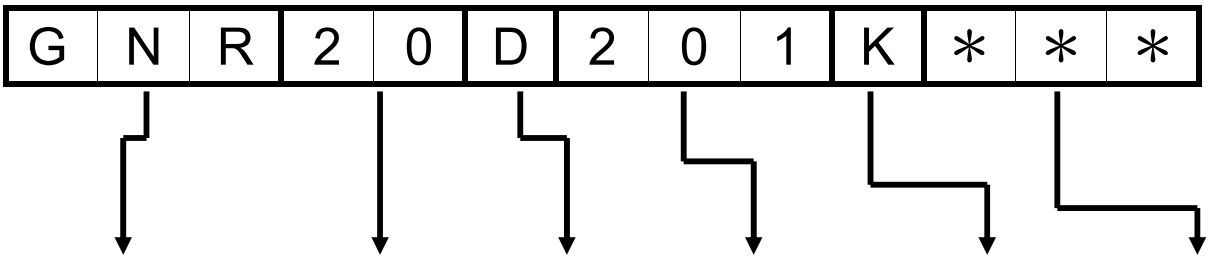
VARISTORS
Catalog number system



Product Series	Element Size	Type	Nominal Voltage at 1mA DC	Tolerance	Suffixes
GNR: General Nonlinear Resistor	**05** :ψ5mm **07** :ψ7mm **10** :ψ10mm **14** :ψ14mm **20** :ψ20mm **25** :ψ25mm **32** :ψ32mm **34** :34mm x 34mm **40** :ψ40mm **53** :ψ53mm **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	Clamping Voltage (Max.)		Maximum Peak current (8/20 μs)(A)		Maximum Energy (Joule)		Rated Power	Typical Capacitance (Reference)
	AC_{rms} (V)	DC (V)	(V)	VC(V)	Ip(A)	1 Time	2 Time	10/1000 μs	2ms	(w)	@1kHz(pF)
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	50	6000	4500	28.0	20.0	0.6	4350
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		5000		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℃
Storage Temperature Range : -40 to 125℃

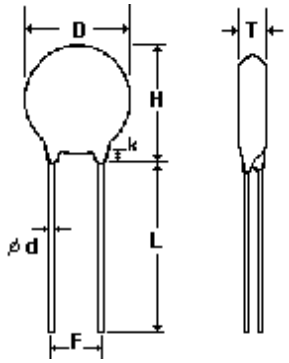
Varistor Voltage : 14D series …V_{1mA}

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

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	 Unit: mm	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

***(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

3.ELECTRICAL CHARACTERISTICS

N0.	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	$\frac{V_{cmA\,at\,85°C} - V_{cmA\,at\,25°C}}{V_{cmA\,at\,25°C}} \times \frac{1}{60} \times 100$
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 $\Delta V_{CmA}/ V_{CmA} \leq \pm 10\%$.
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	CLAMPING VOLTAGE (MAX.)		RATED WATTAGE (MAX.)	SURGE CURRENT (8/20μ s)		MAXIMUM ENERGY (10/1000μs)	SURGE LIFE
	AC_{rms}(V)	DC(V)	(V)	(V)	Ip(A)	(W)	I_{tm}(A) 1 TIME	I_{tm}(A) 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	4500	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			5000		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