光碁科技股份有限公司
CERAMATE TECHNICAL CO., LTD.

SPECIFICATIONS

PRODUCT： **VARISTOR**

TYPE： **GNR10D□□□K**

MODEL：

CITATION：

REVISION： **B01**

TOTAL PAGES： **5**

RELEASED DATE： **Oct. 13, 2001**

REVISION HISTORY

NO	REV. DATE	DCR NO.	DESCRIPTION OF CHANGE	REV.
1	Oct. 13, 2001		NEW RELEASE	B01
2				
3				
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10				
11				
12				

Approved by	Checked by	Edited by
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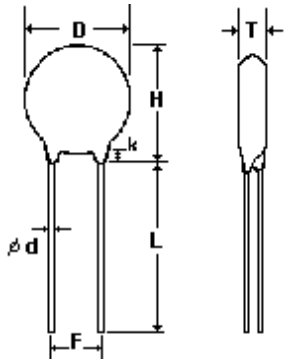
1. QUALITY SYSTEM APPROVAL

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			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	 Unit: mm

D(max.)	12.5
H(max.)	16.5
T(max.)	**∗(1)**
F	7.5± 1.0
φd	0.8± 0.1
L(min.)	25.0
k(max.)	3.0

∗(1) See Page 3, Dimensions Table

Part No.	$T_{max.}$
10D180K	3.8
10D220K	4.0
10D270K	4.3
10D330K	3.6
10D390K	3.8
10D470K	4.0
10D560K	4.2
10D680K	4.0
10D820K	3.6
10D101K	3.8
10D121K	4.0
10D151K	4.3
10D181K	3.7
10D201K	3.8
10D221K	3.9
10D241K	4.0
10D271K	4.1
10D301K	4.3
10D331K	4.4
10D361K	4.6
10D391K	4.7
10D431K	4.9
10D471K	5.1
10D511K	5.2
10D561K	5.3
10D621K	5.6
10D681K	5.9
10D751K	6.2
10D781K	6.3
10D821K	6.5
10D911K	6.6
10D102K	6.8
10D112K	7.2
10D182K	11.2

Unit:mm

4. ELECTRICAL CHARACTERISTICS

N0.	ITEM	PERFORMANCE	TEST METHODS
4.0	Standard Conditions		Unless otherwise specified, all tests are made under environmental conditions as given below: Temperature: 5～35℃ 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_{1mA} : ∗**(2)** V	Voltage across the varistor measured at C_{mA} DC.
4.3	Varistor Voltage Temperature Coefficient	0 ～ −0.05 %/℃	$\frac{V_{CmA}\text{ at }85℃ - V_{CmA}\text{ at }25℃}{V_{CmA}\text{ at }25℃} \times \frac{1}{60} \times 100$
4.4	Max. Clamping Voltage	∗**(2)** V at ∗**(2)** A	Peak voltage across the varistor with a specified peak impulse current of 8× 20 μs waveform.
4.5	Rated Power	∗**(2)** W	Maximum 50～60Hz power which may be loaded for 1,000 hrs at 85± 2℃ with $\triangle V_{CmA}/V_{CmA} \leqq \pm 10\%$.
4.6	Withstanding Surge Current	∗**(2)** A	The max. current within the varistor voltage change of less than ± 10% when one impulse current (8× 20 μs) applied. The max. current with a varistor voltage change of less than ± 10% when two times impulse current (8× 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 × 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 (8× 20 μs) are applied at intervals of 20 seconds at room temperature.

∗ **(2) See Page 5**

PART NUMBER	MAXIMUM ALLOWABLE VOLTAGE		VARISTOR VOLTAGE	CLAMPING VOLTAGE (MAX.)		RATED WATTAGE (MAX.)	SURGE CURRENT (8/20 μs)		MAXIMUM ENERGY (10/1000 μs)	SURGE LIFE
	AC_{rms}(V)	DC(V)	(V)	(V)	Ip(A)	(W)	I_{tm}(A) 1 TIME	I_{tm}(A) 2 TIMES	W_{tm}(joule)	(A)
10D180K	11	14	16～20	36	5	0.05	1000	500	2.6	50
10D220K	14	18	20～24	43					3.2	
10D270K	17	22	24～30	53					3.9	
10D330K	20	26	30～36	65					4.8	
10D390K	25	31	35～43	77					5.6	
10D470K	30	38	42～52	93					6.8	
10D560K	35	45	50～62	110					8.1	
10D680K	40	56	61～75	135					9.8	
10D820K	50	65	74～90	135	25	0.4	3500	2500	14	150
10D101K	60	85	90～110	165					17	
10D121K	75	100	108～132	200					20	
10D151K	95	125	135～165	250					25	
10D181K	115	150	162～198	300					32	
10D201K	130	170	185～225	340					35	
10D221K	140	180	198～242	360					39	
10D241K	150	200	216～264	395					42	
10D271K	175	225	247～303	455					49	
10D301K	190	250	270～330	505					54	
10D331K	210	275	297～363	545					58	
10D361K	230	300	324～396	595					65	
10D391K	250	320	351～429	650					70	
10D431K	275	350	387～473	710					80	
10D471K	300	385	423～517	775					85	
10D511K	320	410	459～561	845					92	
10D561K	350	460	504～616	920					92	
10D621K	385	505	558～682	1025					92	
10D681K	420	560	612～748	1120					92	
10D751K	460	615	675～825	1240					100	
10D781K	485	640	702～858	1290					105	
10D821K	510	670	738～902	1355					110	
10D911K	550	745	819～1001	1500					130	
10D102K	625	825	900～1100	1650					140	
10D112K	680	895	990～1210	1815					155	
10D182K	1000	1465	1700～1980	2970					247	120