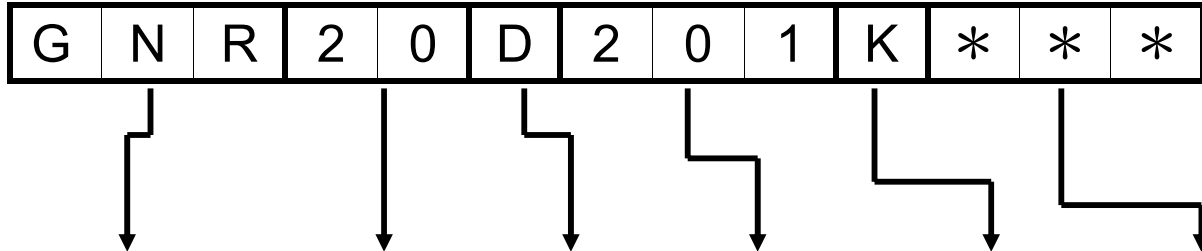


VARISTORS

Catalog number system



Product Series	Element Size	Type	Nominal Voltage at 1mA DC	Tolerance	Suffixes
GNR: General Nonlinear Resistor	05 :φ5mm 07 :φ7mm 10 :φ10mm 14 :φ14mm 20 :φ20mm 25 :φ25mm 32 :φ32mm 34 :34mm x 34mm 40 :φ40mm 53 :φ53mm 60 :60mm x 60mm	D: Disk S: Square B: Block	The first two digits are significant figures and the third one denotes the number of zeros following	J: ±5% K: ±10% L: ±15% or customer special requirement	A: F=7.5 4: L=4mm±1mm C: Crimped lead T: Ammo R: Reel

● 14D Specification

Model Number	Maximum Allowable Voltage		Varistor Voltage (V)	Clamping Voltage (Max.)		Maximum Peak current (8/20 μ s)(A)		Maximum Energy (Joule)		Rated Power (w)	Typical Capacitance (Reference) @1kHz(pF)
	AC _{rms} (V)	DC (V)		VC(V)	I _p (A)	1 Time	2 Time	10/1000 μ s	2ms		
14D180K	11	14	18(16~20)	36	10	2000	1000	5.2	4.3	0.1	13000
14D220K	14	18	22(20~24)	43				6.3	5.3		10500
14D270K	17	22	27(24~30)	53				7.8	6.5		8600
14D330K	20	26	33(30~36)	65				9.5	7.9		7500
14D390K	25	31	39(35~43)	77				11.0	9.4		6500
14D470K	30	38	47(42~52)	93				14.0	11.0		5500
14D560K	35	45	56(50~62)	110				16.0	13.0		4500
14D680K	40	56	68(61~75)	135				20.0	16.0		5280
14D820K	50	65	82(74~90)	135				6000	4500		28.0
14D101K	60	85	100(90~110)	165	35.0	25.0	3500				
14D121K	75	100	120(108~132)	200	42.0	30.0	2830				
14D151K	95	125	150(135~165)	250	53.0	37.5	2600				
14D181K	115	150	180(162~198)	300	65.0	45	800				
14D201K	130	170	200(185~225)	340	70.0	50	770				
14D221K	140	180	220(198~242)	360	78.0	55	740				
14D241K	150	200	240(216~264)	395	84.0	60	700				
14D271K	175	225	270(243~297)	455	99.0	70	640				
14D301K	190	250	300(270~330)	500	105.0	75	610				
14D331K	210	275	330(297~363)	550	115.0	80	580				
14D361K	230	300	360(324~396)	595	130.0	90	540				
14D391K	250	320	390(351~429)	650	140.0	100	500				
14D431K	275	350	430(387~473)	710	155.0	110	450				
14D471K	300	385	470(423~517)	775	175.0	125	400				
14D511K	320	415	510(459~561)	845	190.0	136	350				
14D561K	350	460	560(504~616)	925	190.0	136	340				
14D621K	385	505	620(558~682)	1025	190.0	136	330				
14D681K	420	560	680(612~748)	1120	190.0	136	320				
14D751K	460	615	750(675~825)	1240	210.0	150	310				
14D781K	485	640	780(702~858)	1290	225.0	160	290				
14D821K	510	670	820(738~902)	1355	235.0	165	280				
14D911K	550	745	910(819~1001)	1500	255.0	180	250				
14D102K	625	825	1000(900~1100)	1650	280.0	200	230				
14D112K	680	895	1100(990~1210)	1815	310.0	220	210				
14D182K	1000	1465	1800(1700~1980)	2970	510.0	360	120				

Operating Temperature Range : -40 to 85°C

Varistor Voltage : 14D series ...V_{1mA}

Storage Temperature Range : -40 to 125°C

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

CERAMATE	TYPE	GNR14D□□□K	MODEL		PAGE	1/4
CITATION				DATE	Jul.21,2004	
SUBJECT	QUALITY APPROVAL and STRUCTURE			REV.	C01	

1. 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

2. STRUCTURE

NO.	ITEM	DESCRIPTION		
2.1	Main Material	Zinc Oxide		
2.2	Coating Material	Epoxy Resin		
2.3	Marking	GNR, Part number, UL, CSA(or CUL) and VDE recognized component mark, Date code		
2.4	Appearance	Without dirt and crack, marking should be clear		
2.5	Dimensions		D(max.)	16.5
			H(max.)	20.0
			T(max.)	*(1)
			F	7.5±1.0
			φd	0.8±0.1
			L(min.)	25.0
			k(max.)	3.0
			Unit: mm	

***(1)See Page 2, Dimensions Table**

Part No.	T _{max.}
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

CERAMATE	TYPE	GNR14D□□□K	MODEL		PAGE	3/4
CITATION				DATE	Jul.21,2004	
SUBJECT	ELECTRICAL CHARACTERISTICS			REV.	C01	

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 : *(2) Vrms DC : *(2) V	Maximum continuous sine wave(RMS) or DC voltage which may be applied.
3.2	Varistor Voltage	V _{1mA} : *(2) V	Voltage across the varistor measured at C _{mA} DC.
3.3	Varistor Voltage Temperature Coefficient	0~ -0.05 %/°C	$\frac{V_{CmA@85^{\circ}C} - V_{CmA@25^{\circ}C}}{V_{CmA@25^{\circ}C}} \times \frac{1}{60} \times 100$
3.4	Max. Clamping Voltage	*(2) V at *(2) A	Peak voltage across the varistor with a specified peak impulse current of 8 x 20μs waveform.
3.5	Rated Power	*(2) W	Maximum 50~60Hz power which may be loaded for 1,000 hrs at 85±2°C with ΔV _{CmA} / V _{CmA} ≤±10%.
3.6	Withstanding Surge Current	*(2) A	The max. current within the varistor voltage change of less than±10% when one impulse current (8 x 20μs) applied.
			The max. current with a varistor voltage change of less than±10% when two times impulse current (8 x 20μs) are applied at intervals of 5 minutes.
3.7	Energy	*(2) Joule	The max. energy absorbed with a varistor voltage change of less than ±10% when one impulse(10 x 1000μs) is applied.
3.8	Surge Life	*(2) A	The max. current with a varistor voltage change of less than ±10% when 10,000 times impulse current (8 x 20μs) are applied at intervals of 20 seconds at room temperature.

***(2) See Page4**

PART NUMBER	MAXIMUM ALLOWABLE VOLTAGE		VARISTOR VOLTAGE (V)	CLAMPING VOLTAGE (MAX.)		RATED WATTAGE (MAX.) (W)	SURGE CURRENT (8/20 μ s)		MAXIMUM ENERGY (10/1000 μ s)	SURGE LIFE
	AC _{rms} (V)	DC(V)		(V)	Ip(A)		I _{tm} (A)			
			1 TIME			2 TIMES	AC _{rms} (V)			
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				