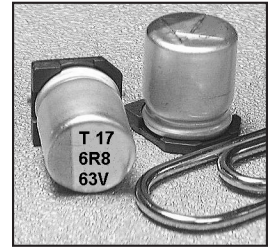


- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
- EXTENDED LOAD LIFE AT HIGH TEMPERATURE (1,500 ~ 3,000 HOURS @ +125°C)
- HIGH VOLTAGE RATINGS (16 ~ 125VDC)
- LOW ESR AND HIGH RIPPLE CURRENT RATINGS
- 6.3x6.3mm ~ 10x12.8mm CASE SIZES
- REFLOW SOLDERING RATED TO +260°C (+250°C 80V & 125V)
- **MEETS THE REQUIREMENTS OF AEC-Q200***



*Contact NIC for supporting test data

CHARACTERISTICS

Rated Voltage Range	16 ~ 125Vdc										
Rated Capacitance Range	6.8 ~ 560μF										
Operating Temp. Range	-55 ~ +125°C										
Capacitance Tolerance	±20% (M)										
Max. Leakage Current After 2 Minutes @ 20°C	16 ~ 63Vdc		0.01CV								
	80 ~ 125Vdc		Less than 0.05CV or 100μA whichever is greater								
Working and Surge Voltage Ratings	W.V. (Vdc)		16	25	35	40	50	63	80	100	125
	S.V. (Vdc)		20	32	44	50	63	79	100	125	157
Tan δ @ 120Hz/20°C			0.16								
Impedance Ratio	Z -55°C/Z +20°C		1 ~ 2.5								
	Z +125°C/Z +20°C		0.6 ~ 1.0								
Load Life Test @ 125°C and Rated Voltage	W.V. (Vdc)		16	25	35	40	50	63	80	100	125
	Case Dia.	16V	φ6.3 = 1,500 hrs, φ8 & 10 = 2500 hrs.								
		25V & up	6.3X6.3 = 1500 hrs, 6.3X8 = 2000 hrs, φ8 & 10 = 3000 hrs.								
	Capacitance Change		Within ±30% of initial measured value								
	Tan δ and ESR		Less than 200% of specified max. value								
	Leakage Current		Less than specified max. value								
	ESR		Less than 200% of specified max. value								
Resistance to Soldering Heat	Hot Plate at +250°C for 30 seconds with electrodes facing downward										
	Capacitance Change		Within ±10% of the initial measured value								
	Dissipation Factor		Less than the initial limit								
	Leakage Current		Less than the initial limit								
	ESR		Less than 130% of specified value								

STANDARD PRODUCTS AND CASE SIZES Dφ x L (mm)

PART NUMBER	Cap. (μF)	Working Voltage	Case Size (D X L) mm	Max. Tan δ 120Hz/20°C	Max. ESR (mΩ) AT 100kHz/20°C	Max. Ripple Current (mA rms) AT 100kHz/125°C	Load Life Hours (+125°C)
NSPE-T121M16V6.3X8NBF	120	16	6.3X8	0.16	40	1160	1500
NSPE-T271M16V8X10.8NBF	270		8X10.8	0.16	26	1540	2500
NSPE-T471M16V10X10.8NBF	470		10X10.8	0.16	21	2010	2500
NSPE-T561M16V10X12.8NBF	560		10X12.8	0.16	15	2320	2500
NSPE-T470M25V6.3X6.3NBF	47		6.3X6.3	0.16	60	890	1500
NSPE-T680M25V6.3X8NBF	68	25	6.3X8	0.16	45	980	2000
NSPE-T151M25V8X10.8NBF	150		8X10.8	0.16	27	1330	3000
NSPE-T271M25V10X10.8NBF	270		10X10.8	0.16	22	1520	3000
NSPE-T331M25V10X12.8NBF	330		10X12.8	0.16	16	1740	3000
NSPE-T270M35V6.3X6.3NBF	27		6.3X6.3	0.16	100	760	1500
NSPE-T470M35V6.3X8NBF	47	35	6.3X8	0.16	60	910	2000
NSPE-T101M35V8X10.8NBF	100		8X10.8	0.16	30	1260	3000
NSPE-T151M35V10X10.8NBF	150		10X10.8	0.16	23	1480	3000
NSPE-T221M35V10X12.8NBF	220		10X12.8	0.16	17	1700	3000
NSPE-T180M40V6.3X6.3NBF	18		6.3X6.3	0.16	110	720	1500
NSPE-T270M40V6.3X8NBF	27	40	6.3X8	0.16	70	870	2000
NSPE-T560M40V8X10.8NBF	56		8X10.8	0.16	32	1220	3000
NSPE-T101M40V10X10.8NBF	100		10X10.8	0.16	24	1440	3000
NSPE-T121M40V10X12.8NBF	120		10X12.8	0.16	18	1650	3000

For Automotive Applications See Part Numbering System



STANDARD PRODUCTS AND CASE SIZES $D\phi \times L$ (mm)

PART NUMBER	Cap. (μ F)	Working Voltage	Case Size (D X L) mm	Max. Tan δ 120Hz/20°C	Max. ESR (m Ω) AT 100kHz/20°C	Max. Ripple Current (mA rms) AT 100KHz/125°C	Load Life Hours (+125°C)
NSPE-T100M50V6.3X6.3NBF	10	50	6.3X6.3	0.16	120	690	1500
NSPE-T150M50V6.3X8NBF	15		6.3X8	0.16	80	840	2000
NSPE-T330M50V8X10.8NBF	33		8X10.8	0.16	35	1170	3000
NSPE-T560M50V10X10.8NBF	56		10X10.8	0.16	25	1390	3000
NSPE-T820M50V10X12.8NBF	82		10X12.8	0.16	19	1590	3000
NSPE-T6R8M63V6.3X6.3NBF	6.8	63	6.3X6.3	0.16	150	670	1500
NSPE-T100M63V6.3X8NBF	10		6.3X8	0.16	100	740	2000
NSPE-T220M63V8X10.8NBF	22		8X10.8	0.16	40	1090	3000
NSPE-T330M63V8X10.8NBF	33		8X10.8	0.16	40	1090	3000
NSPE-T330M63V10X10.8NBF	33		10X10.8	0.16	30	1260	3000
NSPE-T470M63V10X10.8NBF	47		10X10.8	0.16	30	1260	3000
NSPE-T560M63V10X12.8NBF	56		10X12.8	0.16	22	1440	3000
NSPE-T120M80V10X10.8LBF	12	80	10X10.8	0.16	70	900	3000
NSPE-T150M80V10X10.8LBF	15		10X10.8	0.16	70	900	3000
NSPE-T180M80V10X12.8LBF	18		10X12.8	0.16	50	1100	3000
NSPE-T100M100V10X10.8LBF	10	100	10X10.8	0.16	80	870	3000
NSPE-T120M100V10X10.8LBF	12		10X10.8	0.16	80	870	3000
NPSE-T150M100V10X12.8LBF	15		10X12.8	0.16	60	1000	3000
NSPE-T100M125V10X10.8LBF	10	125	10X10.8	0.16	90	750	3000

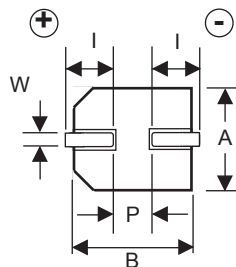
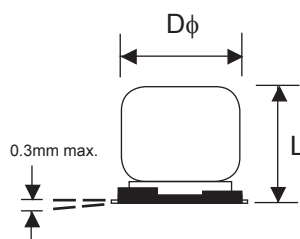
For Automotive Applications See Part Numbering System

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

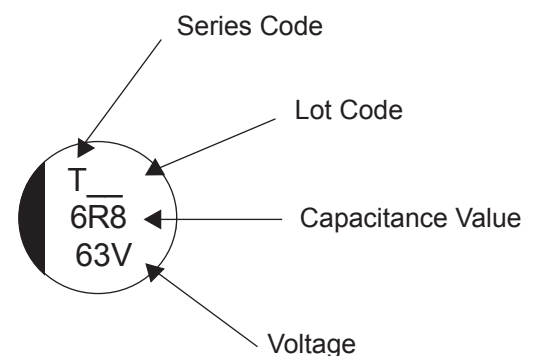
Frequency	100Hz	1KHz	10KHz	100KHz
6.8 ~ 33 μ F	0.05	0.32	0.67	1.0
47 ~ 560 μ F	0.10	0.35	0.70	1.0

DIMENSIONS (mm)

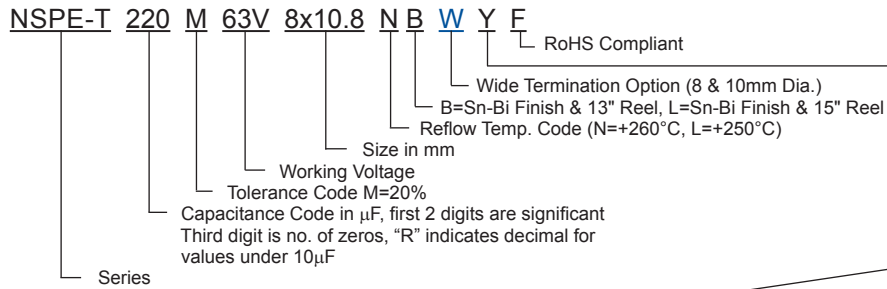
Case Size	$D\phi \pm 0.5$	L max.	A, B ± 0.2	W	I ± 0.2	P ± 0.2
6.3x6.3	6.3	6.3	6.6	0.5 ~ 0.8	2.5	2.2
6.3x8	6.3	8.0	6.6	0.5 ~ 0.8	2.5	2.2
8x10.8	8.0	10.8	8.3	0.7 ~ 1.0	2.9	3.2
10x10.8	10	10.8	10.3	1.0 ~ 1.4	3.2	4.6
10x12.8	10	12.8	10.3	1.0 ~ 1.4	3.2	4.6



Part Marking



PART NUMBER SYSTEM



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

Code	Plating	Termination Type	Automotive	Reel Size
B	Sn-Bi	Standard	No	13" Reel
BY	Sn-Bi	Standard	Yes	13" Reel
BW	Sn-Bi	Wide Terminations	No	13" Reel
BWY	Sn-Bi	Wide Terminations	Yes	13" Reel
LB	Sn-Bi	Standard	No	15" Reel
LBY	Sn-Bi	Standard	Yes	15" Reel
LBW	Sn-Bi	Wide Terminations	No	15" Reel
LBWY	Sn-Bi	Wide Terminations	Yes	15" Reel

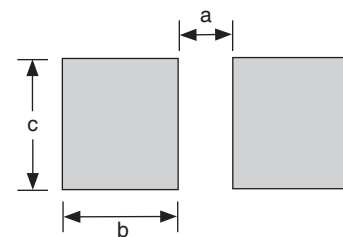
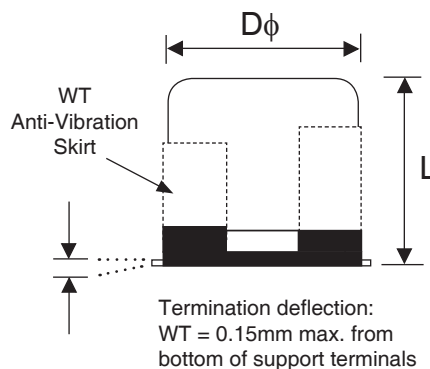
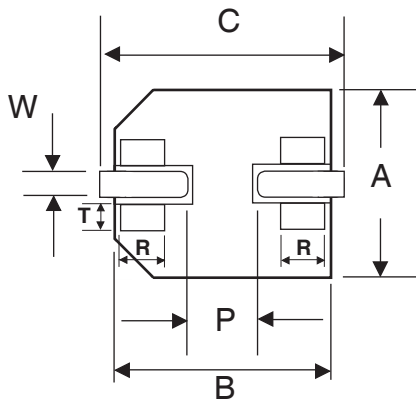
W (WIDE TERMINATIONS) COMPONENT DIM. (mm)

Case Size	$D\phi \pm 0.5$	L max.	A, B ± 0.2	C ± 0.2	P	W	R	T
8x10.8	8.0	11.2	8.3	9.0	(3.2)	0.7 ~ 1.0	(0.7)	(1.3)
10x10.8	10.0	11.2	10.3	11.0	(4.6)	1.0 ~ 1.4	(0.7)	(1.3)
10x12.8	10.0	13.5	10.3	11.0	(4.6)	1.0 ~ 1.4	(0.7)	(1.3)

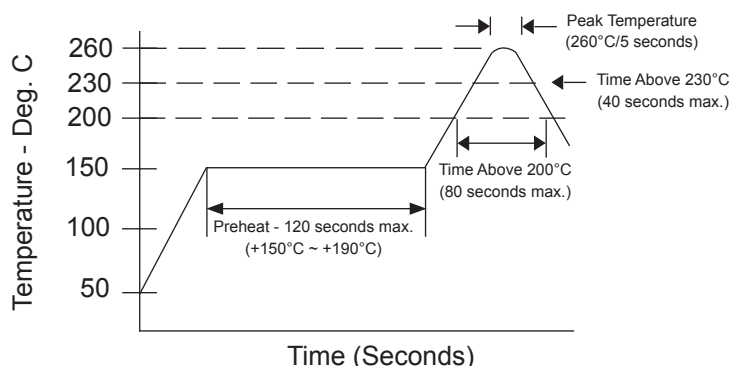
(Reference dimensions)

W (WIDE TERMINATIONS) LAND PATTERN DIM. (mm)

Case Size	a	b	c
8x10.8	2.5	4.5	4.7
10x10.8	3.8	4.8	4.7
10x12.8	3.8	4.8	4.7

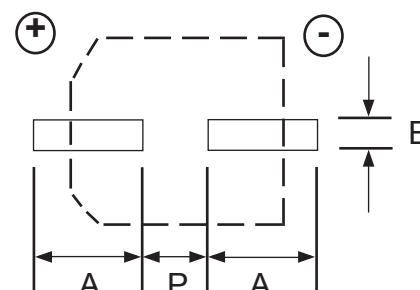


RECOMMENDED REFLOW SOLDERING PROFILE*



LAND PATTERN DIM. (mm)

Case Dia.	A	B	P
6.3	3.6	1.8	1.8
8	4.1	2.1	2.8
10	4.4	2.5	4.3



PEAK TEMPERATURE AND DURATION

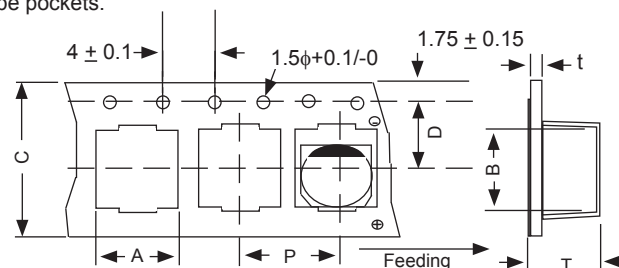
Rated Voltage/Diameter	Time Above +200°C	Time Above +217°C	Time Above +230°C	Peak Temperature
16V ~ 63V / 6.3mm ~ 10mm	100 sec. max.	80 sec. max.	40 sec. max.	+260°C (5 sec. max.)
80 ~ 125V / 10mm				+250°C (5 sec. max.)

*Two reflow passes are permissible with a cool down to room temperature required between the first and second pass.

TAPING SPECIFICATIONS (mm)

- Both Leader and Trailer tape: Minimum 40mm (1.57") empty carrier tape pockets.
- Leader tape: Approximately 20cm of cover tape at leader.
- Connection: Maximum 3 connections (slices) per reel.

Case Size	A	B	C	D	P	T	t
	±0.5	±0.5	±0.3	±0.1	±0.1	±0.2	max.
6.3x6.3	7.0	7.0	16.0	7.5	12.0	6.5	0.6
6.3x8	7.0	7.0	16.0	7.5	12.0	8.2	0.6
8x10.8	8.7	8.7	24.0	11.5	16.0	11.0	0.6
10x10.8	10.7	10.7	24.0	11.5	16.0	11.0	0.6
10x12.8	10.7	10.7	24.0	11.5	16.0	13.3	0.6



REEL DIMENSIONS (mm)

Case Size	W ±1.0	Qty per Reel	
		13" (330mm)	15" (380mm)
6.3x6.3	18	800	1000
6.3x8	18	500	900
8x10.5	26	300	500
10x10.5	26	300	500
10x12.8	26	300	400

