

# SD series

- High frequency and low impedance, high ripple current resistance.
- Suitable for return-circuit of switching power source.
- RoHS Compliance.
- 高頻低阻抗、耐高紋波。
- 適用於開關電源迴路。



## SPECIFICATIONS

Items 項目	Characteristics 特性											
Capacitance Tolerance 靜電容量誤差	±20% (120Hz, 20°C)											
Operating Temperature Range 適用溫度範圍	-55 ~ +105°C			-40 ~ +105°C				-25 ~ +105°C				
Rated Voltage Range 工作電壓範圍	6.3 ~ 100V			160 ~ 400V				450V				
Leakage Current 洩漏電流	WV ≤ 100V I ≤ 0.01CV or 3µA (After 2 minutes application of DC working voltage, at 20°C) WV > 100V I ≤ 0.03CV + 20(µA) (After 5 minutes application of DC working voltage, at 20°C)											
Dissipation Factor 散逸因素 (tan δ)	Measurement Frequency: 120 Hz. Temperature: 20°C											
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160~250	400~450	
	tan δ (Max)	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.07	0.20	0.24	
When nominal capacitance exceeds 1000µF, add 0.02 to the value above for each 1000µF increase. (20°C · 120Hz)												
Low Temperature Stability 低溫特性 Impedance Ratio (Max) 阻抗比率 (最大值)	Measurement Frequency: 120Hz.											
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160~250	400	450
	Z (-25°C) / Z (20°C)	4	3	2	2	2	2	2	2	3	5	6
	Z (-40°C) / Z (20°C)	-	-	-	-	-	-	3	3	6	-	-
Z (-55°C) / Z (20°C)	8	6	4	3	3	3	-	-	-	-	-	
Load Life 負荷壽命	2000hours, with application of working voltage at 105°C											
	Capacitance Change	Within ±20% of Initial Value										
	tan δ	200% or less of Initial Specified Value										
	Leakage Current	Initial Specified Value or less										
Shelf Life 放置壽命	1,000hours, no voltage applied, at 105°C. After Test: UR to be applied for 30 minutes, 24 to 48hours before measurement.											
	Capacitance Change	Within ±20% of Initial Value										
	tan δ	200% or less of Initial Specified Value										
	Leakage Current	Initial Specified Value or less										
Standards 參照標準	JIS C 5101-4-1 and JIS C 5101-2											

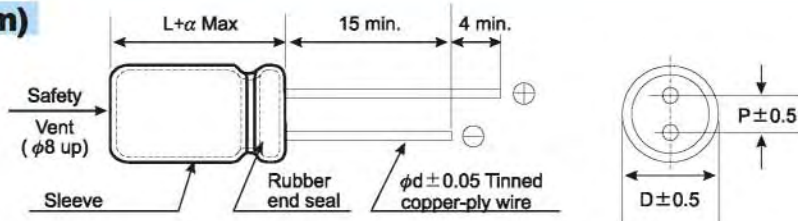
## PERMISSIBLE RIPPLE CURRENT

### Frequency Coefficient

WV(V)	Capacitance (µF)	Frequency (Hz)				
		50	120	1K	10K	100K
6.3 ~ 100	0.47 ~ 100	0.45	0.55	0.75	0.90	1.00
	220 ~ 1000	0.60	0.70	0.85	0.95	1.00
	1500 ~ 15000	0.70	0.80	0.95	0.98	1.00
160 ~ 450	0.47 ~ 330	0.55	0.65	0.80	0.90	1.00

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## DIMENSIONS (mm)



$\phi D$	5	6.3	8	10	13	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
$\phi d$	0.5	0.5	0.5	0.6	0.6	0.8	0.8

$\alpha$	(L < 16) 1.0
	(L $\geq$ 16) 2.0

## STANDARD RATINGS

DxL (mm); R.C.: (mA rms) at 105°C, 100KHz; IMP: ( $\Omega$  max) at 20°C, 100KHz.

Cap ( $\mu F$ )	WV(V) (Code)	6.3 (0J)			10 (1A)			16 (1C)			25 (1E)		
		D x L	R.C.	IMP	D x L	R.C.	IMP	D x L	R.C.	IMP	D x L	R.C.	IMP
4.7											5x11	50	1.500
10											5x11	80	1.500
22											5x11	110	0.800
47					5x11	140	0.650	5x11	170	0.650	5x11	170	0.650
68					5x11	160	0.650	5x11	210	0.550	6.3x11	210	0.550
100					5x11	180	0.650	6.3x11	270	0.300	6.3x11	270	0.300
220		6.3x11	270	0.300	6.3x11	270	0.300	8x12	440	0.200	8x12	440	0.200
330		6.3x11	320	0.300	8x12	440	0.200	8x12	440	0.200	10x13	650	0.100
470		8x12	440	0.200	8x12	440	0.200	10x13	650	0.100	10x16	800	0.075
680		8x12	650	0.100	10x13	650	0.100	10x16	800	0.075	10x20	1050	0.058
1000		10x13	650	0.100	10x16	800	0.075	10x20	1050	0.058	13x21	1350	0.055
1500		10x13	1050	0.058	10x20	1050	0.058	13x21	1350	0.055	13x25	1850	0.040
2200		10x25	1350	0.055	13x21	1350	0.055	13x25	1650	0.043	16x26	2050	0.030
3300		13x21	1350	0.055	13x25	1650	0.043	16x26	2050	0.030	16x32	2550	0.027
4700		13x25	1820	0.035	16x26	2050	0.030	16x32	2550	0.027	18x35	2950	0.025
6800		16x26	2050	0.030	16x32	2550	0.027	18x35	2950	0.025	18x40	3300	0.023
10000		16x32	2550	0.027	18x35	2950	0.025	18x40	3300	0.023			
15000		18x35	2950	0.025	18x40	3300	0.023						

Cap ( $\mu F$ )	WV(V) (Code)	35 (1V)			50 (1H)			63 (1J)			100 (2A)		
		D x L	R.C.	IMP	D x L	R.C.	IMP	D x L	R.C.	IMP	D x L	R.C.	IMP
0.47					5x11	25	7.500				5x11	20	43.00
1					5x11	40	5.300				5x11	30	44.00
2.2					5x11	55	4.500				5x11	44	9.800
3.3					5x11	65	3.900				5x11	58	6.600
4.7		5x11	85	2.000	5x11	90	2.300	5x11	65	4.494	5x11	74	4.605
10		5x11	100	1.200	5x11	110	1.400	5x11	110	2.252	6.3x11	130	1.805
22		5x11	120	1.000	5x11	140	1.200	6.3x11	200	0.780	8x12	230	1.360
33		5x11	210	0.430	6.3x11	240	0.480	6.3x11	250	0.731	10x13	320	0.460
47		6.3x11	270	0.300	6.3x11	240	0.480	8x12	405	0.324	10x16	420	0.328
68		8x12	360	0.300	8x12	300	0.300	10x13	406	0.306	10x20	420	0.288
100		8x12	440	0.200	8x12	400	0.250	10x13	535	0.276	13x21	580	0.208
220		10x13	650	0.100	10x16	600	0.170	10x20	880	0.142	16x26	880	0.104
330		10x16	800	0.075	10x20	800	0.150	13x21	1280	0.085	16x32	930	0.088
470		10x20	1050	0.058	13x21	1050	0.090	13x25	1710	0.070	16x36	1230	0.072
680		13x21	1350	0.055	13x25	1150	0.070	16x26	2150	0.055	18x35	1410	0.064
1000		13x25	1650	0.043	16x26	1550	0.048	16x32	2670	0.043	18x40	1520	0.047
1500		16x26	2050	0.030	16x32	1950	0.043	18x35	3090	0.033			
2200		16x32	2550	0.027	18x35	2250	0.040	18x40	2120	0.032			
3300		18x35	2950	0.025									
4700		18x40	3300	0.023									

※ 13mm may be replaced by 12.5mm upon customer's request.

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## STANDARD RATINGS

DxL (mm); R.C.: (mA rms) at 105°C, 100KHz; IMP: ( $\Omega$  max) at 20°C, 100KHz.

Cap ( $\mu$ F)	WV(V) (Code) Item	160 (2C)			200 (2D)			250 (2E)		
		D x L	R.C.	IMP	D x L	R.C.	IMP	D x L	R.C.	IMP
2.2								8x12	105	13.0
3.3		8x12	104	11.0	8x12	113	11.0	8x12	122	11.0
4.7		8x12	112	6.50	8x12	126	6.10	10x13	140	4.30
10		10x13	180	4.30	10x13	210	3.80	10x16	300	3.50
22		10x16	250	1.50	10x20	465	1.10	13x21	485	1.20
33		10x20	570	0.71	10x25	600	0.58	13x21	620	1.13
47		13x21	730	0.46	13x21	730	0.46	13x25	810	0.60
68		13x21	850	0.46	13x25	985	0.39	16x26	1010	0.57
100		16x26	1285	0.24	16x26	1285	0.24	16x32	1405	0.30
220		16x36	1450	0.13	18x32	1510	0.13	18x40	1490	0.27
330		18x35	1850	0.12						

Cap ( $\mu$ F)	WV(V) (Code) Item	400 (2G)			450 (2W)		
		D x L	R.C.	IMP	D x L	R.C.	IMP
2.2		8x12	80	7.60	10x13	90	9.50
3.3		10x13	110	5.20	10x16	126	7.90
4.7		10x16	160	3.80	10x20	147	6.20
10		10x20	195	2.10	13x21	280	3.70
22		13x25	350	0.85	16x26	580	1.00
33		13x25	580	0.76	18x20	610	0.95
47		16x26	720	0.61	16x32	850	0.85
68		16x32	1200	0.55	18x32	940	0.71
100		18x35	1250	0.48	18x40	1100	0.43

※ 13mm may be replaced by 12.5mm upon customer's request.