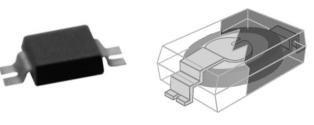
Surface Mount Disc Capacitors

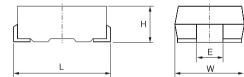
Introduction

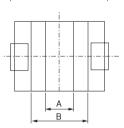
- Samwha's high voltage ceramic capacitors offer superior performance and reliability.
- SMDC is the resin molded SMD type that surface mounting is available.
- SMDC exhibits high reliability through use of disc capacitor element.
- Competitive lower maintenance cost is guaranteed.
- Wide rated voltage ranges from 1kV to 6kV, through a disc element which withstand high voltage and outcurve terminals.
- Design flexibility ensures down sizing and higher resistance to outer impact.

Shape & Dimensions



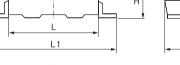
Inside Terminal (Style 1) (Development Product)

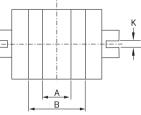




(Mass Product)

Outside Terminal (Style 2)

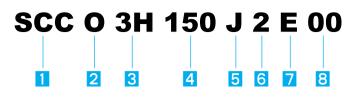




(Unit : mm)

Rated Voltage	Capacitance (pF)	L ±0.5	W ±0.3	H ±0.2	E ±0.2	А	В	К ±0.1	L1 ±0.3	L2 Min.	Terminal Form	Developm ent/Mass
3kV	5 ~ 33	5.7	4.5	2.3	2.5	1.7	3.1	-	-	-	Style 1	Development
	5 ~ 33	5.7	4.5	2.3	2.5	1.7	3.1	-	-	-	Style 1	Development
4kV	39 ~ 47	7.1	6.3	2.4	2.5	2.0	3.7	-	-	-	Style 1	Development
4K V	18 ~ 27	5.5	4.5	2.3	2.5	1.7	3.1	0.5	9.4	6.7	Style 2	Mass
	39 ~ 47	7.1	6.3	2.4	2.5	2.0	3.7	0.5	10.8	7.9	Style 2	Development
5kV	5 ~ 15	5.5	4.5	2.3	2.5	1.7	3.1	0.5	9.4	6.7	Style 2	Mass
JKV	18 ~ 27	7.1	6.3	2.4	2.5	2.0	3.7	0.5	10.8	7.9	Style 2	Development
6kV	5 ~ 15	7.1	6.3	2.4	2.5	2.0	3.7	0.5	10.8	7.9	Style 2	Development

How to Order(Product Identification)



1 Style

Mark	Product Name	Mark	Product Name
SCC	Temperature Compensating Type	SSD	AC250/400V(Testing Voltage:AC4000V)
SCK	High Dielectric Type	SSC	AC250(Testing Voltage:AC2500V)
SCG	Semiconductor Type		

2 Capacitance temperature characteristic

	SCC Туре	e (PPM/ (c)	SC	CK, SCG, SSC, SSD Type
С	NPO(0)	Т	N470(-470)	В	Y5P(+10~-10%)
L	N80(-80)	U	N750(-750)	R	Y5R(+15~-15%)
Ρ	N150(-150)	0	SL(+350~-1000)	E	Y5U(+22~-56%)
R	N220(-220)			F	Y5V(+22~-82%)
S	N330(-330)				

3 Rating Voltage

1A	10V	1B	12.5V	1C	16V	1E	25V					1H	50V		
2A	100V	2B	125V			2E	250V			2G	400V	2H	500V		
3A	1kV	3B	1.25kV	3D	2kV			3F	3.15kV	3G	4kV	3H	5kV	3]	6.3kV
4A	10kV	4B		4C	16kV										

4 Capacitance

(in picofarads) The first two digits indicate significant digits. The 3rd digit indicate the number of zero following. R denotes decimal. Ex.) 0.5pF : 0R5, 10pF : 100, 100pF : 101

5 Cap. Tolerance

6

Mark	Cap. Tolerance	Mar	k	Cap. Tolerance	Mark	Cap. Tolerance
С	±0.25pF	J		<u>+</u> 5%	Р	+100%, -0%
D	±0.5pF	К		±10%		+80%, -20%
F	±1.0pF	М		±20%		
Style		7	Packin	g Style		8 Spare Code
Mark	Terminal Form		Mark	Packaging Style		
1	Inside Terminal		В	Bulk		
2	Outside Terminal		Е	Embossed Carrier Taping		

Mark		Cap. Tolerance	Mark	Cap. Tolerance
J		±5%	Р	+100%, -0%
Κ		±10%	Z	+80%, -20%
М		±20%		
7 Pa	ckin	g Style		8 Spare Code
N	lark	Packaging Style		
	В	Bulk		
	Е	Embossed Carrier Taping		

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Surface Mount Disc Capacitors

Electrical Performance

No.	Item	Rec	т	est Condition	-		
INO.	ITEM	SCC Type	SCK, SCG, SSC, SSD Type		est containon	5	
1	Operating Temperature Range	-25℃ ~110℃	B.E : -25℃ ~ +85℃ F : +10℃ ~ +65℃				
2	Capacitance	Within the specified range		- Temperature : - Frequency : 1:		Type)	
3	Dissipation Factor (tan∂, Q)	$Q \ge 400+20C$ (C : capacitance, pF)	B,E : 2.5% Max. F : 5.0% Max.	1±0.1KHz (SCK,SCG,SSC,SSD Type) - Relative Humidity : 60~70% - Measure voltage : 1±0.1Vrms			
4	Insulation resistance	More than 10000MΩ		 Applied Volta To be below Above 500V Charge Time : 	v 500V - Rating 7 - 500V	Voltage	
5	Dielectric Withstanding	No remarkable abnormality	y is recognized	- Testing Voltag	je		
	Voltage			R.V	3kV	4kV~	
				W.VR.V × 1.75R.V × 1.5For 1 to 5 sec.(Between terminals)The discharge current, however was50 mA or less			
6	Capacitance temperature Characteristics	2- can -3 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4	NPO N80 N150 N220 N750 -0 -20 0 20 40 60 80 Temperature(°C)	Based on Items	s 2.2. 12 of EIA F	RS-198-C	
			B(Y5P) B(Y5P) E(Y5U) CO 30 40 50 60 70 80 90 Temperature (°C)				

Temperature and Humity Test Characteristics

No.	Item		Requir	rement	Test Conditions				
10 .			SCC Type	SCK, SCG, SSC, SSD Type					
1	High	Appearance	No. visible	e damage	- Temperature : $85\pm2^{\circ}$				
	Temperature Test	Capacitance Change	±5% or ±0.5 pF Whichever is larger from initial measurement	B : With ± 10% E : With ± 20% F : With ± 30%	 Test voltage : 1.2 times of the rated voltage Operating time of test : 1000 +48,/-0 hour After testing, The capacitor shall be subject to the standard test condition for a period 4- 				
		Dissipation Factor (tan ∂, Q)	Q ≥ 200	B,E : 5% Max. F : 7.5% Max.	hours and shall be measured. Charge a discharge current shall be 50 mA or less. * Standard test condition : -Temperature : 20±2°C				
		I.R	More than 2000MQ	, 	 Frequency : 1± 0.1MHz(SCC Type) 1± 0.1KHz (SCK, SCG, SSC, SSD Type) Relative Humidity : 60 ~ 70% Measure voltage : 1± 0.1Vrms 				
2	Humidity	Appearance	No. visible damage		- Temperature : 40±2°C				
	Resistance Test	Capacitance Change	\pm 5% or \pm 0.5 pF Whichever is larger from initial measurement	B : With ± 10% E : With ± 20% F : With ± 30%	 Relative Humidity : 90~95% R.H Operating time of test : 500 +24, -0 hours After testing, The capacitor shall be subject to the standard test condition for a period 4- hours and shall be measured. Charge a 				
		Dissipation $Q \ge 200$ Factor $(\tan \delta, Q)$		B,E : 5% Max. F : 7.5% Max.	discharge current shall be 50 mA or less. % Standard test condition : -Temperature : $20 \pm 2^{\circ}C$				
		I.R	More than 500MQ		- Frequency : 1± 0.1MHz(SCC Type) 1± 0.1KHz (SCK, SCG, SSC, SSD Type) - Relative Humidity : 60 ~ 70% - Measure voltage : 1± 0.1Vrms				
3	-	Appearance	No. visible damage		- The capacitors shall be subjected to 5cycl				
	Cycle Test	Capacitance	±5% or ±0.5 pF	B : With ± 10%	of the temperature cycle under Table. Step. Temperature(°C) Period(minutes)				
		Change	Whichever is larger from initial measurement	E : With ± 20% F : With ± 30%	1 -25, +0/-3 30 2 Standard test condition 1015 3 +85, +0/-3 30				
		Dissipation Factor (tan ∂, Q)	Q ≥ 200	B,E : 5% Max. F : 7.5% Max.	3 +85, +0/-5 30 4 Standard test condition 10~15 After testing, The capacitor shall be subject to the standard test condition for a period 4				
		I.R	More than 1000MΩ		hours and shall be measured. Charge discharge current shall be 50 mA or less. * Standard test condition : -Temperature : 20±2°C - Frequency : 1± 0.1MHz(SCC Type) 1± 0.1KHz (SCK, SCG, SSC, SSD Type - Relative Humidity : 60 ~ 70% - Measure voltage : 1± 0.1Vrms				

Mechanical test and Environmental Substance

	Item Adhesive Strength of Terminal		Require	ment	Test ConditionsSolder the capacitor to the testing jig (glass epoxy board) shown in Fig. 2 using a eutectic solder. Then apply 5 N force in the direction of the arrow. The soldering should be used the reflow method and should be conducted with care so that the soldering is uniform and free of defects such as heat shock.Image: Glass Epoxy Board Speed : 1.0mm/sFig.2			
No.			SCC Type	SCK, SCG, SSC, SSD Type				
1			No removal of the ter defect should occur.	mination or other				
2	Vibration	Appearance	No. visible damage		The capacitor should be subjected to a simple			
	Resistance	Capacitance Change	$\pm 5\%$ or ± 0.5 pF Whichever is larger from initial measurement	B : With ± 10% E : With ± 20% F : With ± 30%	harmonic motion having a total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55Hz. The frequency range, from 10 to 55Hz and return to 10Hz, should be			
		Dissipation Factor (tan ∂, Q)	Q ≥ 200	B,E : 5% Max. F : 7.5% Max.	traversed in approximately 1 min. This motion should be applied for a period of 2hrs. in each 3mutually			
		I.R	More than 1000MQ	·	perpendicular directions (total of 6hrs.)			
3	Bending	Appearance	No. visible damage		Solder the capacitor to the testing jig (glass epoxy board) shown in Fig. 3 using a eutectic solder.			
	Strength	Capacitance Change	$\pm 5\%$ or ± 0.5 pF Whichever is larger from initial measurement	B : With ± 10% E : With ± 20% F : With ± 30%	Then apply a force in the direction shown in Fig. 4. The soldering should be done either with an iron o using the reflow method and should be conducted with care so that the soldering is uniform and free o			
			Fig.3		Fig.4			
4	Solderability	y Test	Visual examination te be at least 90% cover solder coating		Soldering Method : Reflow Soldering - Maximum Temperature : 250°C max. (245±5°C, 5±0.5 sec.) - Preheating Temperature : 150~180°C, 60~180 sec.			
5	Solder	Appearance	No. visible damage		Soldering Method : Reflow Soldering			
	Heat Resistance	Capacitance Change	$\pm 5\%$ or ± 0.5 pF Whichever is larger from initial measurement	B : With ± 5% E : With ± 15% F : With ± 20%	 Maximum Temperature : 250°C max. (245±5°C, 5±0.5 sec.) Preheating Temperature : 150~180°C, 60~180 sec. After testing, The capacitors shall be subjected to th standard test condition for a period 24 hours and sha be measured. 			
		Dielectric Strength	No. Failure	· 				
6								