

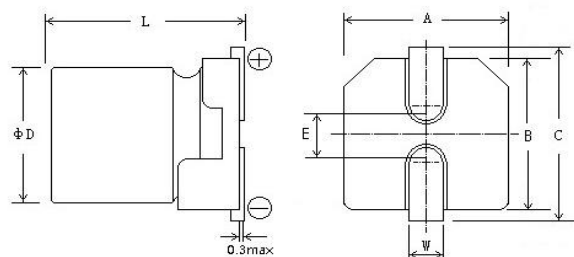
VUL Series

- Chip type, Designed for surface mounting on high density board
- Wide temperature range from -55°C to +105°C
- Suitable for STB, Industrial controlling Automation, LED, Tuner, Computer Server etc.
- Life time: +105°C 5000 hours
- RoHs Compliant

◆ SPECIFICATIONS

Items	Characteristics													
Category	-55℃ to +105℃(6.3 to 100Vdc) -40℃ to +105℃(160 to 400Vdc)													
Temperature Range														
Rated Voltage Range	6.3 to 400Vdc													
Capacitance Tolerance	±20%(M) (at 20℃, 120Hz)													
Leakage Current	6.3 to 100Vdc :I=0.01CV(μA) or 3μA, which is greater.							160 to 400Vdc : I≤0.04CV +100μA						
	Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage(V) (at 20℃ after 1 minutes)													
Dissipation Factor (tan δ)	Rated Voltage (Vdc)	6.3	10	16	25	35	50	63	100	160	200	250	400	(at 20℃, 120Hz)
	tanδ(Max.)	0.22	0.19	0.16	0.14	0.12	0.12	0.12	0.12	0.14	0.14	0.14	0.20	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	6.3	10	16	25	35	50	63	100	160	200	250	400	(at 120Hz)
	Z(-40℃)/Z(+20℃)	4	3	3	2	2	2	2	2	3	3	3	6	
	Z(-55℃)/Z(+20℃)	4	4	4	3	3	3	4	4	6	6	6	8	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to the rated voltage is applied for 5000 hours (6.3 to 400V: 5000 hours) at 105℃.													
	Capacitance change	≤±20% of the initial value.												
	D.F. (tan δ)	≤200% of the initial specified value.												
	Leakage current	≤ The initial specified value.												
Shelf Life	The following specifications shall be satisfied when the capacitors performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20℃ after exposing them for 1000hours at 105℃ without voltage applied.													
	Capacitance change	≤±20% of the initial value.												
	D.F. (tan δ)	≤200% of the initial specified value.												
	Leakage current	≤The initial specified value.												

◆ DIMENSIONS [mm]



Size	4×5.4	5×5.4	6.3×5.4	6.3×7.7	8×10.2	10×10.2	12.5×13.5	16×16.5
A/B±0.2	4.3	5.3	6.6	6.6	8.3	10.3	13.0	17.0
D±0.5	4.0	5.0	6.3	6.3	8.0	10	12.5	16.0
E±0.2	1.0	1.3	2.2	2.2	3.1	4.5	5.2	6.5
L	6.0	6.0	5.4	7.7	10.2	10.2	13.5	16.5
C±0.2	5.0	6.0	7.2	7.2	9.0	11.0	13.8	18
W	0.5~0.9		0.8~1.1		1.1~1.4			

Standard Rating of VUL Series

WV (Vdc)	Cap (μ F)	Case size ϕ D×L(mm)	Ripple current mArms/105℃,120Hz	WV (Vdc)	Cap (μ F)	Case size ϕ D×L(mm)	Ripple current mArms/105℃,120Hz
6.3(0J)	22	4×5.4	33	35(1V)	10	4×5.4	69
	33	4×5.4	52		22	5×5.4	109
	47	4×5.4	64		33	6.3×5.4	159
	68	5×5.4	126		47	6.3×5.4	170
	100	5×5.4	144		68	6.3×7.7	318
	150	6.3×5.4	158		100	6.3×7.7	344
	220	6.3×5.4	201		150	8×10.2	447
	330	6.3×7.7	395		220	8×10.2	484
	470	8×10.2	631		330	10×10.2	784
	560	8×10.2	664		470	12.5×13.5	956
	680	8×10.2	704	50(1H)	2.2	4×5.4	16
	820	8×10.2	810		4.7	5×5.4	26
	1000	8×10.2	843		10	6.3×5.4	71
	1500	10×10.2	821		22	6.3×5.4	114
10(1A)	22	5×5.4	45		33	6.3×7.7	166
	33	5×5.4	64		47	6.3×7.7	183
	47	5×5.4	84		68	8×10.2	332
	68	5×5.4	126		100	8×10.2	355
	100	6.3×5.4	158		150	10×10.2	464
	150	6.3×5.4	167		220	10×10.2	510
	220	6.3×5.4	395	63(1J)	10	6.3×5.4	75
	330	8×10.2	560		22	6.3×7.7	126
	470	8×10.2	594		33	8×10.2	174
	560	8×10.2	606		47	10×10.2	210
	680	10×10.2	640		68	10×10.2	355
	820	10×10.2	964	100(2A)	100	10×10.2	384
	1000	10×10.2	1033		10	6.3×7.7	80
16(1C)	10	4×5.4	29		22	8×10.2	125
	22	4×5.4	64		33	10×10.2	185
	33	5×5.4	84	160(2C)	47	10×10.2	309
	47	5×5.4	103		68	12.5×13.5	370
	68	6.3×5.4	158		100	12.5×13.5	469
	100	6.3×5.4	182		6.8	8×10.2	47
	150	6.3×7.7	316		8.2	8×10.2	73
	220	6.3×7.7	407		10	8×10.2	99
	330	8×10	586		12	8×10.2	104
	470	8×10	627	200(2D)	15	10×10.2	133
	560	10×10	804		22	12.5×13.5	182
	680	10×10	1013		33	12.5×13.5	219
	820	10×10	1094		4.7	8×10.2	67
	1000	10×10	1119		10	10×10.2	110
25(1E)	10	4×5.4	67	250(2E)	22	12.5×13.5	191
	22	5×5.4	87		4.7	8×10.2	81
	33	5×5.4	93		10	10×10.2	129
	47	6.3×5.4	158		15	12.5×13.5	167
	68	6.3×5.4	170	400(2G)	22	12.5×13.5	224
	100	6.3×7.7	316		1.0	8×10.2	27
	150	8×10.2	460		2.2	8×10.2	35
	220	8×10.2	560		3.3	8×10.2	56
	330	8×10.2	598		4.7	8×10.2	88
	470	10×10.2	784		6.8	10×10.2	133
	560	10×10.2	855		10	12.5×13.5	191

◆ RATED RIPPLE CURRENT MULTIPLIERS

FREQUENCY COEFFICIENT

$\begin{matrix} \text{Freq. (Hz)} \\ \text{(\mu F)} \end{matrix}$	120	1K	10K	100K
10 ~ 100	1.00	1.87	2.25	2.50
220 ~ 470	1.00	1.70	1.88	2.00
1,000 ~ 1,500	1.00	1.45	1.58	1.67

Part number system for SMD type:

1	2	3	4	5	6	7	8	9	10
V	U	L	2	G	1	0	0	M	H
Type of Series			Voltage code(V)		Capacitance code(μ F)			Capacitance tolerance	Case Code