



## SPECIFICATIONS

PRODUCT : **VARISTOR**

TYPE : **GNR14D□□□K**

MODEL :

CITATION :

REVISION : **B01**

TOTAL PAGES : **5** PAGE : **1/5**

RELEASED DATE : **Oct. 13, 2001**

### REVISION HISTORY

NO	REV. DATE	DCR NO.	DESCRIPTION OF CHANGE	REV.
1	Oct. 15, 2001		NEW RELEASE	B01
2				
3				
4				
5				
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7				
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10				
11				
12				

Approved by	Checked by	Edited by
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<b>CERAMATE</b>	TYPE	<b>GNR14D□□□K</b>	MODEL		PAGE	2/5
CITATION				DATE	<b>Oct. 13, 2001</b>	
SUBJECT	<b>QUALITY APPROVAL and STRUCTURE</b>			REV.	<b>B01</b>	

### 1. QUALITY SYSTEM APPROVAL

ISO9001 Certificate of approval No.97-HOU-AQ-1382

### 2. SAFETY STANDARDS APPROVAL

Standard No.	UL 1414	UL 1449	UL 497B	CUL	CSA C22.2 No.1	VDE 42000
File No.	E181368	E166389	E187844	E166389	LR105317	5938
180K~680K			Approved			
820K~181K		Approved	Approved	Approved		Approved
201K~471K	Approved	Approved	Approved	Approved	Approved	Approved
511K		Approved	Approved	Approved		Approved
561K~821K	Approved	Approved	Approved	Approved		Approved
911K~182K						Approved


### 3. STRUCTURE

NO.	ITEM	DESCRIPTION		
3.1	Main Material	Zinc Oxide		
3.2	Coating Material	Epoxy Resin		
3.3	Marking	GNR, Part number, UL, CSA(or CUL) and VDE recognized component mark, Date code		
3.4	Appearance	Without dirt and crack, marking should be clear		
3.5	Dimensions		D(max.)	16.5
			H(max.)	20.0
			T(max.)	<b>*(1)</b>
			F	7.5± 1.0
			φ d	0.8± 0.1
			L(min.)	25.0
			k(max.)	3.0
			Unit: mm	

\* (1) See Page 3, Dimensions Table

Part No.	T <sub>max.</sub>
14D180K	3.9
14D220K	4.1
14D270K	4.4
14D330K	3.7
14D390K	3.9
14D470K	4.1
14D560K	4.3
14D680K	4.1
14D820K	3.7
14D101K	3.9
14D121K	4.1
14D151K	4.4
14D181K	3.8
14D201K	3.9
14D221K	4.0
14D241K	4.1
14D271K	4.2
14D301K	4.4
14D331K	4.5
14D361K	4.7
14D391K	4.8
14D431K	5.0
14D471K	5.2
14D511K	5.3
14D561K	5.4
14D621K	5.7
14D681K	6.0
14D751K	6.3
14D781K	6.4
14D821K	6.6
14D911K	6.7
14D102K	6.9
14D112K	7.3
14D182K	11.4

Unit:mm

	TYPE	GNR14D□□□K	MODEL	PAGE	4/5
CITATION				DATE	Oct. 13, 2001
SUBJECT	ELECTRICAL CHARACTERISTICS			REV.	B01

#### 4. ELECTRICAL CHARACTERISTICS

NO.	ITEM	PERFORMANCE	TEST METHODS
4.0	Standard Conditions		Unless otherwise specified, all tests are made under environmental conditions as given below: Temperature: 5~35°C Relative humidity: 45~85 % RH
4.1	Maximum Allowable Voltage	AC : *(2) Vrms DC : *(2) V	Maximum continuous sine wave(RMS) or DC voltage which may be applied.
4.2	Varistor Voltage	V <sub>1mA</sub> : *(2) V	Voltage across the varistor measured at C <sub>mA</sub> DC.
4.3	Varistor Voltage Temperature Coefficient	0 ~ -0.05 %/°C	$\frac{V_{CmA \text{ at } 85^{\circ}\text{C}} - V_{CmA \text{ at } 25^{\circ}\text{C}}}{V_{CmA \text{ at } 25^{\circ}\text{C}}} \times \frac{1}{60} \times 100$
4.4	Max. Clamping Voltage	*(2) V at *(2) A	Peak voltage across the varistor with a specified peak impulse current of 8x 20 μs waveform.
4.5	Rated Power	*(2) W	Maximum 50~60Hz power which may be loaded for 1,000 hrs at 85± 2°C with $\Delta V_{CmA} / V_{CmA} \leq \pm 10\%$ .
4.6	Withstanding Surge Current	(2) A	The max. current within the varistor voltage change of less than ± 10% when one impulse current (8x 20 μs) applied.
			The max. current with a varistor voltage change of less than ± 10% when two times impulse current (8x 20 μs) are applied at intervals of 5 minutes.
4.7	Energy	*(2) Joule	The max. energy absorbed with a varistor voltage change of less than ± 10% when one impulse(10 x 1000 μs) is applied.
4.8	Surge Life	*(2) A	The max. current with a varistor voltage change of less than ± 10% when 10,000 times impulse current (8x 20 μs) are applied at intervals of 20 seconds at room temperature.

\* (2) See Page 5

PART NUMBER	MAXIMUM ALLOWABLE VOLTAGE		VARISTOR VOLTAGE (V)	CLAMPING VOLTAGE (MAX.)		RATED WATTAGE (MAX.) (W)	SURGE CURRENT (8/20 $\mu$ s)		MAXIMUM ENERGY (10/1000 $\mu$ s) $W_{tm}$ (joule)	SURGE LIFE (A)
	AC <sub>rms</sub> (V)	DC(V)		(V)	Ip(A)		$I_{tm}$ (A)			
						1 TIME	2 TIMES			
14D180K	11	14	16~20	36	10	0.1	2000	1000	5.2	90
14D220K	14	18	20~24	43					6.3	
14D270K	17	22	24~30	53					7.8	
14D330K	20	26	30~36	65					9.5	
14D390K	25	31	35~43	77					11.0	
14D470K	30	38	42~52	93					14.0	
14D560K	35	45	50~62	110					16.0	
14D680K	40	56	61~75	135					20.0	
14D820K	50	65	74~90	135	50	0.6	6000	28.0	200	
14D101K	60	85	90~110	165				35.0		
14D121K	75	100	108~132	200				42.0		
14D151K	95	125	135~165	250				53.0		
14D181K	115	150	162~198	300				65.0		
14D201K	130	170	185~225	340				70.0		
14D221K	140	180	198~242	360				78.0		
14D241K	150	200	216~264	395				84.0		
14D271K	175	225	247~303	455				99.0		
14D301K	190	250	270~330	505				105.0		
14D331K	210	275	297~363	545			115.0			
14D361K	230	300	324~396	595			130.0			
14D391K	250	320	351~429	650			140.0			
14D431K	275	350	387~473	710			155.0			
14D471K	300	385	423~517	775			175.0			
14D511K	320	410	459~561	845			190.0			
14D561K	350	460	504~616	920			190.0			
14D621K	385	505	558~682	1025			190.0			
14D681K	420	560	612~748	1120			190.0			
14D751K	460	615	675~825	1240			210.0			
14D781K	485	640	702~858	1290	225.0					
14D821K	510	670	738~902	1355	235.0					
14D911K	550	745	819~1001	1500	255.0					
14D102K	625	825	900~1100	1650	280.0					
14D112K	680	895	990~1210	1815	310.0					
14D182K	1000	1465	1700~1980	2970	510.0	150				