

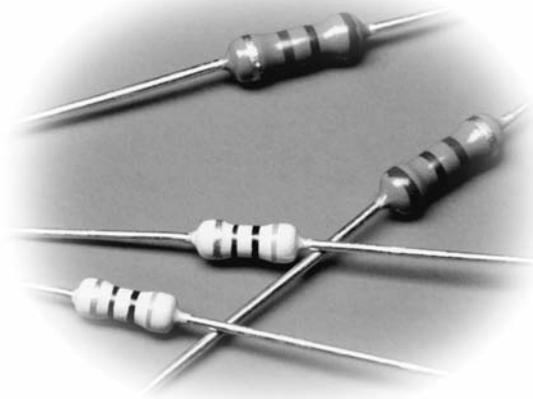
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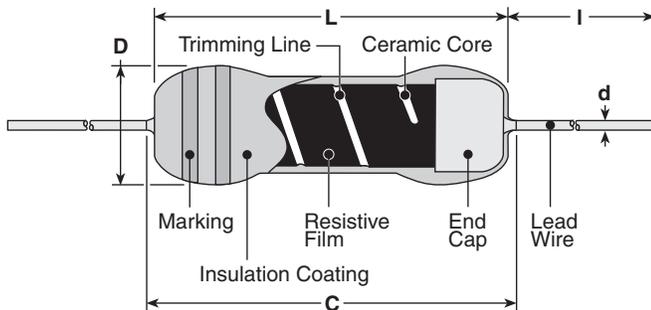
Jameco Part Number 1850681



features

- Flameproof coating is available (specify “CFP”)
- Reduced body size (specify “CFS/CFPS”)
- Suitable for automatic machine insertion
- Marking: Beige body color with color-coded bands on CF
Green body color with color-coded bands on CFP
Ivory body color with color-coded bands on CFS1/4
- Products with lead-free terminations meet RoHS requirements

dimensions and construction



Type	Dimensions inches (mm)				
	L	C (max.)	D	d (nom.)	I
CFS1/4 CFPS1/4	.126±.008 (3.2±0.2)	.134 (3.4)	.067±.008 (1.7±0.2)	.018 (0.45)	1.18±.12 (30.0±3.0)
CF1/4 CFP1/4	.240 (6.1)	.280 (7.1)	.092±.012 (2.3±0.3)	.024 (0.6)	
CF1/2 CFP1/2	.335 (8.5)	.365 (9.27)	.118±.02 (3.0±0.5)	.028 (0.7)	
CFS1/2 CFPS1/2	.248±.02 (6.3±0.5)	.280 (7.1)	.112±.012 (2.85±0.3)	.024 (0.6)	

ordering information

New Part #	CF	1/4	C	T52	R	103	J
Type	CF CFP	Power Rating S1/4: 0.25W 1/4: 0.25W 1/2: 0.5W S1/2: 0.5W	Termination Material C: SnCu (Other termination styles available, contact factory for options)	Taping and Forming Axial: T26, T52 Radial: VT, MT, MHT, VTP, VTE U Forming: U, UCL, US M Forming: M5, M10, M12.5	Packaging A: Ammo R: Reel	Nominal Resistance 2 significant figures + 1 multiplier “R” indicates decimal on value <10Ω	Tolerance G: ±2% J: ±5%

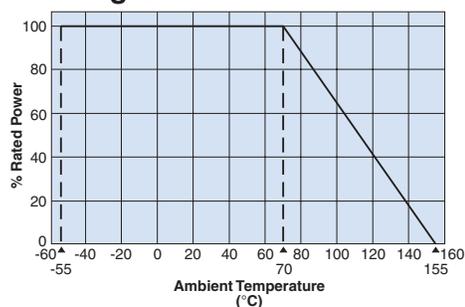
For further information on packaging, please refer to Appendix C.

applications and ratings

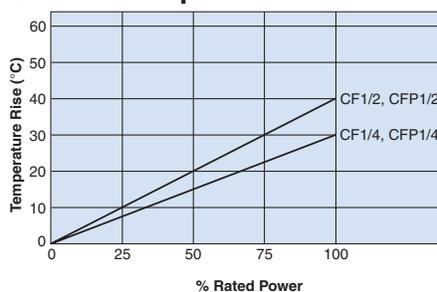
Part Designation	Power Rating @ 70°C	Minimum Dielectric Withstanding Voltage	T.C.R. (ppm/°C)				Resistance Range E-24 (G±2%)	Resistance Range E-24 (J±5%)	Absolute Maximum Working Voltage	Absolute Maximum Overload Voltage						
			+350 to -450	0 to -700	0 to -1000	0 to -1300										
CFS1/4	0.25W	300V	2.2Ω - 47kΩ	51kΩ - 100kΩ	110kΩ - 330kΩ	360kΩ - 1MΩ	10Ω - 330kΩ	2.2Ω - 1MΩ	250V	500V						
CFPS1/4											10Ω - 100kΩ	2.2Ω - 1MΩ				
CF1/4		500V	2.2Ω - 100kΩ	110kΩ - 330kΩ	360kΩ - 1MΩ	1.1MΩ - 5.1MΩ	10Ω - 1MΩ	2.2Ω - 5.1MΩ	300V	600V						
CFP1/4	—										2.2Ω - 1MΩ					
CF1/2	0.50W	700V	110kΩ - 1MΩ	1.1MΩ - 2.2MΩ	2.4MΩ - 5.1MΩ	10Ω - 1MΩ	2.2Ω - 5.1MΩ	400V	800V							
CFP1/2										—	2.2Ω - 1MΩ					
CFS1/2										2.2Ω - 91kΩ	100kΩ - 1MΩ	1.1MΩ - 2.2MΩ	2.4MΩ - 5.1MΩ	2.2Ω - 5.1MΩ	350V	700V
CFPS1/2																

environmental applications

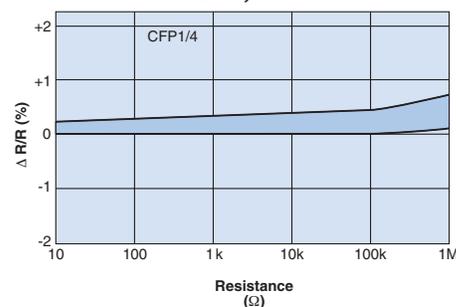
Derating Curve



Surface Temperature Rise



Load Life @ 70°C, 1000 Hr



Performance Characteristics

Parameter	Requirement		Test Method
	CF1/4, CFP1/4	CF1/2, CFP1/2	
Short Time Overload	±1.0%		2.5 x RCWV* for 5 seconds
Resistance to Solder Heat			MIL-STD-202, Method 210
Moisture Resistance	±5.0%		MIL-STD-202, Method 106
Load Life	±3.0%		MIL-STD-202, Method 108, 70°C, 1000 hours
Temperature Cycling			-55°C, 25°C, 125°C, 25°C for 5 cycles
Vibration	±1.0%		MIL-STD-202, Method 214
Terminal Strength	5 # Minimum		MIL-STD-202, Method 211
Current Noise	0.02 - 0.6 μv/v	0.02 - 1.00 μv/v	MIL-STD-202, Method 308
Voltage Coefficient	<5 ppm/v		MIL-STD-202, Method 301

* RCWV = Rated Continuous Working Voltage

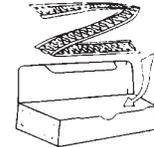
axial tape (ammo pack)

Type	Dimension (mm)			Axial Tape							
	L	D	d	T26A AMMO	T52A AMMO	T52R REEL	T521A AMMO	T521R REEL	T631A AMMO	T631R REEL	
MFS	1/4	3.2	1.7	0.45	3000	3000	5000				
	1/2	6.3	2.3	0.6	2000	5000	5000				
MF	1/4	6.3	2.3	0.6	2000	5000	5000				
	1/2	9.6	3.5	0.6		2000	4000				
	1	15.5	5.5	0.8					1000		
RNS	1/8	6.35	2.41	0.64		2000	5000				
	1/4	9.5	3.3	0.64			2000				
	1/2	13.5	3.5	0.6					4000		
MO(X)	1/2	9.0	3.5	0.7		2000(L)	4000(L)				
	1	11.5	4.0	0.8		2000	2000	1000(L)	1000(L)	2000(L)	2000
	2	15.5	6.0	0.8				1000(L)	1000	1000(L)	1000(L)
MOS(X)	1/2	6.5	2.5	0.6	2000	2000	5000				
	1	9.0	3.0	0.8		2000(L)	4000				
	2	12.0	4.0	"	2000	1000	2000	1000(L)	1000		
	3	15.5	6.0	"				500(L)*	1000	1000(L)	1000(L)
SPR	1/4	3.3	1.7	0.45	2000	2000	5000				
	1/2	6.2	2.5	0.6	2000	2000(L)	5000(L)				
	1	9.0	3.5	0.8		2000(L)	4000(L)				
	2	12.0	4.2	"		1000		1000(L)*	1000		
	3	15.5	6.0	"				500	1000	1000(L)*	1000(L)
CFS	1/4	3.2	1.7	0.45	5000	5000	5000				
	1/2	6.3	2.85	0.6	2000	2000	4000				
CF	1/4	6.1	2.3	0.6	2000	5000	5000				
	1/2	8.5	3.0	0.7		4000	4000				
CFP	1/4	6.1	2.3	0.6	2000	2000(L)	5000				
	1/2	8.5	3.0	0.7		2000(L)	4000				
Z	16Z	3.2	1.7	0.45	5000	3000	5000				
	25Y	5.8	2.2	0.6	2000	5000	5000				
	25Z	6.1	2.3	0.6	2000	5000	5000				
J	1/6Z	3.4	1.7	0.5	2000	2000	5000				
	1/4Z	6.5	2.3	0.6	2000	2000	5000				
JL	5	52.0		0.5		10000					
	6	52.0		0.6	5000	10000	10000				
	8	52.0		0.8		10000	10000				
LT	1/6	3.2	1.7	0.45	3000	3000	5000				
	1/4	6.3	2.3	0.6	2000	2000	5000				
RC	1/4	6.3	2.4	0.6		1000	5000				
	1/2	9.5	3.6	0.7		1000	3000				
RCR	16	3.2	1.7	0.45	5000	3000					
	25	6.3	2.5	0.6	2000	2000	5000				
	50(+)	9.5	3.5	0.7		2000	3000				
	60	9.5	3.5	0.7		2000					
	75	12	3.0	0.8		1000					
	100	15.5	3.0	0.8				500		2000	
SDT101	A	4.0	1.6	0.4	4000	4000					
SDT101	B	4.0	1.5	0.4	4000	4000					
SA05		3.8	1.8	0.5		2000					

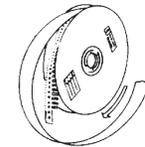
Remarks: Weight is for T52 & Marking
Marking (L) : T & LT Types
Non Marking: T Type Only

Packaging

(1) AMMO PACK (SYMBOL : A)



(2) REEL (SYMBOL : R)



Remarks: Weight is for T52 & Marking
Marking (L) : T & LT Types
Non Marking: T Type Only

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

3/01/07

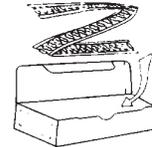
axial tape (ammo pack)

Type		Dimension (mm)			Axial Tape						
		L	D	d	T26A AMMO	T52A AMMO	T52R REEL	T521A AMMO	T521R REEL	T631A AMMO	T631R REEL
PCF	1/2	9.0	3.5	0.7			2000				
	1	16.5	5.5	0.8							1000
	2	19.0	7.0	0.8							500
CW	1/4	3.3	1.9	0.45	2000	3000					
	1/2	6.5	2.5	0.6		2000					
	1	9.5	3.5	0.8		1000					
	2	13.0	4.0	0.8		1000	2000	2000			
	3	15.0	6.0	0.8				500	1000	1000	
	5	24.0	9.0	0.8							

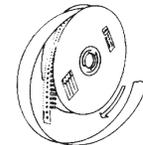
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Packaging

(1) AMMO PACK (SYMBOL : A)



(2) REEL (SYMBOL : R)



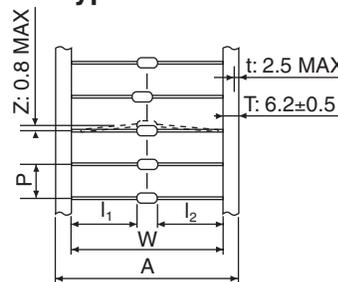
Remarks: Weight is for T52 & Marking
Marking (L) : T & LT Types
Non Marking: T Type Only

T-Type

Type	Dimensions (mm)			
	W	P	A	l ₁ - l ₂
T26	26	5.00±0.3	39±1.0	0.2max.
	26	5.00±0.3	39±1.0	1.0max.
T52	52±1	5.08±0.38	65±1.0	1.0max.
T521	52±1	10.16±0.8	65±1.0	1.0max.
T631	63±1	10.16±0.8	—	1.0max.

Note: Accumulated pitch
Pitch 5.00mm...250.0±2mm/50 pitch
Pitch 5.08mm...101.6±3mm/20 pitch
Pitch 10.16mm...203.2±3mm/20 pitch

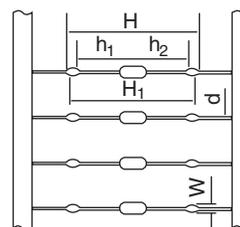
T-Type



LT-Type

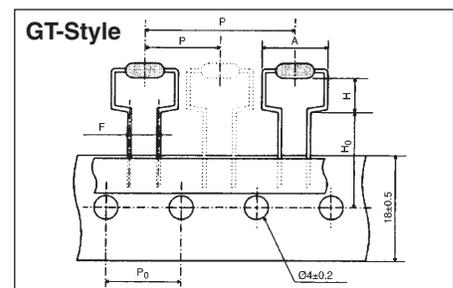
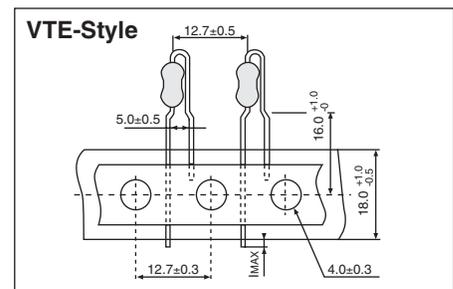
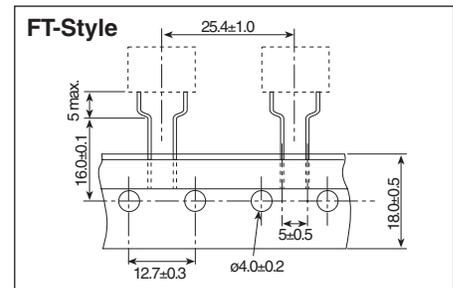
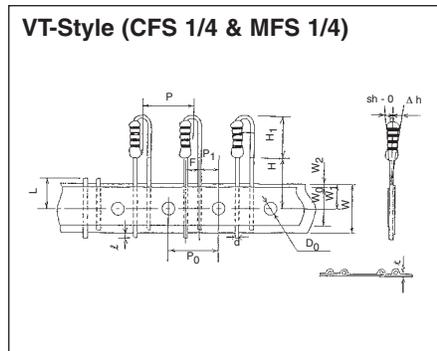
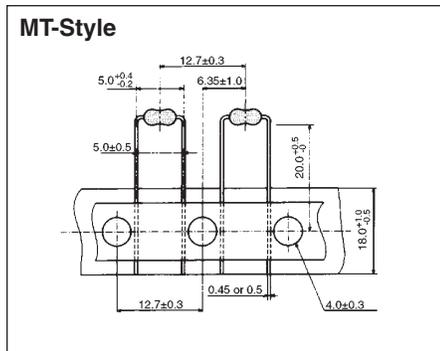
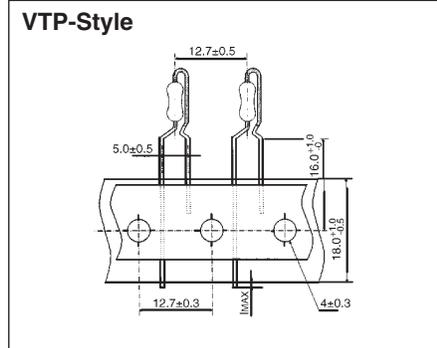
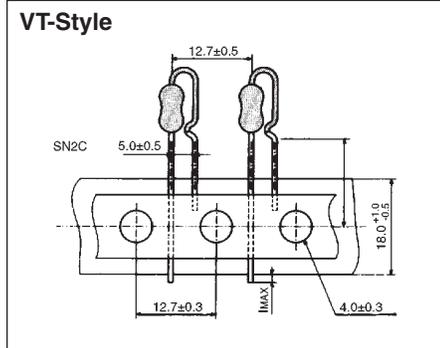
Type	Dimensions (mm)			
	H±1	w	d	h ₁ , h ₂
MOS1 T52 L25.5	25.5		0.8	
2 T521L36	36.0	1.20 ~ 1.45	0.8	
3 T631L42.5	42.5		0.8	
SPR 1/2 T52 L26	26.0	1.17~1.40	0.65	h1-h2
1 T52 L25.5	25.5		0.8	≤1
2 T521L36	36.0	1.20 ~ 1.45	0.8	
3 5631L42.5	42.5		0.8	
MO 1 T521L36.5	36.5		0.8	
MO 2 T631L42.5	42.5		0.8	
CW 1 T52 L27.5	27.5	1.20 ~ 1.40	0.8	
CW 1/2 T52 L26	26.0	1.05 ~ 1.35	0.6	

LT-Type



radial tape (ammo pack)

Type	Radial Style	Qty. kpcs	Weight g/kpcs	Dimension (mm)			
				L	D/H	d/W	
MFS	VT, MT	3000	130	3.2	1.7	0.45	
	VT, VTP, VTE	2000	320	6.3	2.3	0.6	
MF	1/4	VT, VTP, VTE	2000	0.6	6.3	7.1	2.3±0.3
RN26	2C	T	2000	260	5.0	2.54	5.00±0.3
	2E	T	2000	370	7.25	2.54	5.00±0.3
MOS (X)	1/2	VTP, VTE, GT	2000,1500	370	6.5	2.5	0.6
	1	VTP, GT	1500,1000	740	9.0	3.0	0.6, 0.8
	2	VTP, GT	1000,500	1080	12.0	4.0	0.65, 0.8
SPR (X)	3	GT	500	1820	15.5	6.0	0.8
	1/2	VTP, VTE, GT	2000,1500	370	6.5	2.5	0.6
	1	VTP, GT	1000	740	9.0	3.3	0.6, 0.8
	2	VTP, GT	1000,500	1080	12.0	4.2	0.65, 0.8
J	3	GT	500	1820	15.5	6.0	0.8
	1/4Z	VT, VTP	2000	360	6.5	2.3	0.6
CW3	GT	500	1820	7.5	30	15	
CW2	VTP, GT	2000,500	1080	13.0	4.0	0.8	
CW1	VTP	1000	740	9.5	3.5	0.8	
CW1/2	VTP	2000	370	6.5	2.5	0.6	
CFS	1/4	VT, MT, MHT	3000	240	3.2	1.7	0.45
CF	1/4	VT, VTP, VTE	2000,2500	360	6.1	2.3	0.6
CFS	1/2	VT	2000	800	6.3	7.1	2.85
BPR26	FT	500	790	8.5	13.0	4.0	
BPR28	FT	500	1940	8.5	13.0	4.0	
RNS	1/8	VT,VTP,VTE	2000	750	6.35	2.41	0.6



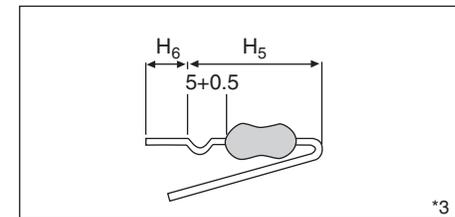
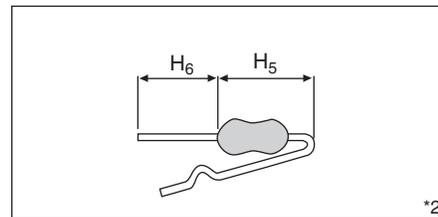
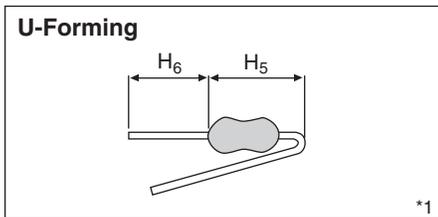
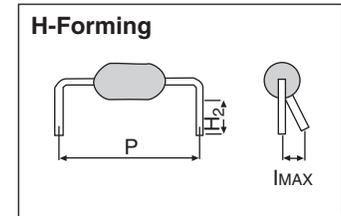
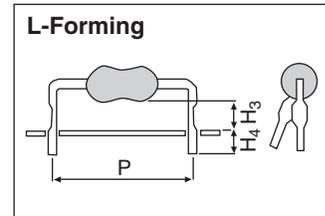
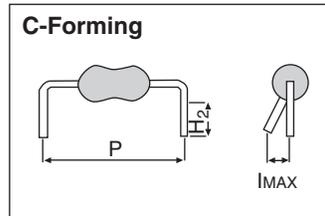
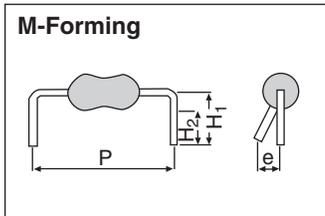
GT Style

KOA Type	RSS, SPR			
	1/2W	1W	2W	3W
F	5±0.5	7.5 ^{+0.8} _{-0.2}		
P	12.7±1.0	30±1.0		
P0	12.7±0.3	15±0.3		
H	6.5 ^{+0.6} ₋₀	6.5 ^{+1.0} ₋₀	7.5 ^{+1.0} ₋₀	8.5 ^{+1.0} ₋₀
H0	16±0.5	19±0.7		
A max.	12	14.5	17.5	21

CF, VT & MFS STYLE

KOA Type	Dimension	KOA Type	Dimension
P	12.7±1.0	H	16.0±0.5
P0	12.7±0.3	D0	∅4.0±0.2
P1	5.1±0.7	L	>11.0
F	2.5 ^{+0.3} ₀	I	>2.0
W	18.0 ^{+1.0} ₀	t	0.7±0.2
W0	<12.5	Δh	>2.0
W1	9.0 ^{+0.75} ₀	H1	5.0±0.5
W2	> 3.0	d	0.5

discrete components (forming)



forming

Type	Dimensions (mm)			Weight g/100 pieces	M.C.L.-Forming Pitch (mm)										U-Forming		H-Forming	
	L	D/WXH	d		5	7.5	10	12.5	15	20	25	27.5	30	35	Type	Style	Type	Style
MFS 1/4C	3.2	1.7	0.45	14	M		M								U	*1		
MFS 1/4	6.5	2.3	0.6	24	M		M	M							U	*2		
MFS 1/2	9.5	3.5	"	41				M	M									
MO 1	13.5	4.0	0.8	69					C,L	L					U	*3		
MO 2	15.5	6.0	"	142						L	C,L,M				U	*3		
MO 3	24.5	9.0	"	529								L	L					
MOS 1/2	6.5	2.5	0.6	23			C,L		L									
1	9.0	3.0	0.8	31				C,L	M,L						U	*3		
2	12.0	4.0	"	71					C,L	C,L					U	*3		
3	15.5	6.0	"	146						C,L	L				U	*3		
5	24.5	9.0	"	524								L	L					
SPR 1/2	6.5	2.5	0.6	23			C,L											
1	9.0	3.5	0.8	54				C,L	M,L						U	*3		
2	12.0	4.2	"	93					L	C,L					U	*3		
3	15.5	6.0	"	141						C,L	L				U	*3		
5	24.5	9.0	"	456								L	L					
CFS 1/4	3.2	1.7	0.45	12	M	M									U	*1		
CF 1/4	6.1	2.3	0.6	23			M	M	M						U	*2		
CFS 1/2	6.3	2.85	0.6	26			M								U	*2		
J 1/6Z	3.4	1.7	0.5	12		M												
1/4Z	6.5	2.3	0.6	19			M											
CFS 1/2	3.2	1.7	0.45	12	M,L													
CFP 1/4	6.1	2.3	0.6	23			M,L											
CW 1/2	6.5	2.5	0.6	24			L											
CW 1	9.5	3.5	0.8	56				L	L									
CW 2	13.0	4.0	0.8	84					L	L								
CW 3	15.0	6.0	0.8	160						L	L							
CW 5	25.0	9.0	0.8	440														
RC 1/4	6.3	2.4	0.6	12													H60	
1/4	6.3	2.4	0.6	12								L	L				H62	
1/2	9.5	3.6	0.028	13													H	
LT 1/4	6.3	2.3	0.6	25			M	M							U	*1		
1/6	3.2	1.7	0.45	15	M													

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

6/12/07

M-forming

Type			Dimensions (mm)		
			H1	H2	eMAX.
MFS	1/4	M5-5	—	5.0 ^{+1.0} _{-0.5}	1.5
MFS	1/2	M10-5	—	5.0 ^{+1.0} _{-0.5}	1.7
MFS	1/2	M12.5-10	10.0±1.0	—	"
MF		M12.5-10	"	—	2.0
MF		M15-10	"	—	"
CF	1/2	M5-5	5.9 ^{+1.0} _{-0.5}	5.0 ^{+1.0} _{-0.5}	1.5
CF	1/4	M10-6	6.0±1.0	4.8±1.0	1.7
	1/4	M12.5-6	"	"	"
J	1/6Z	M5-5	—	5.0-1.0	1.5
	1/4Z	M10-6	—	"	"
LT	1/6	M5-5	—	5.0	2.0
	1/4	M10	10.0	—	2.0
	1/4	M12.5	10.0	—	2.0

C-forming

Type			Dimensions (mm)
			H ₂ ±1.5
MO	1	C15	11.5
	2	C25	3.5
MOS	1/2	C10-5	5.0
	1	C12.5	4.0
	2	C20	13.5
SPR	3	C20	12.5
	1/2	C10	5.0
	1	C12.5	4.0
	2	C20	13.5
	3	C20	12.5

U-forming

Type			Dimensions (mm)	
			H ₅	H ₆
MO	1	U	20.0±2.0	31.0±1.5
	2	U	24.5±3.0	30.0±1.5
MOS	1	U	19.5±3.0	31.5±1.5
	2	U	22.0±3.0	29.5±1.5
	3	U	24.5±3.0	30.0±1.5
SPR	1	U	19.5±3.0	31.5±1.5
	2	L15	22.0±3.0	29.5±1.5
	3	L15	24.5±3.0	30.0±1.5
CF	S 1/4	U	5.5 MAX.	15.0±1.0
	1/4	UCL	10.5 MAX.	10.0±1.0
LT	1/4	U	9.5 MAX.	30.0±3.0

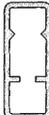
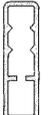
H-forming

Type			Dimensions (mm)		
			H1	H2	eMAX.
RC	1/4	H60	10.0	5.0	1.5
	1/4	H62	12.5	5.0	"
	1/2	H	15.0	5.0	1.8

L-forming

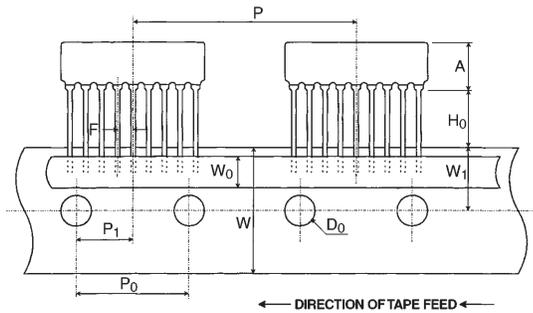
Type			Dimensions (mm)	
			H3±1	H4
MO	1/2	L12.5	6.5	4.0±1.0
	1	L15	7.0	4.0±1.0
	1	L20	4.8	4.0±1.0
	2	L20	8.0	4.0±1.0
	2	L25	7.0	4.0±1.0
	3	L30	8.5	4.0±1.0
MOS	3	L35	5.5	4.0±1.0
	1/2	L10	5.3	4.0±1.0
	1	L12.5	7.0	4.0±1.0
	1	L15	6.5	4.0±1.0
	2	L15	7.0	4.0±1.0
	2	L20	9.0	4.0±1.0
	3	L20	8.0	4.0±1.0
	3	L25	7.0	4.0±1.0
	5	L30	8.5	4.0±1.0
	5	L35	5.5	4.0±1.0
SPR	1/2	L10	5.3	4.0±1.0
	1	L12.5	6.5	4.0±1.0
	1	L15	5.3	4.0±1.0
	2	L15	7.0	4.0±1.0
	2	L20	9.0	4.0±1.0
	3	L20	8.0	4.0±1.0
	3	L25	7.0	4.0±1.0
	5	L30	8.5	4.0±1.0
	5	L35	5.5	4.0±1.0
	CW	1/2	L10	5.3
1		L12.5	6.5	4.5±0.5
1		L15	5.3	4.5±0.5
2		L15	7.0	4.5±0.5
2		L20	8.0	4.5±0.5
3		L20	8.0	4.0±0.5
3		L25	7.0	4.5±0.5
5		L30	8.5	4.5±0.5
5		L35	5.5	4.5±0.5

stick (magazine) case

Type	Resistor Networks	
	RKL, RKC	RKL, RKC
Magazine Symbol	STP	STB
Sectional View		
W x H x L (mm)	5.0 x 11.0 12.5 x 508	3.8 x 13.4 x 580
Quantity (pcs.)	13 - 46	15 - 54
Weight (g)	30	30

SIP resistor network taping—TBA style

For KOA type RKL & RKC networks with 4 to 9 pins

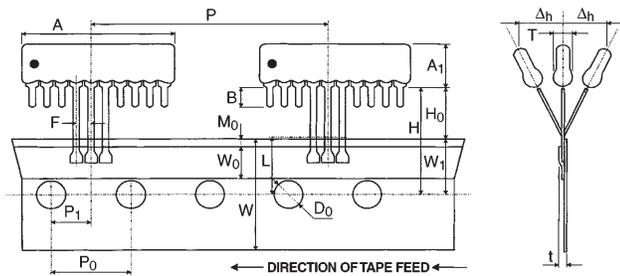


Leaded Resistors (TBA Style)

Type	Dimensions (mm)
A	RKL: 5.0 max.-RKC: 6.5 max.
P	25.4 ± 1.0
P ₀	12.7 ± 0.3
P ₁	6.35 ± 0.5
F	2.54 ± 0.3
W	18.0 ± 0.5
W ₀	6.0 ± 0.5
W ₁	9.0 ± 0.5
H ₀	7.0 ± 0.5
D ₀	4.0 ± 0.3

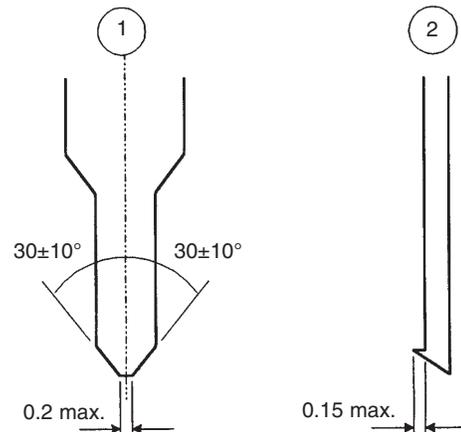
SIP resistor network taping—TUA style

For KOA type RKL & RKC 10-pin networks



Leaded Resistors (TUA Style)

Type	Dimensions (mm)
A	25.40 max.
T	2.5 max.
A ₁	5.0 max.
B	3 ± 0.5
P	RKL: 25.4, RKC: 38.1±1.0
P ₀	12.7 ± 0.3
P ₁	6.35 ± 0.7
Δh	0 ± 2.0
W	18 ± 0.5
W ₀	6 ± 0.5
W ₁	9 ± 0.5
H	19.5 ± 0.5
H ₀	10.5 ± 0.5
D ₀	4 ± 0.3
t	0.7 ± 0.2
L	11 max.
M ₀	1.0 ± 1.0

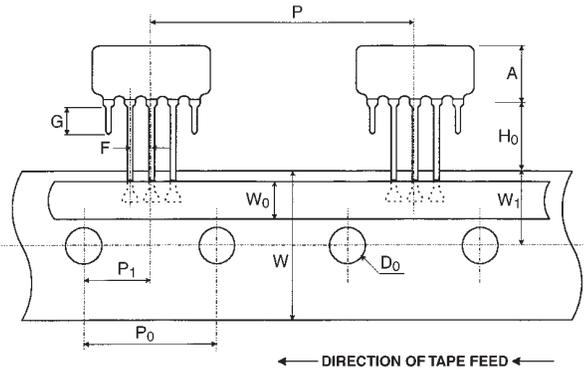


*21 Holes Length = 254 ± 1mm

Application: Universal radial lead component insertion machine

SIP resistor network taping—TPA style

For KOA type RKL & RKC networks with 4 to 9 pins

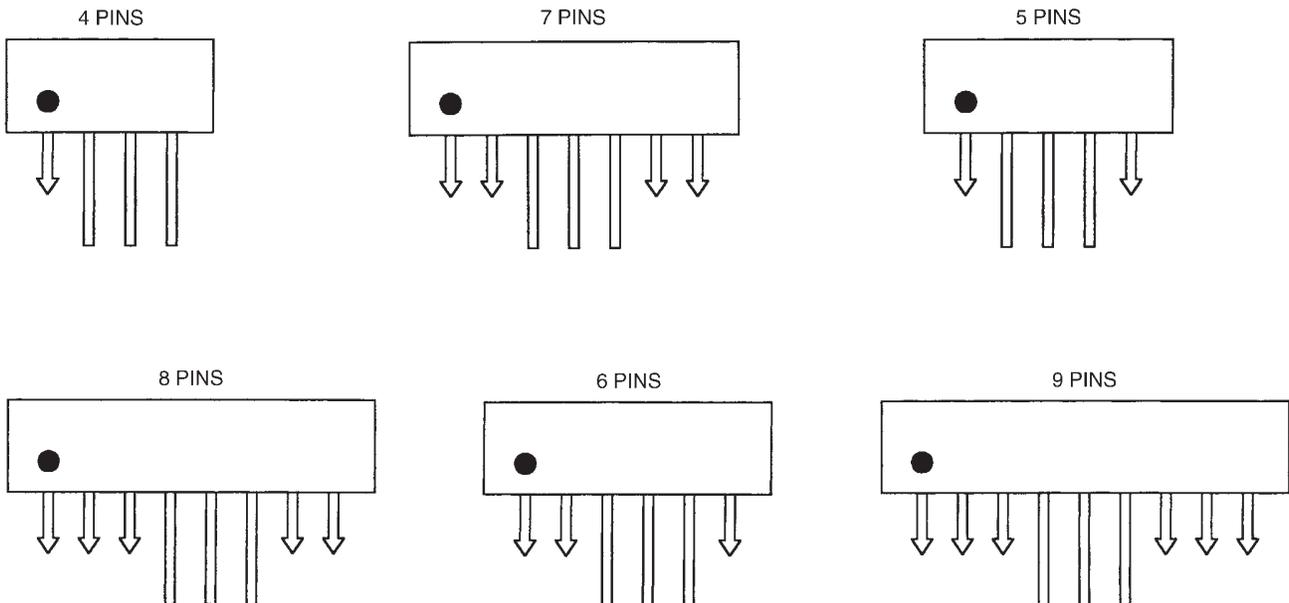


Leaded Resistors (TPA style)

Type	Dimensions (mm)
A	RKL: 5.0 max.-RKC: 6.5 max.
P	25.4 ± 1.0
P ₀	12.7 ± 0.3
P ₁	6.35 ± 0.5
F	2.54 ± 0.3
W	18.0 ± 0.5
W ₀	6.0 ± 0.5
W ₁	9.0 ± 0.5
H ₀	10.5 ± 0.5/1.0
D ₀	4.0 ± 0.3
G	3.0 ± 0.5

SIP resistor network taping—TPA style

For KOA TPA style taping



← DIRECTION OF TAPE FEED ←

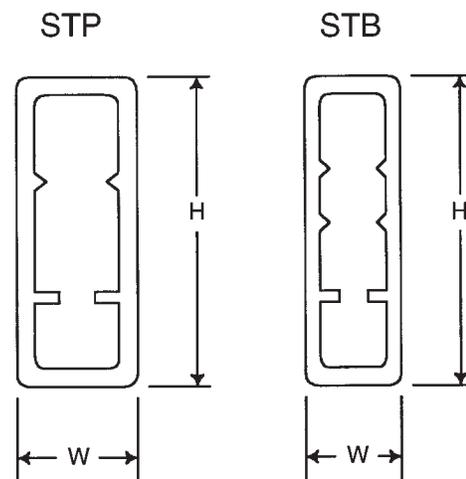
SIP resistor network packaging—STP & STB style packaging for stick (magazine) case

Resistor Networks - RKL & RKC

Type RKC, RKL	STP Pieces Per Stick		STB Pieces Per Stick		Sticks Per Box STP & STB
	RKC	RKL	RKC	RKL	
4 Pin	46	48	54	55	50
5 Pin	37	38	42	44	50
6 Pin	31	32	34	37	50
7 Pin	27	27	30	31	50
8 Pin	23	24	26	27	50
9 Pin	21	21	23	24	50
10 Pin	19	19	21	22	50
11 Pin	19	19	19	20	50
12 Pin	15	16	18	18	50
13 Pin	14	—	16	—	50
14 Pin	13	—	15	—	50

Dimensions - mm (Inches)

Type	Length	Width	Height	
			RKL	RKC
STP	508 (20.0)	5.0 (0.20)	11.0 (0.43)	13.4 (0.53)
STB	580 (22.8)	3.8 (0.15)	12.5 (0.49)	13.4 (0.53)

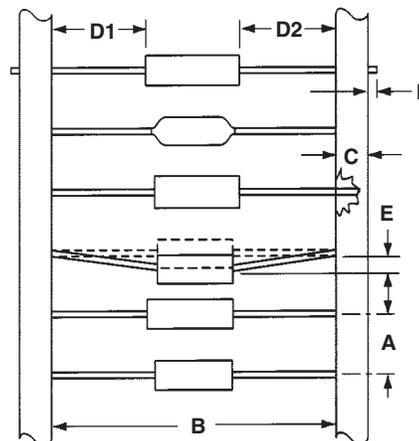


axial ceramic tape & reel specifications

Tape & Reel

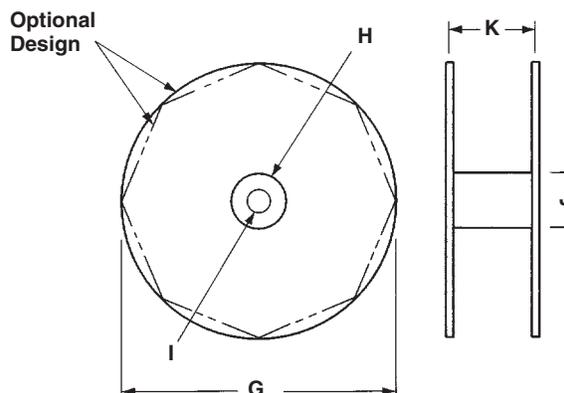
Class 1 / RS-296		
Dimension	Millimeters	Inches
A	5mm ± 0.5mm	.200" ± 0.020"
B*	52.4mm ± 1.5mm	2.063" ± 0.059"
C	6.35mm ± 0.4mm	0.250" ± 0.016"
D1 - D2	1.4mm	0.055" max.
E	1.2mm	0.047" max.
F	1.6mm	0.063" max.
G	356mm	14.00"
H	76mm	3.000"
I	25.4mm	1.000"
J	84mm	3.300"
K	70mm	2.750"

Leader Tape: 300mm min. (12")
 Splicing: Tape Only
 Missing Parts: 0.25% of component count max.
 No consecutive missing parts.



Reel Quantities (max.)

Type	Number Of Pieces
B	7,500
C	5,000
D	5,000
E	5,000
F	5,000



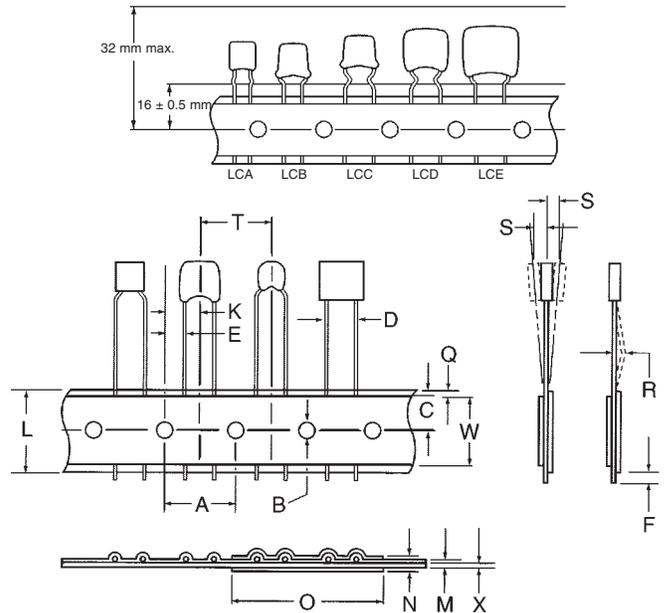
Additional Packaging Available - Ammo Pack

Tape Spacing	ACB, ACD	ACC ACE	ACF	Box Sizes (Nominal)		
				L	W	H
52.4mm ± 1.5mm (2.062" ± .059")	4,000 pcs.	2,000 pcs.	2,000 pcs.	255mm (10.039")	73mm (2.874")	93mm (3.661")
26.0mm + 1.5mm - 0mm (1.023" + .059" - 0")	4,000 pcs.	2,000 pcs.	2,000 pcs.	255mm (10.039")	48mm (1.889")	113mm (4.448")

radial ceramic tape & reel specifications

Standard - Inches (mm)

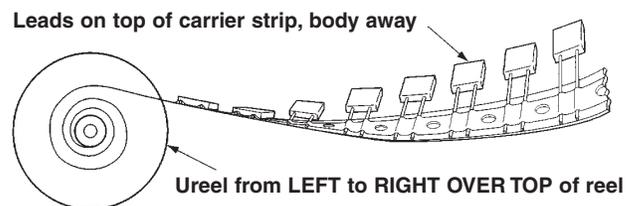
Description	Dimensions
A. Feed Hole Pitch	12.70 ±.20
B. Feed Hole Diameter	3.99 ±.20
C. Feed Hole Location	9.02 ± .51
D. Component Lead Spacing	5.00 ^{±.79} _{-.20} or 5.00 ^{±.79} _{-.20}
E. Component Lead Location	3.81 ± .51 or 5.00 ± 5.1 for 2.54 lead spacing
F. Component Lead Protrusion (edge of carrier to cut end of lead)	2.00 maximum
K. Component Body Location	6.35 ± .41
L. Carrier Tape Width	18 ^{±.102} _{-.51}
M. Carrier Tape Assembly Thickness	.71 ± .20
N. Carrier Tape Spliced Thickness	1.42 maximum
O. Carrier Tape Spliced Length	50.80 - 88.90
Q. Adhesive Tape Border	3.00 maximum
R. Component Bent Leads (either direction)	.79 maximum
S. Component Misalignment	.99 maximum
T. Component Pitch	12.70 ± .99
W. Adhesive Tape Width	5.00 minimum
X. Carrier Tape Thickness	.51 ± .10
Y. Cumulative Pitch over 20 Pitches	254 ± 2.00



Reel Quantities

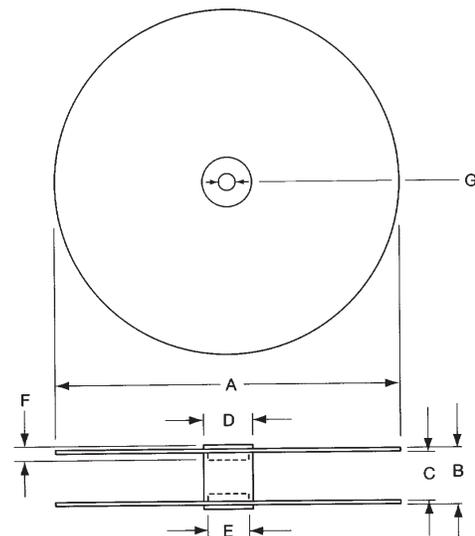
Description	Per Reel	Bulk
LCA	3,500	1,000
LCB, LCC	3,000	1,000
LCD, LCE	2,000	1,000/500
LCF	2,000	500

Reel Direction



Reel Dimensions - Inches (mm)

Description	Dimensions
A - Reel Diameter	304.80 - 355
B - Reel Outside Width	50.80 maximum
C - Reel Inside Width	38.10 - 46.02
D - Core Diameter (O.D.)	102.01 maximum
E - Hub Recess Diameter	86.36 maximum
F - Hub Recess Depth	9.50 minimum
G - Arbor Hole Diameter	25.40 - 30.48

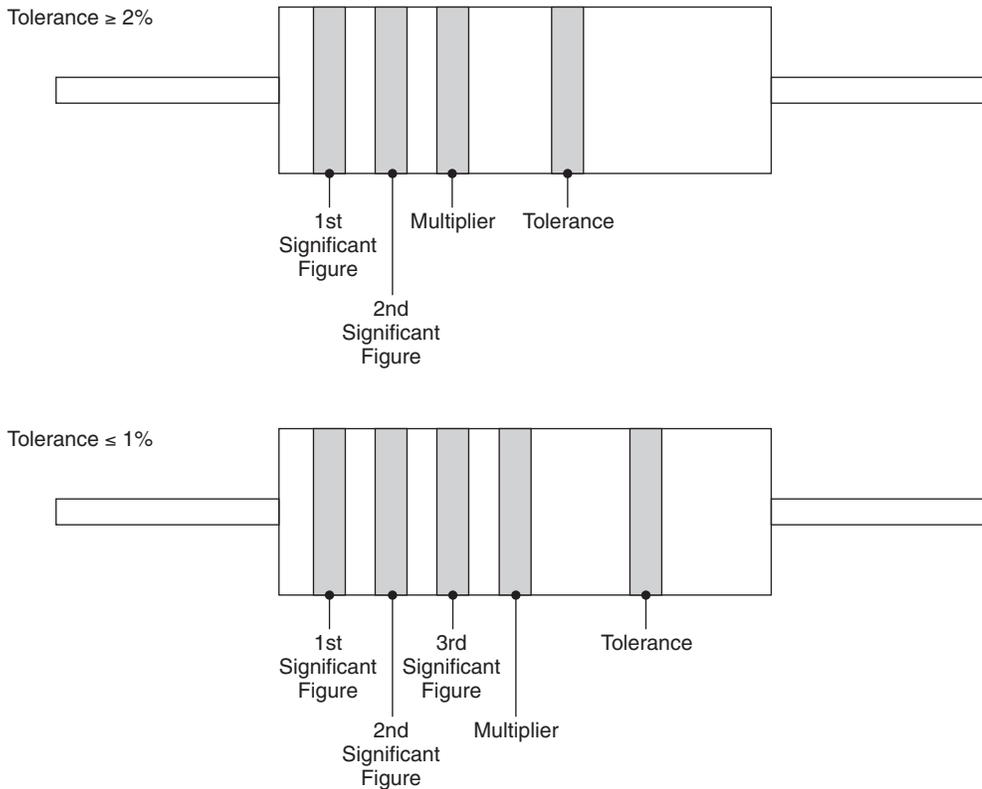


resistor networks

Resistor Color Code Chart

Color	Significant Figure	Multiplier	Tolerance
Silver	–	10^{-2}	+10%
Gold	–	10^{-1}	+5%
Black	0	1	–
Brown	1	10	+1%
Red	2	10^2	+2%
Orange	3	10^3	–
Yellow	4	10^4	–
Green	5	10^5	+0.5%
Blue	6	10^6	+0.25%
Violet	7	10^7	+0.10%
Gray	8	10^8	+0.05%
White	9	10^{-3*}	–

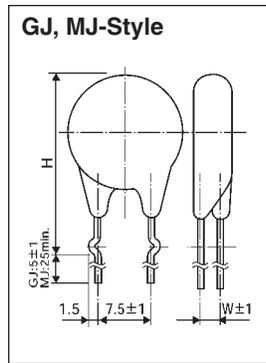
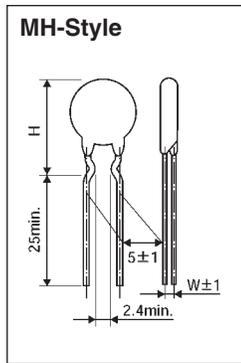
* The 10^{-3} Multiplier is not an "Industry Standard" Multiplier



NVD—metal oxide varistor disc type

MH, GJ, MJ Style

KOA Type	Varistor Voltage	H Max. (mm)	Qty. /bag (pcs)	Weight g/100pcs
NVD05UCDMH	18-470V	13.5	200	30-80
NVD07UCDMH	18-470V	14.5	100	90-140
NVD10UCDGJ	22-470V	17.0	100	180-500
NVD14UCDGJ	22-390V	23.5	100	270-760
NVD14UCDGJ	430-470V	23.5	50	270-760
NVD05UCDMJ	22-470V	13.0	200	30-80
NVD07UCDMJ	22-470V	14.5	100	90-140
NVD10UBCDMJ	22-270V	17.5	100	180-220



MH Style

Varistor Voltage (V)	W	Varistor Voltage (V)	W
22-56	1.7	240	1.2
68	1.9	270	1.5
82	1.0	330	1.7
100	1.6	360	1.9
120	1.8	390	2.0
150	2.1	430	2.2
200	1.0	470	2.4
220	1.1		

GJ, MJ Style

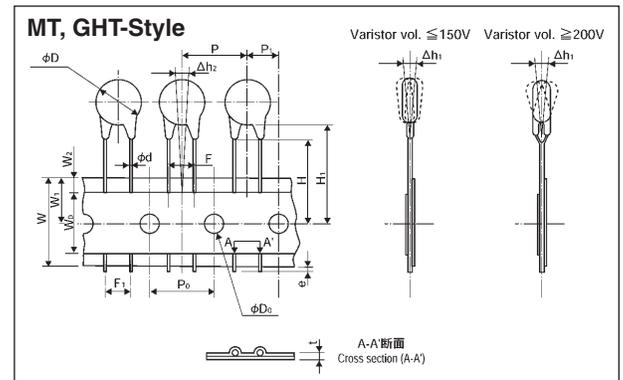
Varistor Voltage (V)	W (mm)				Varistor Voltage (V)	W (mm)			
	D05	D07	D10	D14		D05	D07	D10	D14
22-56	1.7	1.7	1.9	1.9	240	1.2	1.2	1.2	1.2
68	1.9	1.9	2.1	2.1	270	0.9	0.9	1.3	1.3
82	1.0	1.0	1.0	1.0	330	1.1	1.1	1.6	1.6
100	1.6	1.6	1.8	1.1	360	1.2	1.2	2.0	2.0
120	1.8	1.8	2.0	2.0	390	1.3	1.3	2.3	2.3
150	2.1	2.1	2.3	2.3	430	1.5	1.5	2.6	2.6
200	1.0	1.0	1.0	1.0	470	1.6	1.6	2.9	2.9
220	1.1	1.1	1.1	1.1					

MT, GHT Style

Type	Varistor Voltage (V)	ø Dmax. (mm)	ø d (mm)	F (mm)	Pkg. AMMO (pcs)	Weight g/AMMO
NVD05UCDMT	22-47V	7.0	0.6	5±1	2000	1240-1640
	56,68V	7.0	0.6	5±1	1500	1260
	82-150V	7.0	0.6	5±1	2000	1440
	200-470V	7.5	0.6	5±1	1000	790-990
NVD07UCDMT	22-47V	9.0	0.6	5±1	2000	2040-2440
	56,68V	9.0	0.6	5±1	1500	1860
	82-150V	9.0	0.6	5±1	2000	2040
	200-470V	9.5	0.6	5±1	1000	1190-1590
NVD10UBCDMT	22-150V	12.0	0.6	5±1	1000	1990-2390
	240,270V	12.0	0.6	5±1	500	1270
NVD10UCDGHT	22-150V	12.0	0.8	7.5±1	2000	1980-2390
	200,220V	12.0	0.8	7.5±1	1000	2280
	240,270V	12.0	0.8	7.5±1	500	1260
	330-470V	12.5	0.8	7.5±1	500	1410-1660

KOA Type	Dimension	KOA Type	Dimension
øD	*	W ₂	3 Max.
ød	*	F	*
D ₀	4.0±0.2	F ₁	(5)
P	12.7±1.0	H	(17)
P ₀	12.7±0.3	H ₁	20 ^{+1.5} _{-1.0}
P ₁	6.35±1.3	Δh ₁	0±2.0
W	18.0 ⁺¹ _{-0.5}	Δh ₂	0±1.3
W ₀	15	t	0.6±0.3
W ₁	9.0±0.5	e	less than 1.0

* Refer to the following lists for øD, outside dia. of product, ød, lead dia. and F, distance between leads.



NVD—metal oxide varistor disc type (continued)

MHT Style

Type	Varistor Voltage (V)	ø Dmax. (mm)	ø d (mm)	F (mm)	Pkg. AMMO (pcs)	Weight g/AMMO
NVD05UCDMHT	22-47V	7.0	0.6	5.0±1	2000	1270-1670
	56,68V	7.0	0.6	5.0±1	1500	1280
	82-150V	7.0	0.6	5.0±1	2000	1470
	200-470V	7.5	0.6	5.0±1	1000	800-1000
NVD07UCDMHT	22-47V	9.0	0.6	5.0±1	2000	2070-2470
	56,68V	9.0	0.6	5.0±1	1500	1890
	82-150V	9.0	0.6	5.0±1	2000	2070
	200-470V	9.5	0.6	5.0±1	1000	1200-1600
NVD10UBCDMHT	22-220V	12.0	0.6	5.0±1	1000	2010-2410
	240,270V	12.0	0.6	5.0±1	500	1280

KOA Type	Dimension	KOA Type	Dimension
øD	*	W ₂	3 Max.
ød	0.6	F	5.0±1.0
D ₀	4.0±0.2	F ₁	(5)
P	12.7±1.0	H	16±0.5
P ₀	12.7±0.3	H ₁	(20)
P ₁	6.35±1.3	Δh ₁	0±2.0
W	18.0 ⁺¹ _{-0.5}	Δh ₂	0±1.3
W ₀	15	t	0.6±0.3
W ₁	9.0±0.5	e	less than 1.0

* Refer to the following list for øD, outside dia.

GJT, MJT Style

Type	Varistor Voltage (V)	ø Dmax. (mm)	ø d (mm)	F (mm)	H ₂ Max. (mm)	Pkg. AMMO (pcs)	Weight g/AMMO
NVD10UCDGT	22-220V	12.0	0.8	7.5±1	—	1000	2010-2410
	240,270V	12.0	0.8	7.5±1	—	500	1280
	330-470V	12.5	0.8	7.5±1	—	500	1430-1680
NVD05UCDMJT	22-47V	7.0	0.6	5±1	13.0	2000	1270-1670
	56,68V	7.0	0.6	5±1	13.0	1500	1280
	100,120V	7.0	0.6	5±1	13.0	2000	1470
	150V	7.5	0.6	5±1	13.0	2000	1470
	200-470V	7.5	0.6	5±1	13.0	1000	800-1000
NVD07UCDMJT	22-47V	9.0	0.6	5±1	14.5	2000	2070-2470
	56,68V	9.0	0.6	5±1	14.5	1500	1890
	100,120V	9.0	0.6	5±1	14.5	2000	2070
	150V	9.5	0.6	5±1	14.5	2000	2070
	200,470V	9.5	0.6	5±1	14.5	1000	1200-1600
NVD10UBCDMJT	22-220V	12.0	0.6	5±1	17.5	1000	2010-2410
	240-270V	12.5	0.6	5±1	17.5	500	1280

KOA Type	Dimension	KOA Type	Dimension
øD	*	W ₂	3 Max.
ød	0.8	F	7.5±1.0
D ₀	4.0±0.2	F ₁	(5)
P	12.7±1.0	H	16±0.5
P ₀	12.7±0.3	H ₁	(20)
P ₁	6.35±1.3	Δh ₁	0±2.0
W	18.0 ⁺¹ _{-0.5}	Δh ₂	0±1.3
W ₀	15	t	0.6±0.3
W ₁	9.0±0.5	e	less than 1.0

* Refer to the following list for øD, outside dia.

