

**SURFACE MOUNT TYPE LOW IMPEDANCE LONG LIFE ALUMINUM ELECTROLYTIC CAPACITORS, POLARIZED**

**G** RoHS COMPLIANT

- LOW ESR
- HIGH TEMPERATURE (-40~+125°C)
- LONG LIFE (3000 or 4000 HOURS @ 125°C)
- AVAILABLE WITH ANTI-VIBRATION WIDE TERMINATIONS

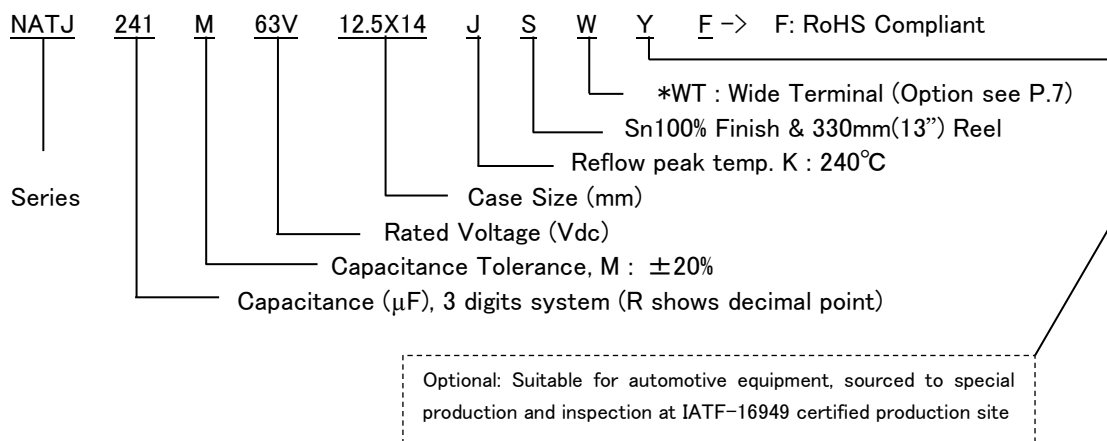
**Automotive grade**

- MEETS THE REQUIREMENTS OF AEC-Q200\* \*Contact NIC for supporting test data

**CHARACTERISTICS**

Rated Voltage Range		63 ~ 80 Vdc	
Capacitance Range		180 ~ 910 μF	
Operating Temperature Range		-40 ~ +125 °C	
Capacitance Tolerance		±20%(M)	
Max. Leakage Current After 2 minutes @20°C		0.01CV or 3μA, whichever is greater	
Max. Tan δ at 120Hz & 20°C	R.V. (Vdc)	63	80
	S.V. (Vdc)	79	100
	Tan δ @120Hz/20°C	0.14	0.12
Low Temperature Stability Impedance Ratio @ 120Hz	R.V. (Vdc)	63	80
	Z-40°C/Z+20°C	3	3
Load Life Test 125°C With Rated Voltage	Test	ΦD=12.5 : 3000 hrs, ΦD≥16 : 4000hrs	
	Capacitance Change	Within ±30% of initial measured value	
	Tan δ	Less than 300% of specified value	
	Leakage Current	Less than specified value	
Shelf Life Test 500 hours at 125°C	Capacitance Change	Within ±20% of initial measured value	
	Tan δ	Less than 200% of specified value	
	Leakage Current	Less than specified value	
Resistance to soldering heat	Capacitors placed on a 240°C hot plate for 30 seconds with their electrode terminals facing downward will fulfill the following conditions after being cooled to room temperature.		
	Capacitance Change	Within ±10% of the initial measured value	
	Tan δ	Less than the specified value	
	Leakage Current	Less than the specified value	

**PART NUMBER SYSTEM**



STANDARD PRODUCT TABLE (ΦDXL mm)

R.V.(Vdc) Cap.(μF)	63	80
180		12.5X14
240	12.5X14	12.5X16.5
270		16X17
330	12.5X16.5	
360		18X17
430	16X17	16X22
560	18X17	18X22
680	16X22	
910	18X22	

ESR (Ω MAX./100kHz, 20°C & -40°C)

R.V.(Vdc) Cap.(μF)	63		80	
	20°C, 100kHz	-40°C, 100kHz	20°C, 100kHz	-40°C, 100kHz
180			0.170	2.50
240	0.140	2.00	0.130	1.80
270			0.098	1.30
330	0.110	1.50		
360			0.091	0.98
430	0.086	1.20	0.063	0.80
560	0.081	0.86	0.059	0.59
680	0.053	0.68		
910	0.050	0.53		

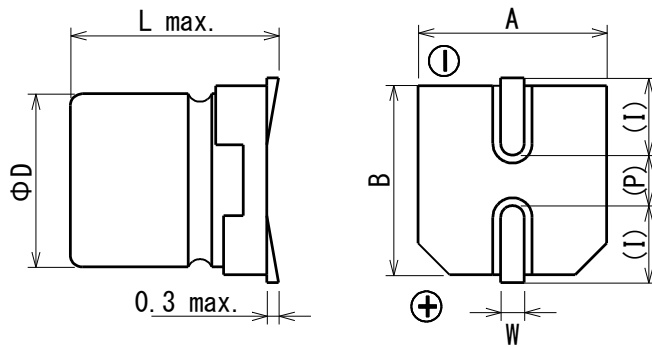
PERMISSIBLE RIPPLE CURRENT (mA r.m.s/100kHz & 125°C)

R.V.(Vdc) Cap.(μF)	63	80
180		970
240	1090	1160
270		1300
330	1310	
360		1390
430	1460	1810
560	1550	1920
680	2020	
910	2140	

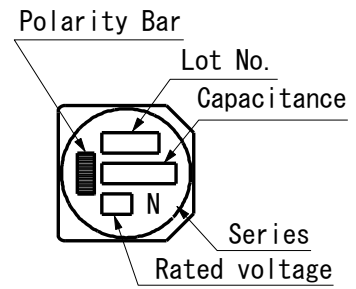
MULTIPLIER FOR RIPPLE CURRENT (Frequency coefficient)

Frequency(Hz) Capacitance(μF)	120	1k	10k	100k ≤
180	0.50	0.80	0.95	1.00
240 ~ 910	0.60	0.85	0.95	1.00

DIMENSIONS (mm)



MARKING



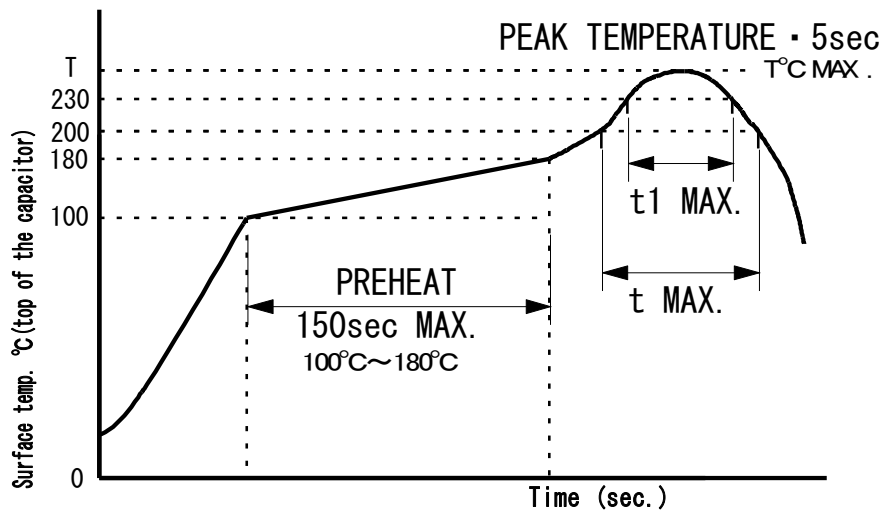
Case Size	$\phi D \pm 0.5$	L max.	$A \pm 0.2$	$B \pm 0.2$	(I)	W	(P)
12.5X14	12.5	14	13.0	13.0	4.9	0.8~1.1	4.5
12.5X16.5	12.5	16.5	13.0	13.0	4.9	0.8~1.1	4.5
16X17	16	17	17.0	17.0	6.0	1.0~1.6	6.8
16X22	16	22	17.0	17.0	6.0	1.0~1.6	6.8
18X17	18	17	19.0	19.0	7.0	1.0~1.6	6.8
18X22	18	22	19.0	19.0	7.0	1.0~1.6	6.8

( ) : Reference value

STANDARD PRODUCTS AND SPECIFICATIONS

Part number	Size	R.V. ( $\mu F$ )	Cap. ( $\mu F$ )	Tan $\delta$	ESR ( $\Omega$ MAX.)		Ripple current (mA) 125°C, 100kHz	Life
					20°C, 100kHz	-40°C, 100kHz		
NATJ241M63V12.5X14JSF	12.5X14	63V	240	0.14	0.140	2.00	1090	3000
NATJ331M63V12.5X16.5JSF	12.5X16.5		330	0.14	0.110	1.50	1310	3000
NATJ431M63V16X17JSF	16X17		430	0.14	0.086	1.20	1460	4000
NATJ561M63V18X17JSF	18X17		560	0.14	0.081	0.86	1550	4000
NATJ681M63V16X22JSF	16X22		680	0.14	0.053	0.68	2020	4000
NATJ911M63V18X22JSF	18X22		910	0.14	0.050	0.53	2140	4000
NATJ181M80V12.5X14JSF	12.5X14		80V	180	0.12	0.170	2.50	970
NATJ241M80V12.5X16.5JSF	12.5X16.5	240		0.12	0.130	1.80	1160	3000
NATJ271M80V16X17JSF	16X17	270		0.12	0.098	1.30	1300	4000
NATJ361M80V18X17JSF	18X17	360		0.12	0.091	0.98	1390	4000
NATJ431M80V16X22JSF	16X22	430		0.12	0.063	0.80	1810	4000
NATJ561M80V18X22JSF	18X22	560		0.12	0.059	0.59	1920	4000

PERMISSIBLE REFLOW TEMPERATURE PROFILE



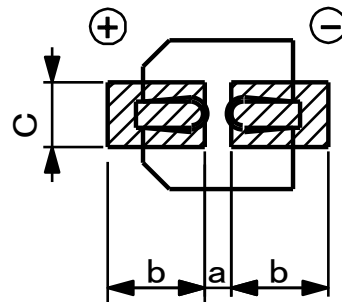
TEMPERATURE PROFILE

Size	Rated Voltage	Peak temperature (T) (Within 5 sec.)	Time for more than 230°C (t1)	Time for more than 200°C (t)	Reflow cycle
Φ 12.5~Φ 18	63~80V	240°C	Within 30sec.	Within 60sec.	2

Capacitor can withstand two reflow processes on the above conditions.  
 Second reflow shall be taken after more than one hour natural cooling time and taken after the return to normal temperatures of PCB and components.

RECOMMEND LAND PATTERN (mm)

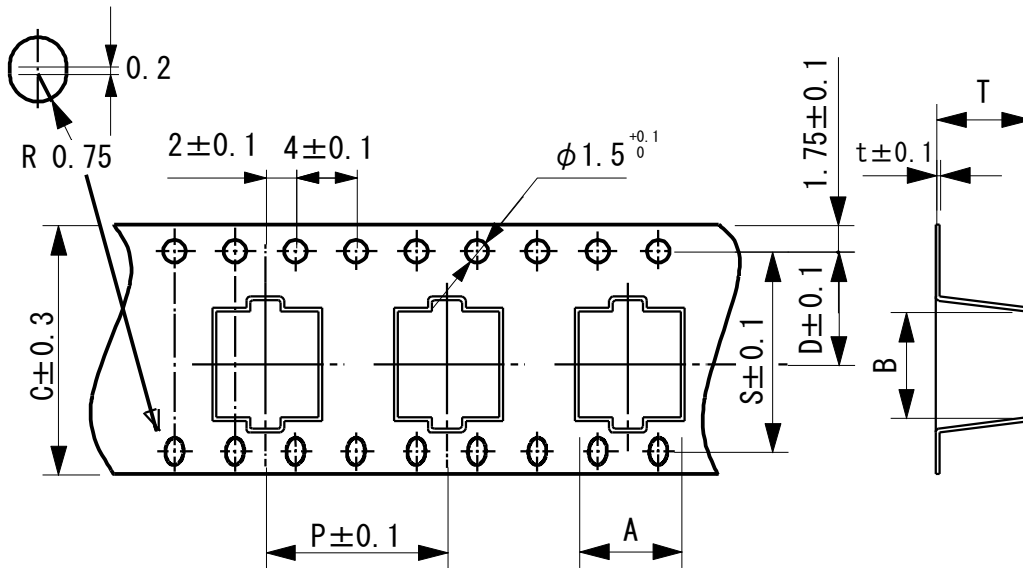
Case Size	a	b	c
Φ 12.5	5.0	6.0	2.5
Φ 16	8.0	6.5	3.0
Φ 18	8.0	7.5	3.0



TAPING SPECIFICATIONS

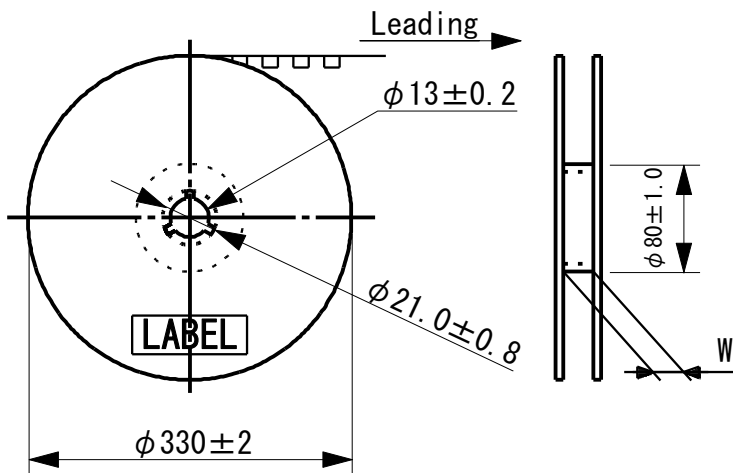
1. Leader and ending tape : Min. 10 cm empty pockets and min. 20 cm of cover tape.
2. Connection : Within 3 connections per reel.

CARRIER TAPE DIMENSIONS (mm) :



Case Size	A	B	C ±0.3	D ±0.1	P ±0.1	T	t ±0.1	S ±0.1
12.5X14	13.4	13.4	32.0	14.2	24.0	14.4	0.5	28.4
12.5X16.5	13.4	13.4	32.0	14.2	24.0	16.3	0.5	28.4
16X17	17.5	17.5	44.0	20.2	28.0	17.4	0.5	40.4
16X22	17.5	17.5	44.0	20.2	28.0	22.4	0.5	40.4
18X17	19.5	19.5	44.0	20.2	32.0	17.4	0.5	40.4
18X22	19.5	19.5	44.0	20.2	32.0	22.4	0.5	40.4

REEL DIMENSIONS (mm) :

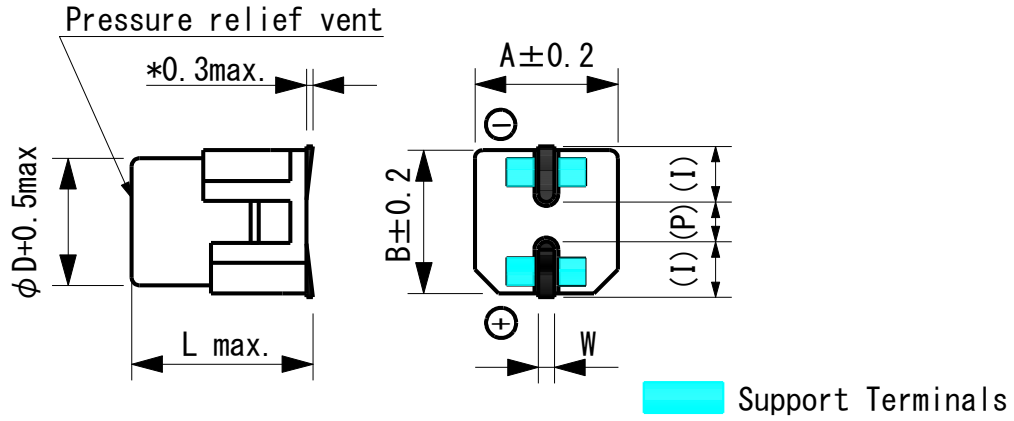


Case Size	W	Q'ty per reel (pcs) TR13 (330mm)
12.5X14	33.4	200
12.5X16.5	33.4	150
16X17	45.4	125
16X22	45.4	75
18X17	45.4	125
18X22	45.4	75

**Anti-vibration type**

Note : Regarding the vibration test of the anti-vibration package, we will respond to individual requests.

**DIMENSIONS (mm)**



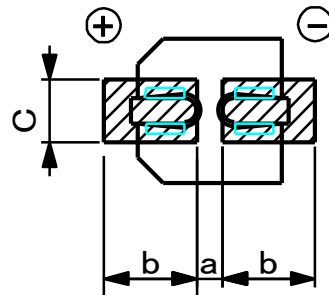
\* distance from the bottom of the support terminals

Case Size	$\phi D+0.5max$	L max.	$A\pm 0.2$	$B\pm 0.2$	W	(I)	(P)
12.5X14WT	12.5	14.5	13.0	13.0	0.8~1.4	(4.9)	(4.5)
12.5X16.5WT	12.5	17.0	13.0	13.0	0.8~1.4	(4.9)	(4.5)
16X17WT	16	17.5	17.0	17.0	0.8~1.4	(6.0)	(6.8)
16X22WT	16	22.5	17.0	17.0	0.8~1.4	(6.0)	(6.8)
18X17WT	18	17.5	19.0	19.0	0.8~1.4	(7.0)	(6.8)
18X22WT	18	22.5	19.0	19.0	0.8~1.4	(7.0)	(6.8)

( ) : Reference value

**RECOMMEND LAND PATTERN (mm)**

Size	a	b	c
$\phi 12.5$	3.9	6.2	6.4
$\phi 16$	4.7	7.8	7.0
$\phi 18$	4.7	8.8	7.0



**TAPING SPECIFICATIONS**

\*Please refer to TAPING SPECIFICATIONS of NATJ series.