



# 承认书

## APPROVAL SHEET

客户 CUSTOMER	立创商城
客户料号 CUSTOMER P/N	
规格描述 DESCRIPTION	14D431K/F7.5/直脚/L4/环氧(蓝)/CNR
产品编码 PART NUMBER	RM14D431KD16ECNO
日期 DATE	2021-03-29

呈昆承认栏 APPROVED BY CHENGGUN			客户承认栏 APPROVED BY CUSTOMER	
批准 APPROVED BY	审核 CHECK BY	制订 FORMULATE BY	批准 APPROVED BY	审核 CHECK BY

东莞市呈昆电子有限公司

DONGGUAN CITY CHENGGUN ELECTRONIC CO., LTD.

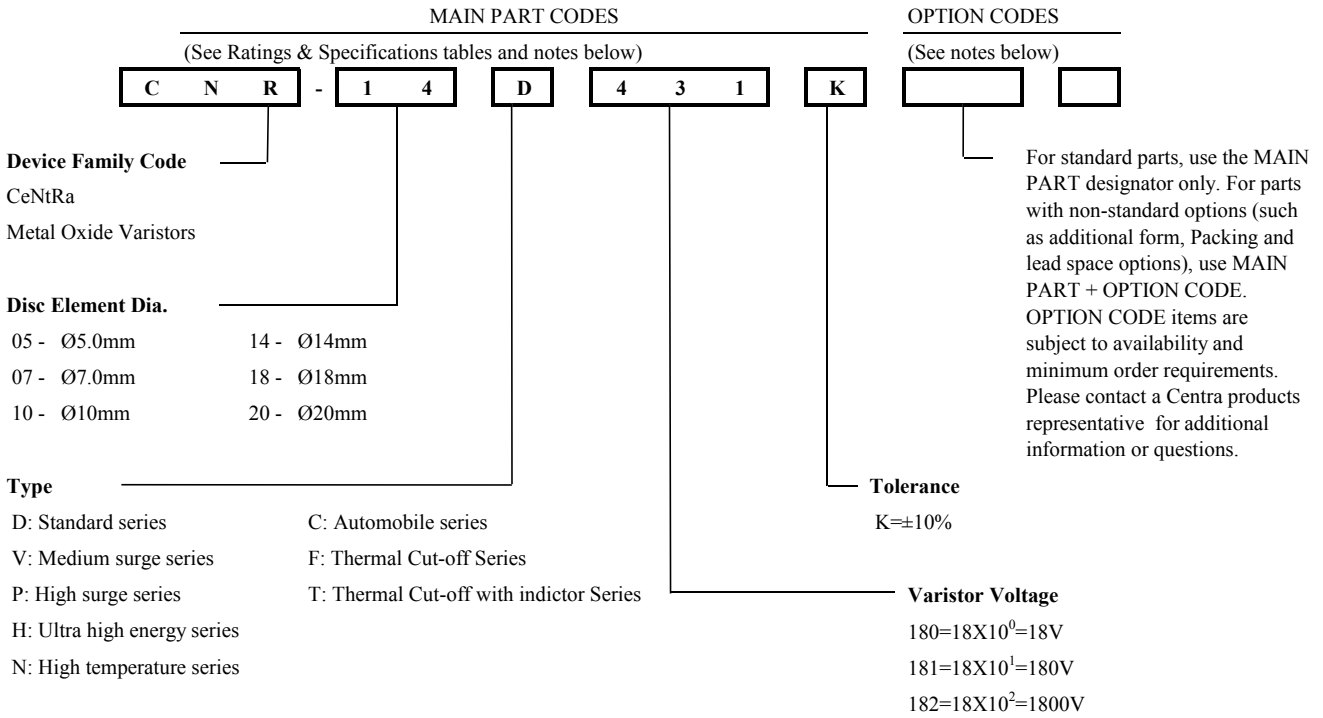
广东省东莞市长安镇锦厦河南工业区锦平路 5 号

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TEL: +86-769-8155 5686 FAX: +86-769-8155 5989

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**Explanation of Part Numbers**



**Ordering Notes:**

**MAIN PART CODES**

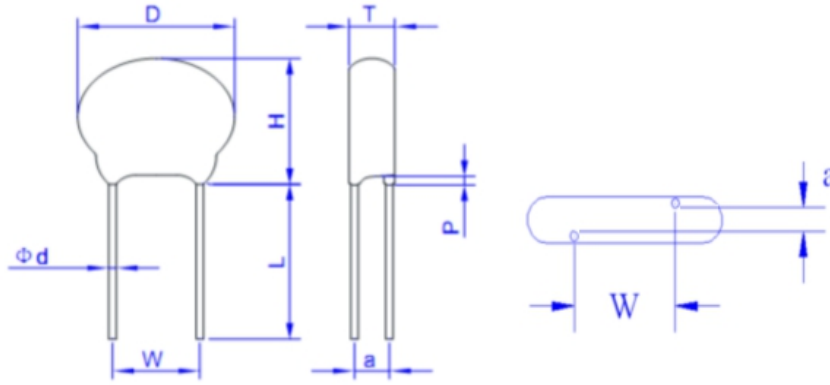
Series + /Packaging/ Lead Style / Designators:

Ordering examples:

Straight Lead Bulk Pack (Standard)	Straight Lead (Short Cut) Bulk Pack	Straight Lead Tape & Reel Pack	Straight Lead Flat Box Pack	Option Code + XXX
CNR-14D431K	CNR-14D431KTTSXXX	CNR-14D431KTRSX	CNR-14D431KBTSX	Short Cut Lead Length 10mm±1.0mm CNR-14D431KTTS10
Outside Kink Lead Bulk Pack	Outside Kink Lead (Short Cut) Bulk Pack	Outside Kink Lead Tape & Reel Pack	Outside Kink Lead Flat Box Pack	Tape & Reel Pack Feed Hole Pitch CNR-14D431KTRSA CNR-14D431KTRSB
CNR-14D431SOK	CNR-14D431KTTKXXX	CNR-14D431KTRKX	CNR-14D431KBTKX	A: P <sub>0</sub> → 12.7mm±0.2mm B: P <sub>0</sub> → 15.0mm±0.2mm
Inside Kink Lead Bulk Pack	Inside Kink Lead (Short Cut) Bulk Pack	Inside Kink Lead Tape & Reel Pack	Inside Kink Lead Flat Box Pack	
CNR-14D431KSIK	CNR-14D431KTTIXXX	CNR-14D431KTRIX	CNR-14D431KBTIX	
In Line Kink Lead Bulk Pack	In Line Kink Lead (Short Cut) Bulk Pack	In Line Kink Lead Tape & Reel Pack	In Line Kink Lead Flat Box Pack	
CNR-14D431KSHK	CNR-14D431KTTHXXX	CNR-14D431KTRHX	CNR-14D431KBTHX	

CeNtRa D Series varistors are shipped standard in bulk pack with straight leads or Kink lead and lead spacing outlined in the Package Dimensions section of this data sheet. Contact your CeNtRa sales representative to discuss non-standard options.

Product Dimensions



Dimension Table Unit:mm

Symbol	Model size	14D	
		Min.	Max.
<b>D</b>		-	17
<b>H</b>		-	20
<b>W</b>		6.5	8.5
<b>Ød(±0.05)</b>		0.75	
<b>P(max.)</b>		3	
<b>L(±0.5)</b>		4.0	
<b>T(max.)</b>		5.1	
<b>a(±1.0)</b>		2.2	
		CP/EI	

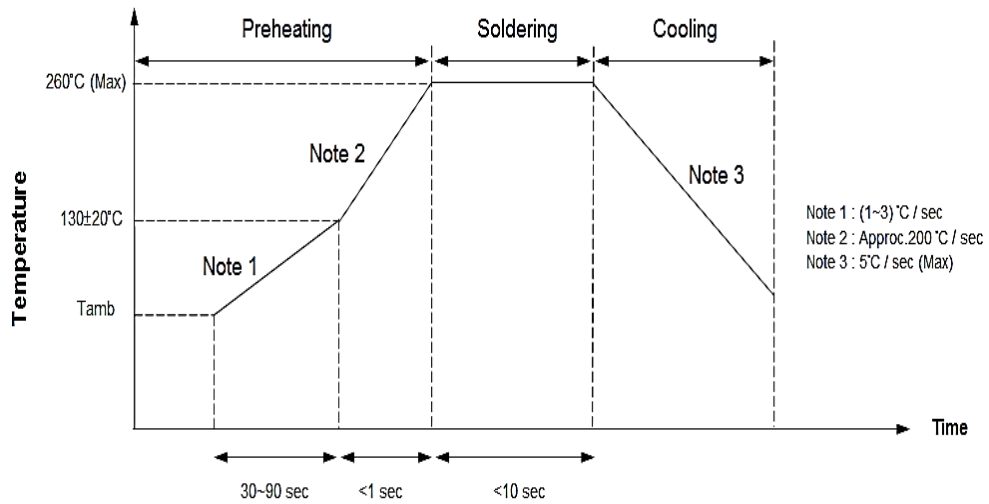
Device Ratings and Characteristics

Part No.	Device Marking	Maximum Allowable Voltage		Varistor Voltage (@1mA)			Clamping Voltage @ Test Current (@8/20µs)		Maximum Energy (@10/1000µs) (J)
		ACrms(V)	DC(V)	Vn(Vdc)	Min.	Max.	Vc(V)	Ip(A)	
CNR-14D431K	14D431K	275	350	430	387	473	710	50	115

Part No.	Device Marking	Maximum Peak Current (@8/20µs) (A)	Rated Power (W)	Typical Capacitance (@1KHz) (pF)	LEAKAGE CURRENT AT 350V (DC) (µA)
CNR-14D431K	14D431K	4500	0.6	650	<20

Reliability			
Characteristics	Standard	Test Conditions	Specifications
Robustness of terminations	IEC 60068-2-21 Test Ua1	F = 10 N (d ≤ 0.8 mm) ,F = 20 N ( d = 1 mm)	$\Delta V/V \leq \pm 5\%$ No visible damage
Solderability	IEC 60068-2-20 Test Ta (Method 1)	T = 235±5°C, d = 2±0.5s	Approximately $\geq 95\%$
Resistance to soldering heat	IEC 60068-2-20 Test Tb (Method 1A)	T = 260±5°C, d = 10±1s	$\Delta V/V \leq \pm 5\%$ No visible damage
Vibration	IEC 60068-2-6 Test Fc Method B4	Frequency range: 10 Hz to 55 Hz ,a = 0.75 mm or 98 m/s2 (whichever is the less), d = 3x2 h	$\Delta V/V \leq \pm 5\%$ No visible damage
Voltage proof	IEC 61051-2	Metal balls method (4.8.1.2) 2500 V, 60 s	As specified in pecification
Pulse current- 8/20 μs	IEC 61051-2	8/20 μs, 10 times, I peak=0.25*Imax	$\Delta V/V \leq \pm 10\%$ No visible damage
Pulse current- 10/1000 μs	IEC 61051-2	10/1000 μs, 10 times, Ipeak = 0.0075* Imax	$\Delta V/V \leq \pm 10\%$ No visible damage
Rapid change of temperature	IEC 60068-2-14 Test Na	N = 5 cycles, d = 30 min , θA = -40±3°C, θB = 85±2°C	$\Delta V/V \leq \pm 5\%$ No visible damage
Endurance at upper category temperature	IEC 61051-1 (4.21)	T:max temperature as specified , Duration: 1000 h, Voltage: max. a.c. voltage or max. d.c. voltage	$\Delta V/V \leq \pm 10\%$ No visible damage R $\geq 1000M\Omega$ U $\leq 1,1 U_{initial}$
Damp heat (Steady state )	IEC 60068-2-78 Test Ca	T = 40±2°C, RH = 93(+2/-3)%, 56d , 4 specimens:No voltage applied , Other 4 specimens:Applied voltage: 100% of the max. d.c. voltage	$\Delta V/V \leq \pm 10\%$ R <sub>ISO</sub> $\geq 100M\Omega$
Varistor Voltage Temp. Coefficient	Specification Standard	V <sub>1mA</sub> at -40°C, 105°C, 25°C $\frac{V_{1mA} \text{ at } 105^{\circ}\text{C} - V_{1mA} \text{ at } 25^{\circ}\text{C}}{V_{1mA} \text{ at } 25^{\circ}\text{C}} \times \frac{1}{80} \times 100(\%/^{\circ}\text{C})$ $\frac{V_{1mA} \text{ at } -40^{\circ}\text{C} - V_{1mA} \text{ at } 25^{\circ}\text{C}}{V_{1mA} \text{ at } 25^{\circ}\text{C}} \times \frac{1}{65} \times 100(\%/^{\circ}\text{C})$	-0.05 $\leq$ TC $\leq$ 0.05(%/°C)
High Temperature Storage	IEC60068-2-2	1000h, T = 125±2°C	$\Delta V/V \leq \pm 5\%$ No visible damage
Low Temperature Storage/Cold	Specification Standard	The specimen shall be subjected to -40±2 °C, without load for 1000 hours and then stored at room temperature for one to two hours. Thereafter, the change of Vc shall be measured.	$\Delta V_{cMA}/V_{cMA} \leq \pm 5\%$ No visible damage

**Solder Recommendation**



**Recommendation Reworking Conditions with Soldering Iron**

Item	Conditions
Temperature of soldering Iron-tip	360°C (Max)
Soldering Time	3 sec (Max)
Distance from Varistor	2mm (Min)

**RoHS Compliant Declaration**

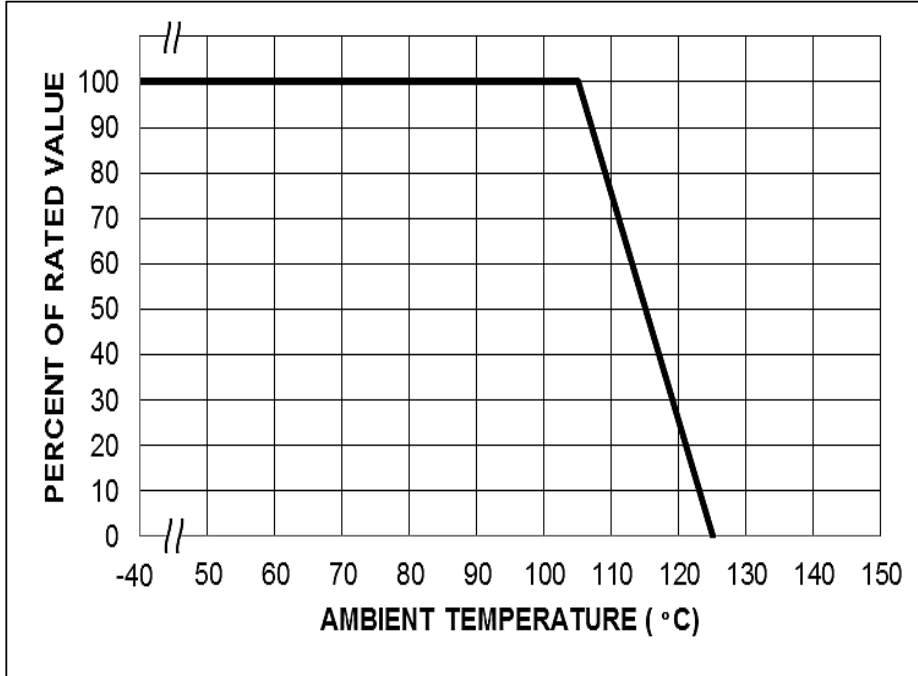
We hereby declare that the components delivered to your company are compliant with RoHS Directive 2011/65/EU

**Storage Conditions of Products**

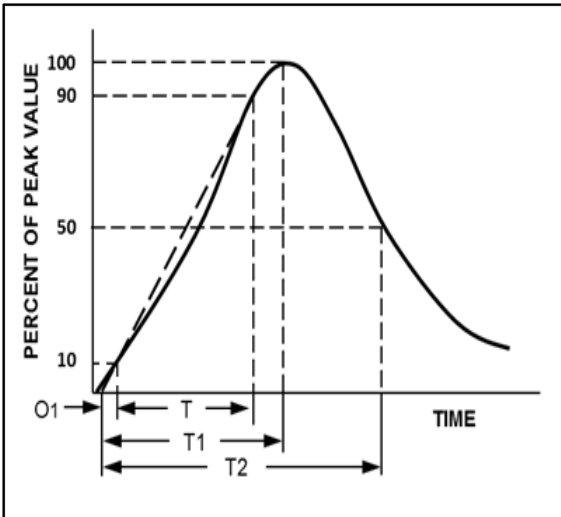
- (I) Storage Conditions:
  1. Storage Temperature: -10°C ~ +40°C
  2. Relative Humidity: ≤ 75%RH
  3. Keep away from corrosive atmosphere and sunlight
  4. Solvent Resistance: MIL-STD-202, Method 215F
  5. Moisture Sensitivity: Level 1, J-STD-020
- (II) Period of Storage: 1 year

**Power Derating Curve**

Should transients occur in rapid succession, the average power dissipation is the energy (watt-seconds) per pulse times the number of pulses per second. The power so developed must be with the specifications shown on the Device Ratings and Specifications Table for the specific device. The operating values of a MOV need to be derated at high temperatures as shown above. Because varistors only dissipate a relatively small amount of average power they are not suitable for repetitive applications that involve substantial amounts of average power dissipation.



**Surge Current Standard Waveform**



O1 = Virtual Origin of Wave  
 T = Time from 10% to 90% of Peak  
 $T1 = \text{Rise Time} = 1.25 \times T$   
 $T2 = \text{Decay Time}$   
 Example - For an 8/20  $\mu\text{s}$  Current Waveform:  
 $8\mu\text{s} = T1 = \text{Rise Time}$   
 $20\mu\text{s} = T2 = \text{Decay Time}$

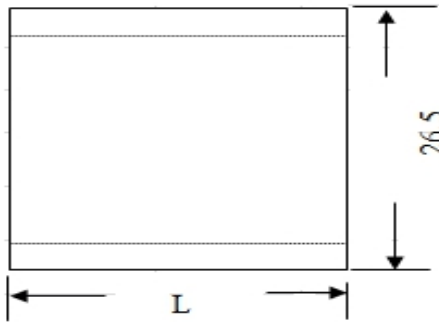
**Packing information**

**■ Bulk packing**

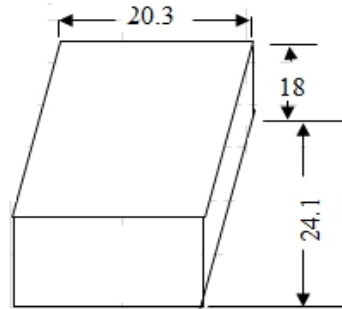
Part No.	Min. Q'ty(pcs)/Bags	Q'ty(pcs)/Inner Box	Min. Q'ty(pcs)/Carton	Weight/Carton
CNR-14D431K	500	2500	5000	Less than 20Kg

Packing Bag

unit:cm

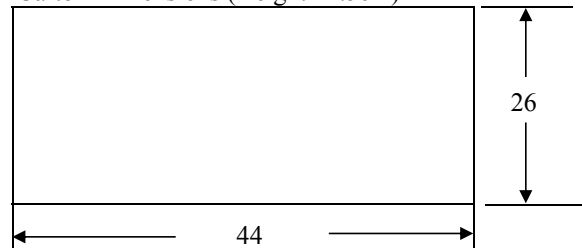


Inner box dimension



L	Series	Length (cm)
	05D to 10D Series	10.5
	14D to 20D Series	14.5

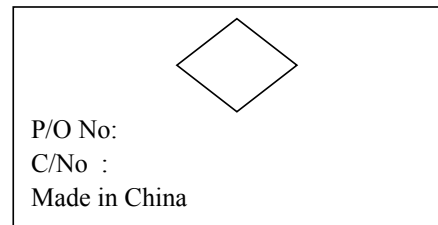
Carton Dimensions (Height 21.5cm)



Label

CNR Zinc Oxide Varistor	
Part No.	Inspected by
Quantity	
Lot No.	

Mark



**Specification**

Year Code			Month Code		
W--2022	G--2014	L--2018	1--January	5--May	9--September
X--2023	H--2015	M--2019	2--February	6--June	o--October
Y--2024	J--2016	P--2020	3--March	7--July	n--November
Z--2025	K--2017	U--2021	4--April	8--August	d--December

EX. H 1 Remark: Year Code Cycle Use

H → Year Code  
1 → Month Code

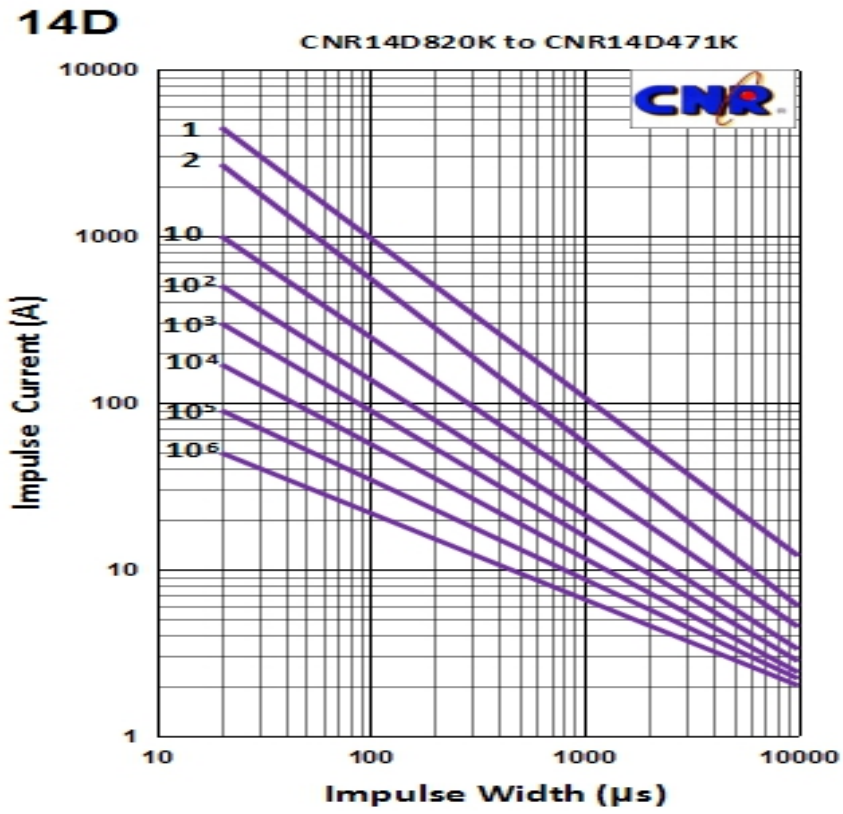
Agency Approvals			Features
Agency	Agency Approval	Certificate No.	1. RoHS compliant 2. Halogen-free series are available 3. Body size: Ø14 mm
	UL 1449 4 <sup>th</sup> & cUL	VZCA2.E316325 VZCA8.E316325	
	IEC 61051-1:2007-04	40008220	
	IEC 61051-2:2009-05		
	IEC 61051-2-2:1991-01		
	IEC 60950-1:2013		
	CLASS 2221 01	LR 109736-1	<b>Applications</b> 1. Power supply 2. Home appliance 3. Industrial equipment 4. Telecommunication or telephone system 5. Smart meter 6. Lighting products 7. Photovoltaic industry
	GB/T 10193-1997	CQC08001023768	
	GB/T 10194-1997		
	GB 4943.1-2011		
	GB 8898-2011		

Max. Rating		
	D-Series	Units
Operation Ambient Temperature Range	-40 to +105	°C
Storage Temperature Range	-40 to +125	°C
Insulation Resistance	>1000	MΩ
Typical Response Time	<25	ns



Impulse Life Time Rating Curves

CNR-14D431K



CNR-14D431K

CNR-14D820K to CNR-14D471K

