



## SPECIFICATIONS

PRODUCT : **VARISTOR**

TYPE : **GNR60B□□□K**

MODEL :

CITATION :

REVISION : **B01**

TOTAL PAGES : **4** PAGE : **1/4**

RELEASED DATE : **Feb. 06, 2002**

### REVISION HISTORY

NO	REV. DATE	DCR NO.	DESCRIPTION OF CHANGE	REV.
1	Feb. 06,2002		NEW RELEASE	B01
2				
3				
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8				
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10				
11				
12				

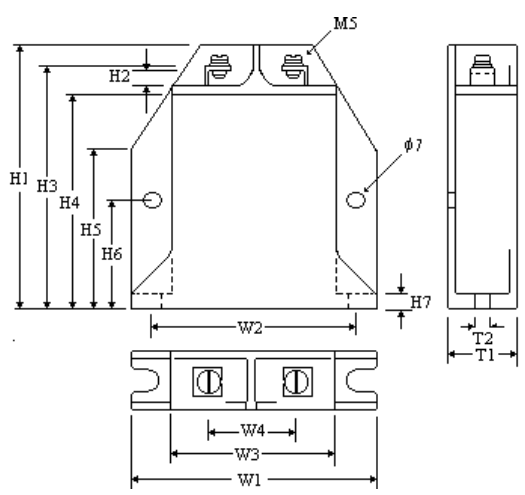
Approved by	Checked by	Edited by
Yu-Chang Huang	Cloud Chen	Andy Chiang

<b>CERAMATE</b>	TYPE	<b>GNR60B□□□K</b>	MODEL		PAGE	2/4
CITATION				DATE	<b>Feb. 06, 2002</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. STRUCTURE

NO.	ITEM	DESCRIPTION																										
2.1	Main Material	Zinc Oxide																										
2.2	Package Material	Plastic																										
2.3	Marking	GNR, Part number																										
2.4	Appearance	Without dirt and crack, marking should be clear																										
2.5	Dimensions	 <p style="text-align: right;">Unit: mm</p> <table border="1" style="float: right; margin-left: 20px;"> <tr><td>H1(max.)</td><td>100.0</td></tr> <tr><td>H2(max.)</td><td>5.0</td></tr> <tr><td>H3(max.)</td><td>92.0</td></tr> <tr><td>H4(max.)</td><td>83.0</td></tr> <tr><td>H5(max.)</td><td>45.0</td></tr> <tr><td>H6(max.)</td><td>30.0</td></tr> <tr><td>H7(max.)</td><td>5.0</td></tr> <tr><td>T1(max.)</td><td>24.0</td></tr> <tr><td>T2(max.)</td><td>7.0</td></tr> <tr><td>W1(max.)</td><td>100.0</td></tr> <tr><td>W2(max.)</td><td>86.0</td></tr> <tr><td>W3(max.)</td><td>71.0</td></tr> <tr><td>W4(max.)</td><td>40.0</td></tr> </table>	H1(max.)	100.0	H2(max.)	5.0	H3(max.)	92.0	H4(max.)	83.0	H5(max.)	45.0	H6(max.)	30.0	H7(max.)	5.0	T1(max.)	24.0	T2(max.)	7.0	W1(max.)	100.0	W2(max.)	86.0	W3(max.)	71.0	W4(max.)	40.0
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<b>CERAMATE</b>	TYPE	<b>GNR60B□□□K</b>	MODEL		PAGE	3/4
CITATION				DATE	<b>Feb. 06, 2002</b>	
SUBJECT	<b>ELECTRICAL CHARACTERISTICS</b>			REV.	<b>B01</b>	

### 3. ELECTRICAL CHARACTERISTICS

NO.	ITEM	PERFORMANCE	TEST METHODS
3.0	Standard Conditions		Unless otherwise specified, all tests are made under environmental conditions as given below: Temperature: 5~35°C Relative humidity: 45~85 % RH
3.1	Maximum Allowable Voltage	AC : * Vrms DC : * V	Maximum continuous sine wave(RMS) or DC voltage which may be applied.
3.2	Varistor Voltage	V <sub>1mA</sub> : * V	Voltage across the varistor measured at C <sub>mA</sub> DC.
3.3	Varistor Voltage Temperature Coefficient	0 ~ -0.05 %/°C	$\frac{V_{CmA} \text{ at } 85^{\circ}\text{C} - V_{CmA} \text{ at } 25^{\circ}\text{C}}{V_{CmA} \text{ at } 25^{\circ}\text{C}} \times \frac{1}{60} \times 100$
3.4	Max. Clamping Voltage	* V at * A	Peak voltage across the varistor with a specified peak impulse current of 8x 20 μs waveform.
3.5	Rated Power	* W	Maximum 50~60Hz power which may be loaded for 1,000 hrs at 85± 2°C with $\Delta V_{CmA} / V_{CmA} \leq \pm 10\%$ .
3.6	Withstanding Surge Current	* 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.
3.7	Energy	* Joule	The max. energy absorbed with a varistor voltage change of less than ± 10% when one impulse(2ms) is applied.
3.8	Typical Capacitance	* pF	Capacitance shall be measured at 1 kHz± 10%, 1 Vrms max. 0V bias and 20± 2°C

\* See Page 4

PART NUMBER	MAXIMUM ALLOWABLE VOLTAGE		VARISTOR VOLTAGE (V)	CLAMPING VOLTAGE (MAX.)		RATED WATTAGE (MAX.) (W)	SURGE CURRENT (8/20 $\mu$ s)		MAXIMUM ENERGY (2ms) $W_{tm}$ (joule)	Typical Capacitance pF
	AC <sub>rms</sub> (V)	DC(V)		(V)	Ip(A)		$I_{tm}$ (A)			
			1 TIME			2 TIMES				
60B330K	20	26	30~36	65	100	0.35	20000	15000	120	86000
60B390K	25	31	35~43	77					150	64000
60B470K	30	38	42~52	93					190	55000
60B560K	35	45	50~62	110					220	49000
60B680K	40	56	61~75	135					250	43000
60B820K	50	65	74~90	135					250	37000
60B101K	60	85	90~110	165	500	1.6	50000	40000	300	30000
60B121K	75	100	108~132	200					320	24500
60B151K	95	125	135~165	250					380	20000
60B181K	115	150	162~198	300					450	16500
60B201K	130	170	185~225	340					490	15000
60B221K	140	180	198~242	360					530	13250
60B241K	150	200	216~264	395			570	12500		
60B271K	175	225	247~303	455			630	11000		
60B301K	190	250	270~330	505			650	10000		
60B331K	210	275	297~363	545			680	9000		
60B361K	230	300	324~396	595			730	8500		
60B391K	250	320	351~429	650			880	7500		
60B431K	275	350	387~473	710			950	7000		
60B471K	300	385	423~517	775			1000	6500		
60B511K	320	410	459~561	845			1100	6000		
60B561K	350	460	504~616	920			1200	5500		
60B621K	385	505	558~682	1025			1300	5000		
60B681K	420	560	612~748	1120			1500	4500		
60B751K	460	615	675~825	1240	1600	4000				
60B781K	485	640	702~858	1290	1650	3900				
60B821K	510	670	738~902	1355	1800	3700				
60B911K	550	745	819~1001	1500	2000	3300				
60B951K	575	765	855~1045	1570	2100	3200				
60B102K	625	825	900~1100	1650	2200	3000				
60B112K	680	895	990~1210	1815	2500	2700				
60B122K	750	990	1155~1320	1980	2700	2500				
60B142K	880	1140	1310~1540	2310	2400	2200				
60B162K	1000	1280	1700~1980	2640	2600	1900				