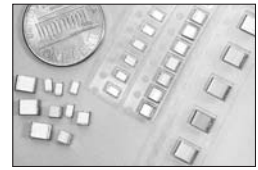


### FEATURES

- STACKED METALLIZED ACRYLIC RESIN FILM (THERMO-CURE TYPE)
- STANDARD EIA 0805, 1206 AND 1210 SIZES
- HIGH HEAT AND MOISTURE RESISTANT
- STABLE TEMPERATURE, FREQUENCY & BIAS CHARACTERISTICS
- REFLOW SOLDERING ONLY
- TAPE AND REEL PACKAGING

**NSPU IS  
RECOMMENDED  
FOR NEW DESIGNS**



SPECIFICATIONS	Case Sizes		
	0805	1206	1210
Capacitance Range	0.1 $\mu$ F	0.15 $\mu$ F ~ 0.068 $\mu$ F	1.0 $\mu$ F
Voltage Ratings	16Vdc		
Capacitance Tolerance	$\pm$ 20% (M)		
Temperature Range	-40°C ~ +85°C		
Dissipation Factor (20°C)	1.5% @ 1KHz/25°C		
Insulation Resistance (20°C)	C $\leq$ 0.33 $\mu$ F = 1000M $\Omega$ , C $\geq$ 0.47 $\mu$ F = 300M $\Omega$ / $\mu$ F @ 10Vdc		
Dielectric Withstanding Voltage	175% of Rated Voltage (5 seconds) 150% of Rated Voltage (60 seconds)		
Temperature Characteristic	-20% ~ +5% $\Delta$ C Maximum Over Temperature Range		

**RoHS  
Compliant**

includes all homogeneous materials

\*See Part Number System for Details

### ENVIRONMENTAL CHARACTERISTICS

Life Test At +85°C 1,000 Hours at 125% of Rated Voltage	Capacitance Change	Within +7% ~ -20% of Initial Value
	Dissipation Factor	1.65% Maximum @ 1KHz
	Insulation Resistance	C $\leq$ 0.33 $\mu$ F = 300M $\Omega$ Min., C $\geq$ 0.47 $\mu$ F = 100M $\Omega$ / $\mu$ F
Resistance to Soldering Heat Reflow: 240°C Peak	Capacitance Change	Within +3% ~ -15% of Initial Value
	Dissipation Factor	1.65% Maximum ~ 1KHz
	Insulation Resistance	C $\leq$ 0.33 $\mu$ F = 500M $\Omega$ Min., C $\geq$ 0.47 $\mu$ F = 150M $\Omega$ / $\mu$ F
	Withstanding Voltage	150% of rated voltage for 60 seconds 175% of rated voltage for 5 seconds
Humidity Load Life +40°C & 90% ~ 95% RH 500 Hours @ rated voltage	Capacitance Change	Within +20%/-3% of Initial value
	Dissipation Factor	2.25% Maximum
	Insulation Resistance	C $\leq$ 0.33 $\mu$ F = 100M $\Omega$ Min., C $\geq$ 0.47 $\mu$ F = 30M $\Omega$ / $\mu$ F
	Withstanding Voltage	130% of rated voltage for 60 seconds
Solderability with 25% Wt Rosin-Methanol Flux	90% Minimum Coverage After 2.5 Second Dip into 245°C Solder Pot	

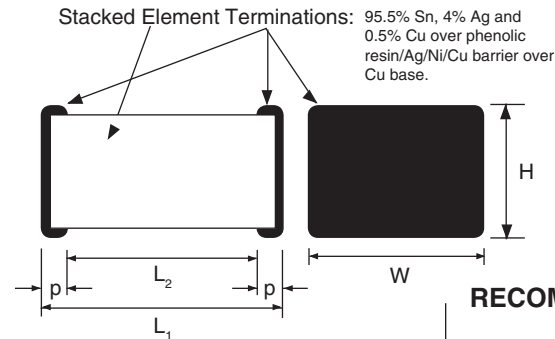
### PART NUMBER SYSTEM

NSPU 104 M 16 TR A3 E

- Series
- Capacitance in pF, 1st two digits are significant, 3rd digit is no. of zeros
- Tolerance Code: M= $\pm$ 20%
- Voltage
- Tape & Reel
- Size Code
- RoHS compliant

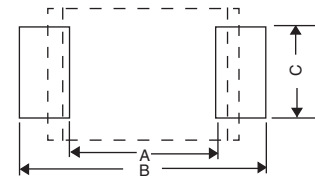
## STANDARD VALUES AND CASE SIZES (mm)

Part Number	Capacitance Value	Dimensions (mm)				EIA Size	Reel Qty
		L ± 0.2	W ± 0.2	H ± 0.2	P		
NSPU104M16TRA3F	0.1µF	2.0	1.25	1.0	0.45 ± 0.25	0805	3,000
NSPU154M16TRB4F	0.15µF	3.2	1.6	0.8	0.65 ± 0.30	1206	3,000
NSPU224M16TRB4F	0.22µF			0.8		1206	3,000
NSPU334M16TRB5F	0.33µF			1.0		1206	3,000
NSPU474M16TRB6F	0.47µF			1.4		1206	2,000
NSPU684M16TRB6F	0.68µF			1.4		1206	2,000
NSPU105M16TRC4F	1.0µF			2.5		1.4	1210

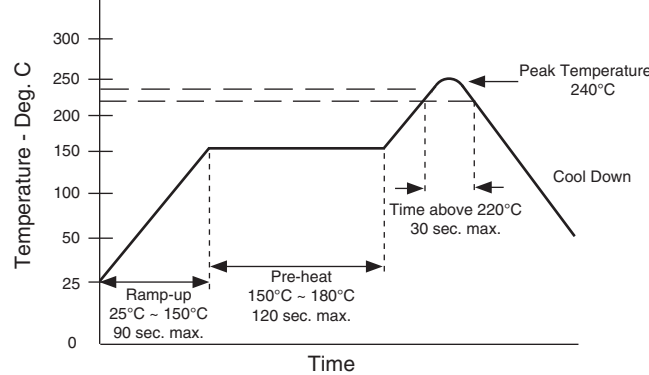


## LAND PATTERN DIMENSIONS (mm)

EIA Size	A ± 0.1	B ± 0.1	C ± 0.2
0805	1.55	2.3	1.3
1206	1.9	3.5	1.5
1210	1.9	3.5	1.9



## RECOMMENDED REFLOW PROFILE



Note: These capacitors are sensitive to moisture. Capacitors should be stored in moisture barrier packaging at +25°C and a relative humidity of <70% (six months maximum). The components should be soldered within 72 hours of breaking the moisture barrier packaging seal and stored during those 72 hours at <+25°C and <70% relative humidity. If the parts are to be storage outside of the moisture barrier packaging the conditions should be <+20°C and relative humidity of less than 50%.

## TAPE AND REEL DIMENSIONS (mm)

Case Code	A ± 0.1	B ± 0.1	C ± 0.2	t ± 0.05	W ± 0.3	F ± 0.05	P ± 0.1	D +0.2/-0
A3	1.55	2.3	1.3	0.25	8.0	3.5	4.0	1.0
B4, B5	1.9	3.5	1.5					
B6	1.9	3.5	1.9					
C4	2.8	3.5	1.9					

