HITANO ENTERPRISE CORP ®

EVS SERIES

Features

- SMD TYPE. Conductive Polymer Aluminum Solid Capacitors
- This type has lowest ESR level and excellent performance at high frequency through low profile.
- Ideal capacitor for digital and high frequency devices.
- High heat resistance and high reliability.

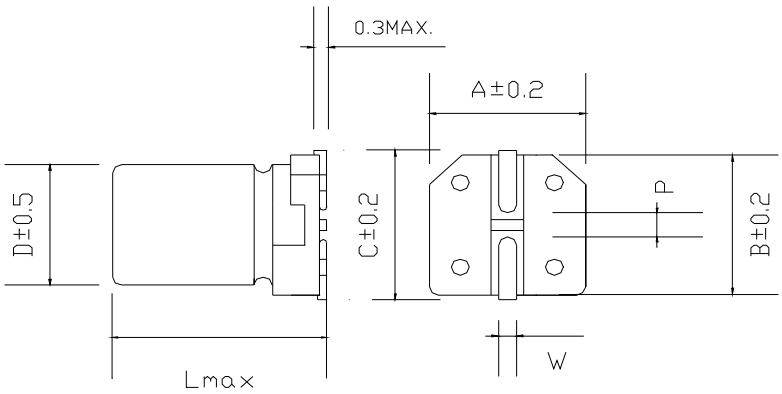
Application :

- Circuit= Noise-limitter, smoothing circuit of power supply
- Equipment = PC, Digital Still Camera, Hard Disk Drive, PDA, M.D. Graphic card etc

Characteristics

Voltage Range	2.5 ~25VDC	
Capacitance Range	6.8uF ~ 1500uF	
Temperature Range	-55 ~ +105℃	
Capacitance Tolerance	M=+20%/-20% , K=+10%/-10% (at 20**℃** , 120Hz)	
Leakage Current	0.2 x Capacitance(μF) x Rated Voltage(Vdc) After 2minutes	
Endurance (Rated Voltage at 105℃ 2000h then restored to 20℃)	Appearance	≦No significant damage
	Capacitance Change (μF)	≦20% of an initial measured value
	Dissipation Factor (tan δ)	≦150% of an initial specified value
	ESR (mΩ)	≦150% of an initial specified value
	Leakage Current (μA)	≦An initial specified value
Low Temperature Characteristics	Impedance Ratio (at 100kHz): Z_{-25}/Z_{+20} : 1.15 , Z_{-55}/Z_{+20} : 1.25	
Surge Voltage (V)	Rated Voltage x 1.15 (at 105℃)	

Diagram of dimensions



Lead Spacing And Diameter

SIZE CODE	ϕD	L	A	B	C	W	P±0.2
C6	6.3	6.0±0.2	6.6	6.6	2.7	0.5 to 0.8	2.0
C7	6.3	7.0±0.2	6.6	6.6	2.7	0.5 to 0.8	2.0
D7	8	7.0±0.2	8.4	8.4	3.0	0.7 to 1.1	3.1
E12	8	12.0±0.5	8.4	8.4	3.0	0.7 to 1.1	3.1
F8	10	8.0±0.2	10.4	10.4	3.3	0.7 to 1.1	4.7
F10	10	10.0±0.5	10.4	10.4	3.3	0.7 to 1.1	4.7
F13	10	13±0.5	10.4	10.4	3.3	0.7 to 1.1	4.7

Frequency coefficient for ripple current

Frequency	120Hz≦f<1KHz	1KHz≦f<10KHz	10KHz≦f<100KHz	100KHz≦f<500KHz
Coefficient	0.05	0.3	0.7	1

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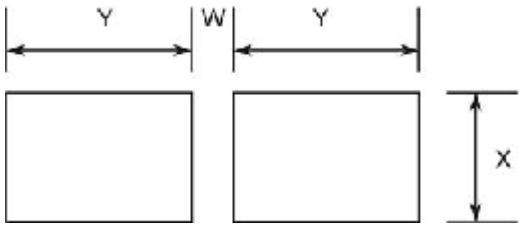
DIMENSIONS & CHARACTERISTICS

Dimension: ϕDx L(mm)
Ripple Current: mA/rms at 100kHz, 105^{0}C

W.V.(V)	Capacitance (μF)	Size fDxL(mm)	SIZE Code	Tan δ (120Hz,200C)	L.C. (μA)	E.S.R. (100k-300kHz,mΩ, 20^{0}C MAX)	Rated R.C (mArms at 100kHz, 105^{0}C)
2.5(0E)	220	6.3x6	C6	0.12	110	25	2500
	560	8x7	D7	0.12	280	23	3100
	680	8x12	E12	0.18	340	12	4770
	1000	10x10	F10	0.18	500	13	5000
	1200	10x10	F10	0.18	750	13	5200
	1500	10x13	F13	0.18	500	10	5500
4(0G)	150	6.3x6	C6	0.12	120	26	2450
	220	8x7	D7	0.12	176	25	3020
	330	8x7	D7	0.12	264	25	3020
	470	10x8	F8	0.12	376	22	3800
	560	8x12	E12	0.18	448	12	4770
	680	10x8	F8	0.18	544	13	5000
	820	10x10	F10	0.18	656	13	5200
	1200	10x13	F13	0.18	960	10	5500
6.3(0J)	82	6.3x6	C6	0.12	103	27	2400
	100	6.3x6	C6	0.12	126	27	2400
	120	6.3x7	C7	0.12	151	30	2010
	150	6.3x7	C7	0.12	189	30	2250
		8x7	D7	0.12	189	25	3020
	220	6.3x7	C7	0.12	277	45	2320
		8x7	D7	0.12	277	25	3020
	330	10x8	F8	0.12	416	22	4000
	470	8x12	E12	0.15	592	12	4770
	560	10x10	F10	0.15	706	16	4700
	820	10x13	F13	0.15	1033	10	5500
10	56	6.3x6	C6	0.10	112	31	2250
	150	8x7	D7	0.10	300	27	2800
	330	8x12	E12	0.15	660	14	4420
	470	10x10	F10	0.15	940	18	4400
	560	10x13	F13	0.15	1120	12	5300
16	47	6.3x6	C6	0.10	150	50	1650
	82	8x7	D7	0.10	262	30	2700
	180	8x12	E12	0.15	576	16	4360
	220	10x10	F10	0.15	704	20	4200
	330	10x13	F13	0.15	1056	14	5050
20	22	6.3x6	C6	0.10	88	50	1650
	47	8x7	D7	0.10	188	45	2000
	100	8x12	E12	0.15	400	24	3320
		10x10	F10	0.15	400	25	3700
	150	10x13	F13	0.15	608	20	4320
25	6.8	6.3x6	C6	0.10	170	80	1200
	33	8x12	E12	0.12	413	30	2980
	56	10x13	F13	0.12	700	28	3800

Soldering Profile

Recommended pad pattern and size



Unit: mm

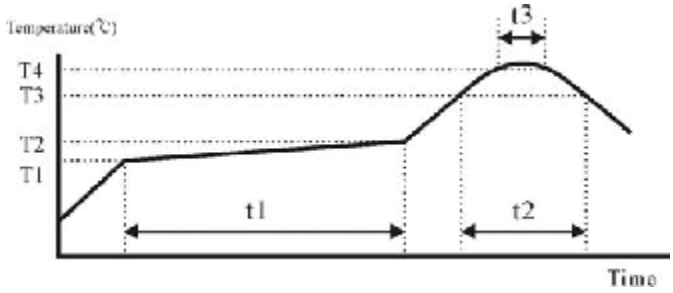
Case size	Case code	Land size			Case size	Case code	Land size		
		X	Y	W			X	Y	W
4×5.3	A	1.6	2.6	1.0	8×10	E	2.5	3.5	3.0
5×5.3	B	1.6	3.0	1.4	8×12.0*	E12	2.5	3.5	3.0
6.3×5.3	C	1.6	3.5	1.9	10×8.0*	F8	2.5	4.4	4.3
6.3×5.7	C(EZV)	1.6	3.5	1.9	10×10.0	F	2.5	4.0	4.0
6.3×6.0*	C6	1.6	3.5	2.1	10×13.0*	F13	2.5	4.4	4.3
6.3×7.0*	C7	1.6	3.5	2.1	12.5×13.5	G	4.0	7.5	7.0
6.3×7.7	C8	1.6	3.5	1.9	12.5×16	H	4.0	7.5	7.0
8×6.5	D	1.6	4.0	2.1	16×16.5	I	6.0	8.5	9.5
8×7.0*	D7	2.5	3.5	3.0					

Case size in mark of "*" is for EVS capacitors application.

Recommended soldering methods

Method	Reflow soldering	Soldering iron	Flow soldering
Advisability	š Recommended	š Recommended	Đ Not Recommended

- Lead-free type



- Test conditions

Type		Non-solid capacitor				EVS		
WV		4 ~ 50V		63V~	4V ~	---		
Case size (φ)		4 ~ 6.3		4 ~ 6.3	8 ~ 16	---		
Preheat	Temp.(T1 ~ T2, ℃)	150 ~ 180						
	Time (t1) (Max, secs)	100				90		
Duration	Temp.(T3, ℃)	217	230	217	217	200	217	230
	Time (t2) (Max, secs)	90	60	60	40	60	50	40
Peak	Temp.(T4, ℃)	260		250	240	250		260
	Time(t3, secs)	5		5	5	5		5
Reflow cycles		1		2 or less		2		1

* Please contact our representative if your condition is higher.

(1) Method is as follows.

Reflow soldering condition.

The following temperature profile condition should be observed for soldering. (For higher temperature, pleases contact us after measuring the capacitor's product temperature profile at your side.)

Product temperature will rise slower as the product size gets bigger. It is not necessary to adjust the reflow furnace temperature setting according to the product size, for example, φ4 and φ10 products can be mixed on one PCB for reflowing.

(2) Soldering precautions

1. Elements related to the reflow soldering temperature
   * Product size: The temperature rises slower as the size gets bigger.
   * Product location: The center part of the PCB tends to have a lower temperature than the PCB edges.
   * PCB size: The PCB temperature rises slower as the area and/or thickness of the PCB gets greater.
2. Repeated reflowing
   * Avoid reflowing twice if possible.
   * If repeated reflowing is unavoidable, contact us after measuring the first and the second reflow profiles and reflow interval at your side.
   * Do not attempt to reflow three times.
3. Soldering with soldering iron

   Observe the following conditions.
   * The iron tip temperature: 350±5℃
   * Soldering item: 3+1/-0 second

- Attention for EVS

Reflow soldering may reduce the capacitance of products before or after soldering even if soldering conditions stipulated in Recommendable Reflow Condition are met.

Though the actual reflow conditions are subject to change depending on the kind of reflow soldering method, please be aware that the peak temperature at the top of Al-case and electrode terminals should not exceed peak temperature.

Particular notice should be given to the time that EVS is heated at 200℃ or higher during reflow.

If your reflow conditions (temperature and/or duration) exceed the above, EVS may be damaged exhibiting; 50% decrease in capacitance, an increase of leakage current, (up to several mA) as well as damage to the exterior of the capacitor.