



## SPECIFICATIONS

PRODUCT : **VARISTOR**

TYPE : **NFV10D□□□K**

MODEL :

CITATION :

REVISION : **B01**

TOTAL PAGES : **5**

PAGE : **1/5**

RELEASED DATE : **Oct. 15, 2001**

### REVISION HISTORY

NO	REV. DATE	DCR NO.	DESCRIPTION OF CHANGE	REV.
1	Oct. 15, 2001		NEW RELEASE	B01
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

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

<b>CERAMATE</b>	TYPE	<b>NFV10D□□□K</b>	MODEL		PAGE	2/5
CITATION				DATE	<b>Oct. 15, 2001</b>	
SUBJECT	<b>QUALITY APPROVAL and STRUCTURE</b>			REV.	<b>B01</b>	

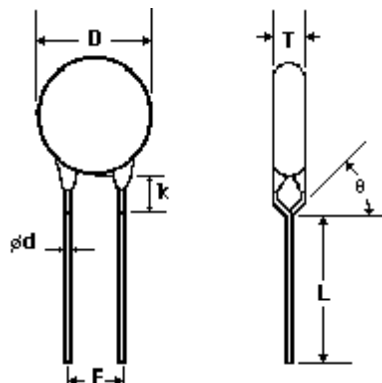
### 1. QUALITY SYSTEM APPROVAL

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			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	Silicone or Phenolic resin		
3.3	Marking	NFV, 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.)	12.5
			k(max.)	5.0
			T(max.)	<b>*(1)</b>
			F	7.5± 1.0
			φ d	0.8± 0.1
			θ (max.)	75°
			L(min.)	25.0
			Unit: mm	

**\*(1) See Page 3, Dimensions Table**

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SUBJECT

**DIMENSIONS TABLE**

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

**Unit:mm**

<b>CERAMATE</b>	TYPE	<b>NFV10D</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>K</b>	MODEL		PAGE	4/5
CITATION				DATE	<b>Oct. 15, 2001</b>	
SUBJECT	<b>ELECTRICAL CHARACTERISTICS</b>			REV.	<b>B01</b>	

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