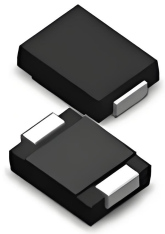
Features

- Electrical equivalents to leaded types
- SMD plastic package.
- Suitable for lead-free soldering
- PSpice models available
- Cylindrical varistor element, encapsulated.
- Encapsulation: thermoplastic, flame-retardant to UL 94 V-0.
- Termination: tinned copper alloy, suitable for lead-free wave and reflow soldering, and compatible with tin/lead solder.



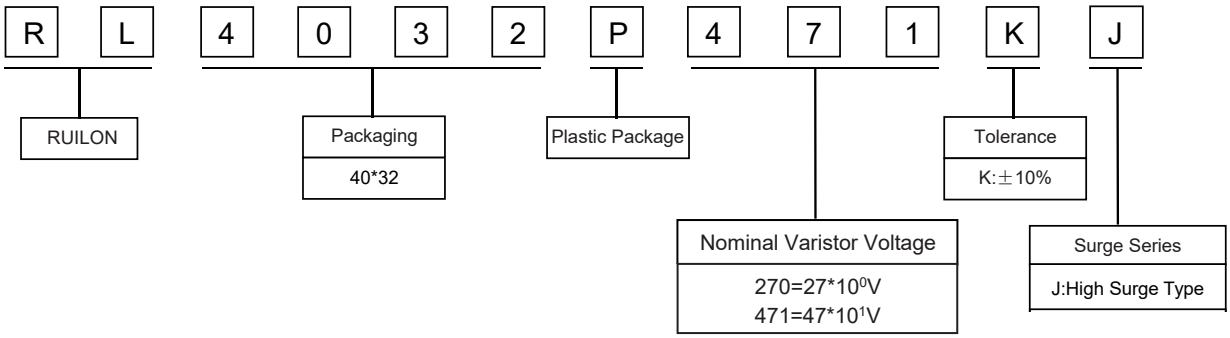
Applications

- Power supplies for telecommunication systems
- Protection for LED circuits
- Protection for consumer, industrial equipment
- Protection for automotive electronics

Agency Information

Agency Standard	File Number
cULus	Pending
TÜVRheinland	Pending
CQC	Pending

Part Number Code



General Technical Data

Parameter	Value	Unit
Operating temperature	-40 to +125	℃
Storage temperature	-55 to +150	℃
Electric strength	≥3.0	kV_{RMS}
Insulation resistance	≥100	MQ

(Do not use this product in corrosive gases or direct sunlight environment preservation)

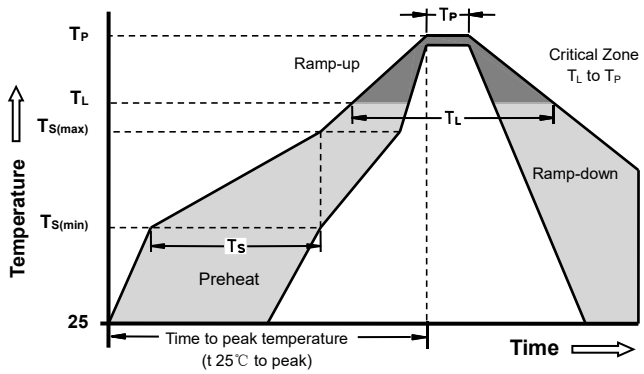
Electrical Characteristics (TA=25℃ unless otherwise noted)

Part Number	Maximum Allowable Voltage		Varistor Voltage	Maximum Clamping Voltage		Withstanding Surge Current	Energy 10/1000 μS	Rated Power	Typical Capacitance
	AC(V)	DC(V)	$V_{0.1mA}$(V)	IP(A)	VC(V)	I(A)	(J)	(W)	@1KHzPF
RL4032P180KJ	11	14	18(15.3~20.7)	5	36	800	0.9	0.05	5600
RL4032P220KJ	14	18	22(19.8~24.2)	5	43	800	1.1	0.05	4500
RL4032P270KJ	17	22	27(24.3-29.7)	5	53	800	1.4	0.05	3700
RL4032P330KJ	20	26	33(29.7~36.3)	5	65	800	1.7	0.05	3000
RL4032P390KJ	25	31	39(35.1~42.9)	5	77	800	2.1	0.05	2400
RL4032P470KJ	30	38	47(42.3~51.7)	5	93	800	2.5	0.05	2100
RL4032P560KJ	35	45	56(50.4~61.6)	5	110	800	3.1	0.05	1800
RL4032P680KJ	40	56	68(61.2~74.8)	5	135	800	3.6	0.05	1500
RL4032P820KJ	50	65	82(73.8~90.2)	25	135	1500	5.5	0.4	1200
RL4032P101KJ	60	85	100(90~110)	25	165	1500	6.5	0.4	1000
RL4032P121KJ	75	100	120(108~132)	25	200	2500	7.8	0.4	830
RL4032P151KJ	95	125	150(135~165)	25	250	2500	9.7	0.4	670
RL4032P181KJ	115	150	180(162~198)	25	300	2500	11.7	0.4	560
RL4032P201KJ	130	170	200(185~225)	25	330	2500	13	0.4	500
RL4032P221KJ	140	180	220(198~242)	25	360	2500	14	0.4	450
RL4032P241KJ	150	200	240(216~264)	25	395	2500	15	0.4	420
RL4032P271KJ	175	225	270(243~297)	25	455	2500	18	0.4	370
RL4032P301KJ	190	250	300(270~330)	25	505	2500	20	0.4	330
RL4032P331KJ	210	275	330(297~363)	25	550	2500	23	0.4	300
RL4032P361KJ	230	300	360(324~396)	25	595	2500	25	0.4	280
RL4032P391KJ	250	320	390(351~429)	25	650	2500	25	0.4	260
RL4032P431KJ	275	350	430(387~473)	25	710	2500	28	0.4	230
RL4032P471KJ	300	385	470(423~517)	25	775	2500	30	0.4	210
RL4032P511KJ	320	415	510(459~561)	25	845	2500	30	0.4	200
RL4032P561KJ	350	460	560(504~616)	25	920	2500	33	0.4	180
RL4032P621KJ	385	505	620(558~682)	25	1025	2500	33	0.4	160
RL4032P681KJ	420	560	680(612~748)	25	1120	2000	65	0.4	150

Reliability Test (Note: For CU varistors mounted on PCB by reflow soldering.)

Items	Test Condition/Description	Specification
Varistor voltage	The voltage between two terminals with the specified measuring current applied is called V_V (1 mA_{DC} @ 0.2 ... 2 s).	To meet the specified value
Clamping voltage	The maximum voltage between two terminals with the specified standard impulse current (8/20 μs) applied.	To meet the specified value
Endurance at upper Category temperature	1000 h at UCT After having continuously applied the maximum allowable AC voltage at UCT ±2 °C for 1000 h, the specimen shall be stored at room temperature and normal humidity for 1 to 2 h. Thereafter, the change of V_V shall be measured.	| △V/ V(1mA) | ≤10 %
Surge current derating,8/20 μs	10 surge currents (8/20 μs), unipolar ,interval 30 s, amplitude corresponding to derating curve for 10 impulses at 20 μs	| △V/ V(1mA) | ≤10 % (measured in direction of surge current) No visible damage
Surge current derating,2 ms	10 surge currents (2 ms), unipolar, interval 120 s, amplitude corresponding to derating curve for 10 impulses at 2 ms	| △V/ V(1mA) | ≤10 % (measured in direction of surge current) No visible damage
Climatic sequence	The specimen shall be subjected to:a) dry heat at UCT, 16 h, IEC 60068-2-2, test Ba b) damp heat, 1st cycle: 55 °C, 93% r. H., 24 h, IEC 60068-2-30, test Db. c) cold, LCT, 2 h, IEC 60068-2-1, test Aa. d) damp heat, additional 5 cycles:55 °C/ 25°C, 93% r. H., 24 h/cycle,IEC 60068-2-30, test Db. Then the specimen shall be stored at room temperature and normal humidity for 1 to 2h. Thereafter, the change of V_V shall be measured. Thereafter, insulation resistance R_{ins} shall be measured at V = 500V.	| △V/ V(1mA) | ≤10 % R_{ins} ≥100 MΩ
Rapid change of temperature	IEC 60068-2-14, test Na, LCT/UCT, dwell time 30 min, 5 cycles	| △V/ V(1mA) | ≤5 % No visible damage
Damp heat, steady state	IEC 60068-2-78, test Ca The specimen shall be subjected to 40 ±2 ° C, 90 to 95% r. H. for 56 days without load / with 10% of the maximum continuous DC operating voltage V_{DC}. Then stored at room temperature and normal humidity for 1 to 2 h. Thereafter, the change of V_V shall be measured. Thereafter, insulation resistance R_{ins} shall be measured at V = 500 V (insulated varistors only).	| △V/ V(1mA) | ≤10 % R_{ins} ≥100 MΩ
Solderability	IEC 60068-2-58, test Td1, method 1 - solder bath, Sn96, 5Ag3Cu0.5 T = 245 ±3 °C ， t = 2 s	The terminations shall be uniformly tinned for soldering test.
Resistance to soldering heat	IEC 60068-2-58, test Td2, method 1 - solder bath, Sn96, 5Ag3Cu0.5 T = 260 ±5 °C ， d = 10 ±1 s	| △V/ V(1mA) | ≤5 % No visible damage
Robustness of termination	Substrate bending test ： IEC 60068-2-21, test Ue1 Deflection = 2 mm ， t = 60 s	| △V/ V(1mA) | ≤10 % No visible damage
	Shear test：IEC 60068-2-21, test Ue3 Force = 5 N ， t = 10 ±1 s	| △V/ V(1mA) | ≤10 % No visible damage
Vibration	IEC 60068-2-6, test Fc, method B4：Frequency range: 10 … 55 Hz ，Amplitude: 0.75 mm or 98 m/s^2 ， Duration: 6 h (3 · 2 h) Pulse: sine wave After repeatedly applying a single harmonic vibration according to the table above. The change of V_V shall be measured and the specimen shall be visually examined.	| △V/ V(1mA) | ≤5 % No visible damage
Bump	IEC 60068-2-27, test Ea： Pulse duration: 6 ms ， Max. acceleration: 400 m/s^2 Number: 6 x 5000 shocks ， Pulse shape: half sine	| △V/ V(1mA) | ≤5 % No visible damage
Fire hazard	IEC 60695-11-5 (needle flame test) Severity: vertical 10 s	5 s 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 TL - 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)		240 °C to 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(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

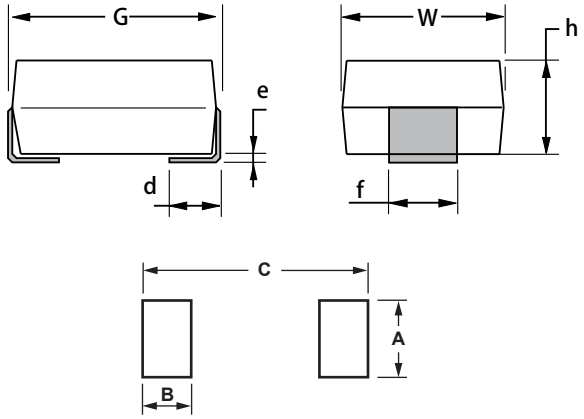
Soldering gun procedure

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.

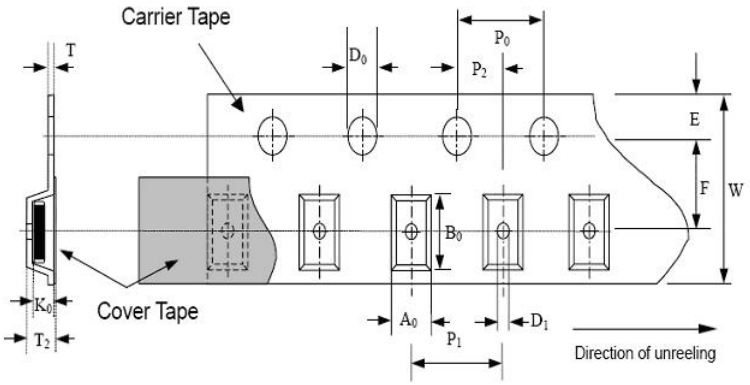
Dimensions And Recommended Pad Layout



Symbol	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
G	10.20	11.00	0.40	0.43
W	7.90	8.50	0.31	0.34
h	3.75	4.50	0.17	0.20
d	1.20	1.80	0.05	0.07
e	0.00	0.30	0.00	0.01
f	2.70	3.30	0.11	0.13
A	3.50		0.138	
B	2.80		0.110	
C	6.50		0.256	

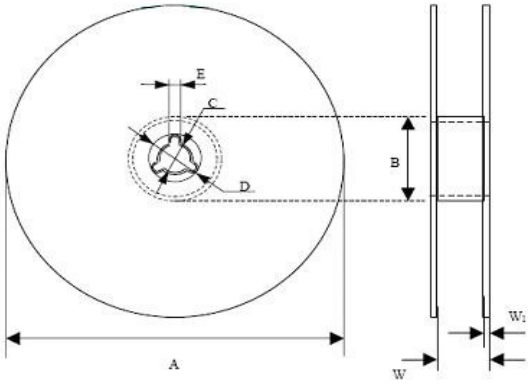
Taping and Reel Specifications

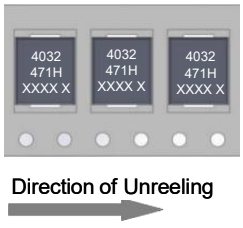
Packaging Specification



Unit	A_0 ±0.20	B_0 ±0.20	K_0 max	T max	T_2 max	D_0 +0.05	D_1 ±0.05	P_1 ±0.10	P_2 ±0.05	P_0 ±0.1	W ±0.30	E ±0.10	F ±0.05
mm	8.40	10.8	3.85	0.30	5.50	1.55	1.55	12.0	2.00	4.00	24.00	1.75	11.50

Reel dimension





Direction of Unreeling

Unit	A	B	C	D	E	W-W1	W_1
mm	330.0±1.0	60.0±0.5	13.0±0.2	21.0±0.2	2.0±0.5	24.0±0.3	2.3±0.15

Quantity of products in the taping package

SIZE EIA (EIAJ)	4032P Series
Standard Packing Quantity (PCS/reel)	1000