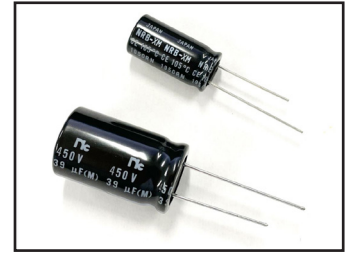


ULTRA LOW IMPEDANCE, RADIAL LEADS, POLARIZED, ALUMINUM ELECTROLYTIC

**FEATURES**

- HIGH CAPACITANCE VALUES IN HIGH VOLTAGE RATINGS
- LONG LIFE: 10,000 & 12,000 HRS @ +105°C
- HIGH RIPPLE CURRENT (UP TO 2.37A) AT 100KHZ
- EXTENDED OPERATION TO -40°C
- FOR POWER APPLICATIONS UP TO 400VDC
- **MEETS THE REQUIREMENTS OF AEC-Q200\***

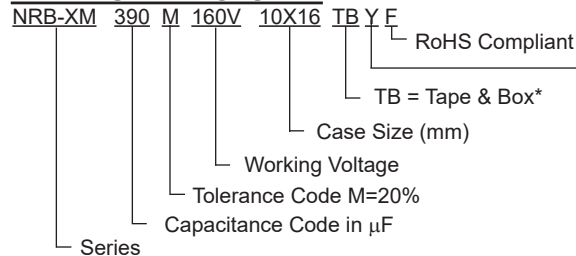
\*Contact NIC for supporting test data



**CHARACTERISTICS**

Rated Voltage Range		160 ~ 450Vdc					
Capacitance Range		8.2 ~ 270μF					
Operating Temperature Range		-40°C ~ +105°C					
Capacitance Tolerance		±20% (M)					
Maximum Leakage Current	After 1 minute	LC=0.04CV + 100μA					
	After 5 minutes	LC=0.02CV + 25μA					
Max. Tan δ at 120Hz/20°C	W.V. (Vdc)	160	200	250	350	400	450
	S.V. (Vdc)	200	250	300	400	450	500
	Tan δ	0.15	0.15	0.15	0.20	0.20	0.20
Low Temperature Stability Impedance Ratio @ 120Hz	W.V. (Vdc)	160	200	250	350	400	450
	Z-25°C/Z+20°C	3	3	3	5	5	6
	Z-40°C/Z+20°C	6	6	6	6	6	10
Load Life Hours Load Life Test at Rated W.V. & 105°C	Capacitance Change	Within ±20% of initial measured value					
	Tan δ	Less than 200% of specified value					
	Leakage Current	Less than specified value					
	Case Size	Load Life Hours					
	10mm Dia.	10,000 Hrs					
	12mm ~ 18mm Dia.	12,000 Hrs					

**PART NUMBER SYSTEM**



**Optional: Suitable for automotive equipment, sourced to special production and inspection at IATF-16949 certified production site**

\*See taping specifications on page 4 & 5 for details

**PRECAUTIONS**

Please review the notes on correct use, safety and precautions found at <https://www.niccomp.com/resource/files/aluminum/AlumApplInfoCautions.pdf> If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: [tpmg@niccomp.com](mailto:tpmg@niccomp.com)



**STANDARD PRODUCT, SPECIFICATIONS AND CASE SIZES D  $\phi$  x L (mm)**

Part Number	Cap. ( $\mu$ F)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (mA) +105°C 100KHz	ESR ( $\Omega$ ) @120Hz	LC ( $\mu$ A) after 5 minutes	Load Life Hours @+105°C	
NRB-XM390M160V10X16F	39	160	0.15	630	6.38	149.8	10000	
NRB-XM470M160V10X20F	47		0.15	800	5.29	175.4	10000	
NRB-XM560M160V10X20F	56		0.15	860	4.44	204.2	10000	
NRB-XM680M160V12.5X20F	68		0.15	1200	3.66	242.6	12000	
NRB-XM820M160V12.5X20F	82		0.15	1280	3.03	287.4	12000	
NRB-XM101M160V12.5X25F	100		0.15	1450	2.49	345	12000	
NRB-XM121M160V12.5X25F	120		0.15	1500	2.07	409	12000	
NRB-XM151M160V16X20F	150		0.15	1650	1.66	505	12000	
NRB-XM181M160V16X25F	180		0.15	2000	1.38	601	12000	
NRB-XM181M160V18X20F	180		0.15	1700	1.38	601	12000	
NRB-XM221M160V16X25F	220		0.15	2100	1.13	729	12000	
NRB-XM271M160V18X25F	270		0.15	2370	0.92	889	12000	
NRB-XM330M200V10X16F	33	200	0.15	630	7.54	157	10000	
NRB-XM390M200V10X20F	39		0.15	800	6.38	181	10000	
NRB-XM470M200V10X20F	47		0.15	860	5.29	213	10000	
NRB-XM560M200V12.5X20F	56		0.15	1100	4.44	249	12000	
NRB-XM680M200V12.5X20F	68		0.15	1200	3.66	297	12000	
NRB-XM820M200V12.5X25F	82		0.15	1450	3.03	353	12000	
NRB-XM101M200V12.5X25F	100		0.15	1480	2.49	425	12000	
NRB-XM121M200V16X20F	120		0.15	1600	2.07	505	12000	
NRB-XM151M200V16X25F	150		0.15	1900	1.66	625	12000	
NRB-XM151M200V18X20F	150		0.15	1700	1.66	625	12000	
NRB-XM221M200V18X25F	220		0.15	2370	1.13	905	12000	
NRB-XM220M250V10X16F	22		250	0.15	500	11.3	135	10000
NRB-XM330M250V10X20F	33	0.15		630	7.54	190	10000	
NRB-XM390M250V10X20F	39	0.15		800	6.38	220	10000	
NRB-XM470M250V12.5X20F	47	0.15		1000	5.29	260	12000	
NRB-XM560M250V12.5X20F	56	0.15		1100	4.44	305	12000	
NRB-XM680M250V12.5X25F	68	0.15		1350	3.66	365	12000	
NRB-XM820M250V16X20F	82	0.15		1480	3.03	435	12000	
NRB-XM101M250V16X25F	100	0.15		1600	2.49	525	12000	
NRB-XM121M250V16X25F	120	0.15		1700	2.07	625	12000	
NRB-XM121M250V18X20F	120	0.15		1600	2.07	625	12000	
NRB-XM151M250V18X25F	150	0.15		2000	1.66	775	12000	
NRB-XM150M350V10X16F	15	350		0.2	450	22.10	130	10000
NRB-XM220M350V10X20F	22		0.2	550	15.07	179	10000	
NRB-XM330M350V12.5X20F	33		0.2	750	10.05	256	12000	
NRB-XM390M350V12.5X25F	39		0.2	900	8.50	298	12000	
NRB-XM470M350V12.5X25F	47		0.2	980	7.05	354	12000	
NRB-XM560M350V16X20F	56		0.2	1100	5.92	417	12000	
NRB-XM680M350V16X25F	68		0.2	1300	4.88	501	12000	
NRB-XM680M350V18X20F	68		0.2	1280	4.88	501	12000	
NRB-XM820M350V18X25F	82		0.2	1550	4.04	599	12000	
NRB-XM101M350V18X25F	100		0.2	1600	3.32	725	12000	
NRB-XM100M400V10X16F	10		400	0.2	380	33.16	105	10000
NRB-XM120M400V10X16F	12			0.2	450	27.63	121	10000
NRB-XM150M400V10X20F	15	0.2		500	22.10	145	10000	
NRB-XM180M400V10X20F	18	0.2		550	18.42	169	10000	
NRB-XM220M400V12.5X20F	22	0.2		650	15.07	201	12000	
NRB-XM270M400V12.5X20F	27	0.2		700	12.28	241	12000	
NRB-XM330M400V12.5X25F	33	0.2		850	10.05	289	12000	
NRB-XM390M400V12.5X25F	39	0.2		900	8.50	337	12000	
NRB-XM470M400V16X20F	47	0.2		1000	7.05	401	12000	
NRB-XM560M400V16X25F	56	0.2		1220	5.92	473	12000	
NRB-XM560M400V18X20F	56	0.2		1200	5.92	473	12000	
NRB-XM820M400V18X25F	82	0.2		1600	4.04	681	12000	

**STANDARD PRODUCT, SPECIFICATIONS AND CASE SIZES D φ x L (mm)**

Part Number	Cap. (μF)	W.V. (Vdc)	Dissipation Factor +20°C/120Hz	Ripple Current Rating (mA) +105°C 100KHz	ESR (Ω) @120Hz	LC (μA) after 5 minutes	Load Life Hours @+105°C
NRB-XM8R2M450V10X16F	8.2	450	0.2	330	40.44	98.8	10000
NRB-XM100M450V10X16F	10		0.2	380	33.16	115	10000
NRB-XM120M450V10X20F	12		0.2	470	27.63	133	10000
NRB-XM150M450V10X20F	15		0.2	500	22.10	160	10000
NRB-XM180M450V12.5X20F	18		0.2	560	18.42	187	12000
NRB-XM220M450V12.5X20F	22		0.2	600	15.07	223	12000
NRB-XM270M450V12.5X25F	27		0.2	750	12.28	268	12000
NRB-XM330M450V16X20F	33		0.2	860	10.05	322	12000
NRB-XM390M450V16X25F	39		0.2	1000	8.50	376	12000
NRB-XM390M450V18X20F			0.2	960	8.50	376	12000
NRB-XM470M450V16X25F	47		0.2	1100	7.05	448	12000
NRB-XM470M450V18X20F			0.2	1000	7.05	448	12000
NRB-XM560M450V18X25F	56		0.2	1250	5.92	529	12000
NRB-XM680M450V18X25F	68		0.2	1350	4.88	637	12000

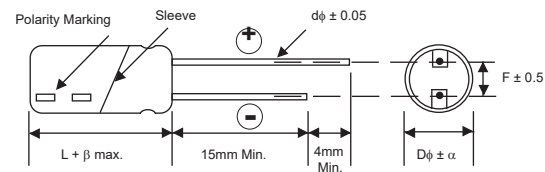
**RIPPLE CURRENT FREQUENCY CORRECTION FACTOR**

Frequency (Hz)	120	1K	10K	100K ≤
8.2 ~ 18μF	0.30	0.60	0.90	1.0
22 ~ 82μF	0.40	0.70	0.90	1.0
100 ~ 270μF	0.45	0.75	0.90	1.0

**DIAMETER AND LEADSPACE (mm)**

Case Dia. (Dφ)	10	12.5	16	18
Lead Dia. (dφ)	0.6		0.8	
Lead Spacing (F)	5.0		7.5	
Dim. α	0.5			
Dim. β	2.0			

**DIMENSIONS (mm)**

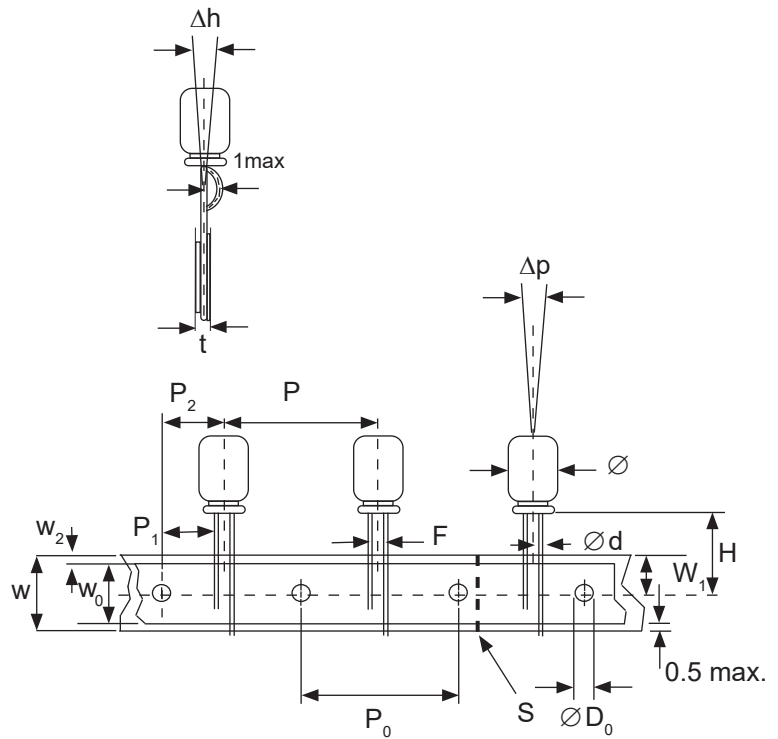


**Drawing is representative of parts as supplied in bulk or straight lead format, please see taping specification for details on taped format packaging.**

**RADIAL TAPING (10mm & 12.5mm diameter parts) TB**

Taping Dimensions (mm)

Case Dia. (D $\phi$ )	10	12.5
Case Size Dim.	All	All
d $\phi$ $\pm$ 0.05	0.6	
H +0.75/-0.5	18.5	
F $\pm$ 0.8	5.0	
P	12.7 $\pm$ 1.0	15.0 $\pm$ 1.0
P <sub>0</sub>	12.7 $\pm$ 0.2	15.0 $\pm$ 0.2
P <sub>1</sub>	3.85 $\pm$ 0.5	5.0 $\pm$ 0.5
P <sub>2</sub>	6.35 $\pm$ 1.0	7.5 $\pm$ 1.0
W	18.0 $\pm$ 0.3	
W <sub>0</sub>	5.0 min	
W <sub>1</sub>	9.0 $\pm$ 0.5	
W <sub>2</sub>	1.5 max.	
D <sub>0</sub> $\phi$	4.0 $\pm$ 0.2	
$\Delta$ h	0 $\pm$ 1.0 (off alignment of body)	
$\Delta$ p	0 $\pm$ 1.0 (off alignment of body)	
t	0.6 $\pm$ 0.3 (not including lead)	



**NOTE:** ANODE (+) LEAD FEEDS OFF FIRST. FOR OPTION OF NEGATIVE (-) LEAD FIRST, SPECIFY "TBN".

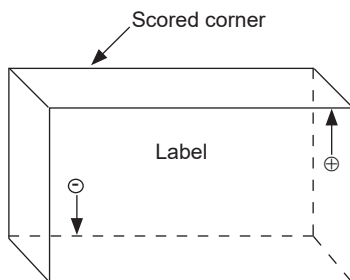
**RADIAL TAPED PACKAGING**

**Ammo Box (Tape & Box) TB**

Box quantity

Case Size	Q'ty per Box (pcs)
10x16	500
10x20	500
12.5x20	500
12.5x25	500

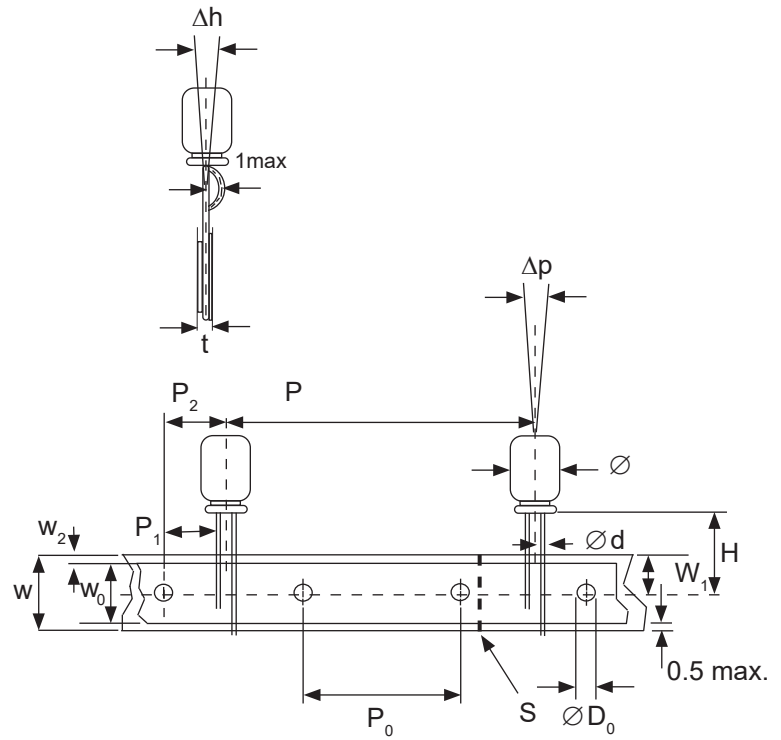
Ammo Box Dimensions (mm)



**RADIAL TAPING (16mm & 18mm diameter parts) TB**

Taping Dimensions (mm)

Case Dia. (D $\phi$ )	16	18
Case Size	All	All
Dim.		
d $\phi$ $\pm$ 0.05	0.8	
H +0.75/-0.5	18.5	
F $\pm$ 0.8	7.5	
P	30.0 $\pm$ 1.0	
P <sub>0</sub>	15.0 $\pm$ 0.3	
P <sub>1</sub>	3.75 $\pm$ 0.5	
P <sub>2</sub>	7.5 $\pm$ 1.0	
W	18.0 $\pm$ 0.3	
W <sub>0</sub>	5.0 min	
W <sub>1</sub>	9.0 $\pm$ 0.5	
W <sub>2</sub>	1.5 max.	
D <sub>0</sub> $\phi$	4.0 $\pm$ 0.2	
$\Delta$ h	0 $\pm$ 1.0 (off alignment of body)	
$\Delta$ p	0 $\pm$ 1.0 (off alignment of body)	
t	0.6 $\pm$ 0.3 (not including lead)	



**NOTE:** ANODE (+) LEAD FEEDS OFF FIRST. FOR OPTION OF NEGATIVE (-) LEAD FIRST, SPECIFY "TBN".

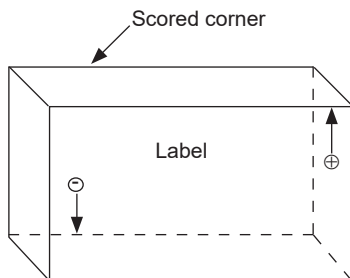
**RADIAL TAPED PACKAGING**

**Ammo Box (Tape & Box) TB**

Box quantity

Case Size	Q'ty per Box (pcs)
16x20	250
16x25	250
18x20	250
18x25	250

Ammo Box Dimensions (mm)



Case Size	Q'ty per Box (pcs)
10x16	500
10x20	500
12.5.x20	500
12.5x25	500