

### FEATURES

- CYLINDRICAL LEADLESS TYPE FOR SURFACE MOUNTING
- WIDE TEMPERATURE -40° ~+105°C
- LONG LIFE (+105°C, 2000 HOURS)
- 6.3 mm MAXIMUM HEIGHT
- DESIGNED FOR AUTOMATIC MOUNTING AND REFLOW SOLDERING



### CHARACTERISTICS

Rated Voltage Range	4 ~ 50 Vdc							
Rated Capacitance Range	0.1 ~ 220µF							
Operating Temperature Range	-40° ~ +105°C							
Capacitance Tolerance	±20%(M), ±10%(K)*							
Max. Leakage Current After 2 Minutes @ 20°C	0.01CV or 3µA, whichever is greater							
Surge Voltage	W.V. (Vdc)	4	6.3	10	16	25	35	50
	S.V. (Vdc)	5	8.0	13	20	32	44	63
Max. Tanδ @ 120 Hz/20°C	∅4-∅6.3	.50	.30	.22	.16	.14	.12	.12
Low Temperature Stability	W.V. (Vdc)	4	6.3	10	16	25	35	50
	Z-40°C/Z +20°C	7	4	3	2	2	2	2
Impedance Ratio @ 120Hz	Z-55°C/Z +20°C	12	8	6	4	4	3	3
	Capacitance Change	Within ± 25% of initial measured value						
Load Life Test 105°C, 2,000 Hours	Tanδ	Less than 200% of specified value						
	Leakage Current	Less than specified value						

\* Optional ± 10% (K) Tolerance available on most values. Contact factory for availability.

### MAXIMUM PERMISSIBLE RIPPLE CURRENT (mA rms AT 120Hz AND 105°C)

Cap (µF)	Working Voltage (Vdc)							
	4.0	6.3	10	16	25	35	50	
0.1								1.0
0.22								2.0
0.33								3.0
0.47								5.0
1.0								10
2.2								16
3.3								16
4.7					22			23
10				28		28		35
22		26		39		55		
33		29	43		65			
47	34	46		70				
100	61	71						
220	82							

### MAXIMUM ESR (Ω AT 20°C AND 120Hz)

Cap (µF)	Working Voltage (Vdc)							
	4.0	6.3	10	16	25	35	50	
0.1								1993
0.22								906
0.33								604
0.47								424
1.0								199
2.2								90.6
3.3								60.4
4.7					49.5			42.4
10				26.6		19.9	19.9	
22		22.6		12.1		9.05		
33		15.1	11.1		7.05			
47	17.7	10.6		5.66				
100	8.31	4.98						
220	3.77							

### RIPPLE CURRENT CORRECTION FACTOR

Frequency Hz	50 ≤ f < 100	100 ≤ f < 1K	1K ≤ f < 10K	10K ≤ f < 100K
Correction Factor	0.8	1.0	1.3	1.5

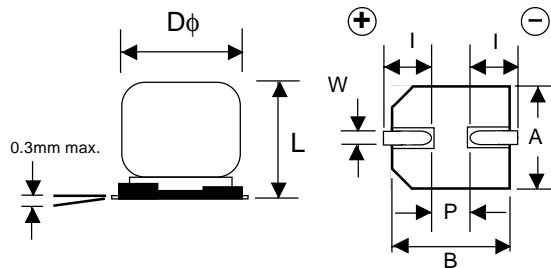
SURFACE MOUNT

### STANDARD PRODUCT AND CASE SIZE TABLE DØxL (mm)

Cap (µF)	Code	Working Voltage (Vdc)						
		4.0	6.3	10	16	25	35	50
0.1	R10							4x6.3
0.22	R22							4x6.3
0.33	R33							4x6.3
0.47	R47							4x6.3
1.0	1R0							4x6.3
2.2	2R2							4x6.3
3.3	3R3							4x6.3
4.7	4R7					4x6.3		5x6.3
10	100				4x6.3		5x6.3	6.3x6.3
22	220		4x6.3		5x6.3		6.3x6.3	
33	330		4x6.3	5x6.3		6.3x6.3		
47	470	4x6.3	5x6.3		6.3x6.3			
100	101	5x6.3	6.3x6.3					
220	221	6.3x6.3						

### DIMENSIONS (mm) AND STANDARD REEL QUANTITIES

Case Size	DØ ± 0.5	L max.	A ± 0.2	I ± 0.2	W	P ± 0.2	Q'ty per Reel
4x6.3	4.0	6.3	4.3	1.8	0.5-0.8	1.0	1,200 pcs
5x6.3	5.0	6.3	5.3	2.1	0.5-0.8	1.4	1,000 pcs
6.3x6.3	6.3	6.3	6.6	2.4	0.5-0.8	2.2	800 pcs



SEE PAGE 38  
For Case Size Data  
SEE PAGE 39  
For Taping/Packaging Data

