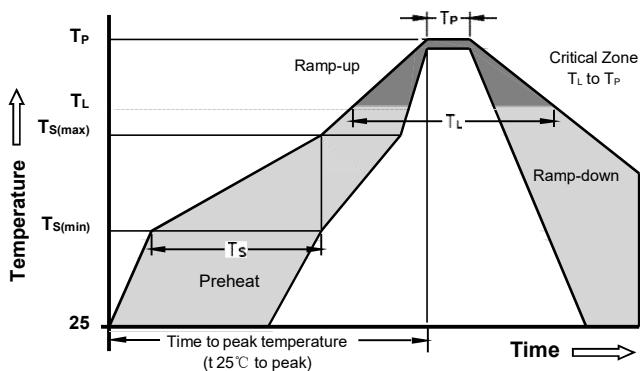
**Environmental Performance**

Item	Specifications	Test Condition
Bias Humidity	V <sub>v</sub> / V <sub>v</sub> ≤±10%	90%RH, 40°C, Working Voltage, 1000 hrs
Thermal Shock	V <sub>v</sub> / V <sub>v</sub> ≤±10%	-40°C to 85°C, 30min.cycle, 5 cycles
Full Load Voltage	V <sub>v</sub> / V <sub>v</sub> ≤±10%	Working Voltage, 85°C, 1000 hrs

**General Technical Data**

Response Time		<1ns
Solderability		245±5 °C, 3±1sec
Solder leach resistance		260±5 °C, 10±1sec
Taping Package Storage Condition	Storage Temperature	5~40°C
	Relative Humidity	To 65%
	Storage Time	12 Months max

## Soldering Parameters - Reflow Soldering (Surface Mount Devices)



Reflow Condition		Pb - Free assembly
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	150°C
	-Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 -180 Seconds
Average ramp up rate ( Liquids Temp $T_L$ ) to peak		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquids)	217°C
	- Time (min to max) ( $t_s$ )	60 -150 Seconds
Peak Temperature ( $T_P$ )		260 +0/-5°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 ( $T_P$ )		8 minutes Max
Do not exceed		260°C

### Precaution for soldering

Note that this product will be easily damaged by rapid heating, rapid cooling or local heating.

Do not give heat shock over 100°C in the process of soldering. We recommend to take preheating and gradual cooling

### Soldering gun procedure

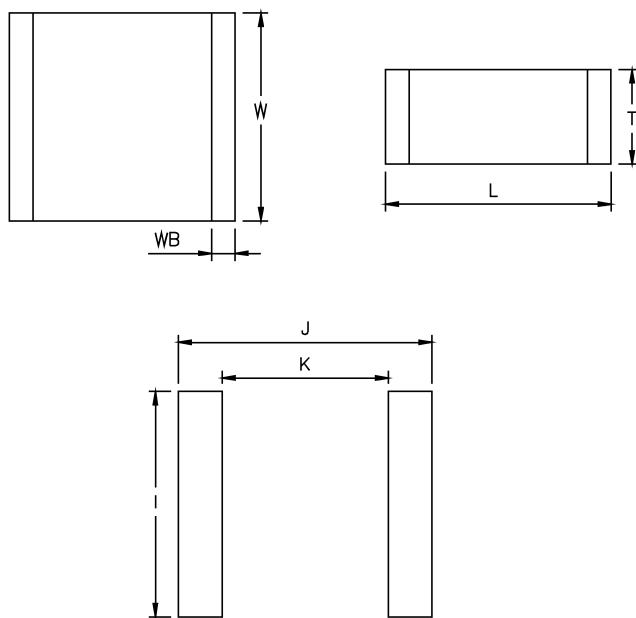
Note the follows, in case of using solder gun for replacement.

- 1) The tip temperature must be less than 280 for the period within 3 seconds by using soldering gun under 30W
- 2) The soldering gun tip shall not touch this product directly.

### Soldering volume

Note that excess of soldering volume will easily get crack the body of this product.

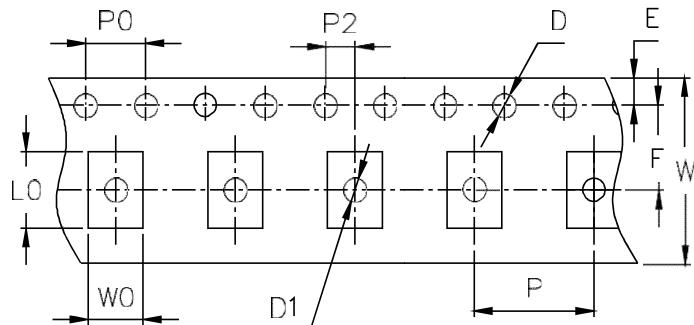
## Dimensions And Recommended Pad Layout



Recommended Soldering Pad Layout

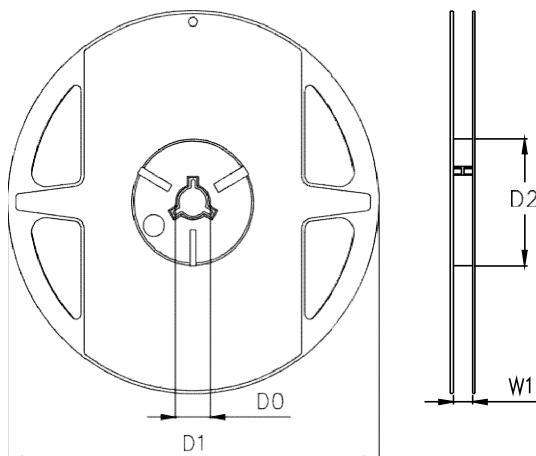
Symbol	Millimeters	Inches
L	5.70±0.50	0.224±0.02
W	5.08±0.50	0.20±0.02
T <sub>max.</sub>	3.80	0.150
WB	0.60±0.25	0.024±0.01
I	5.5	0.217
J	6.4	0.252
K	4.2	0.165

## Taping and Reel Specifications



Symbol	Millimeters	Inches
W	12.00±0.20	0.472±0.008
E	1.75±0.10	0.069±0.004
F	5.50±0.05	0.217±0.002
D	1.55±0.05	0.061±0.002
D1	Φ1.50±0.05	Φ0.059±0.002
P	8.00±0.10	0.315±0.004
P0	4.00±0.05	0.157±0.002
P2	2.00±0.05	0.079±0.002
L0	7.62±0.10	0.300±0.004
W0	6.57±0.10	0.259±0.004

## Packing Specifications



Symbol	Millimeters	Inches
D0	13.5±0.1	0.531±0.004
D1	178±2.0	7.008±0.079
D2	Φ60.0±0.5	Φ2.362±0.02
W1	12.82±0.2	0.505±0.008

### Taping Specifications

There Shall be the portion having no product in both the head and the end of taping, and there shall be the cover tape in the heat of taping.

Quantity of products in the taping package

Model	SIZE EIA (EIAJ)	Quantity
RL2220A820K -452A	Standard Packing Quantity (PCS/reel)	500 pcs