



• Specifications

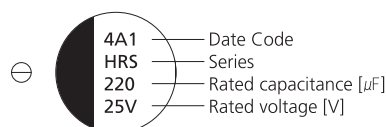
Items	Characteristics						
Category temperature range	-55 to +105°C						
Rated voltage range	16 to 80Vdc						
Capacitance range	22 to 1800μF						
Capacitance tolerance	±20% [M] (at 20°C, 120Hz)						
Leakage current	I=0.01CV or 3μA whichever is greater (at 20°C, after 2 minutes)						
Tangent of loss angle(tanδ)	Rated voltage(V)	16	25	35	50	63	80
	Tanδ	0.16	0.14	0.12	0.10	0.08	0.08
(at 20°C, 120Hz)							
ESR	Less than or equal to the value of Standard Ratings (at 20°C, 100kHz)						
Low temperature characteristics (Impedance ratio at 100kHz)	Z (-25 °C) / Z (+20 °C) ≤ 1.5 Z (-55 °C) / Z (+20 °C) ≤ 2.0						
Endurance	105°C, 10,000 hrs, apply the rated ripple current without exceeding the rated voltage						
	Capacitance change			Within±30% of the initial value			
	Tangent of loss angle (tanδ)			≤200% of the initial specified value			
	ESR(mΩ)			≤200% of the initial specified value			
	Leakage current			≤The initial specified value			
Shelf life	After storage for 1,000 hrs at 105°C with no voltage applied and then being stabilized at 20°C, capacitors shall meet the specified values for the endurance characteristics listed above.(with voltage treatment)						
Damp Heat (Steady State)	85°C, 85% RH, 2,000 hrs, rated voltage applied						
	Capacitance change			Within±30% of the initial value			
	Tangent of loss angle (tanδ)			≤200% of the initial specified value			
	ESR(mΩ)			≤200% of the initial specified value			
	Leakage current			≤The initial specified value			

• Part numbering system

Example: HRS series, 25V / 220μF

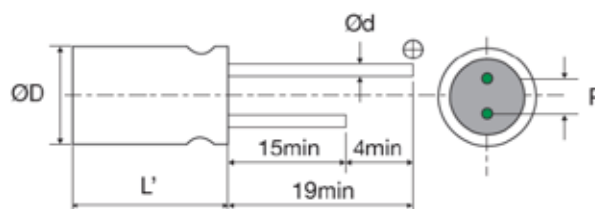
25	HRS	220	M	D	10
Voltage	Series	Capacitance	Tolerance	Diameter	Length

• Marking and Dimensions



• Frequency coefficient for ripple current

Frequency	120Hz	1kHz	10kHz	100kHz
Coefficient	0.15	0.40	0.75	1.00



Size	ØD±0.5	L	L'	P±0.5	Ød
6.3×7.7	6.3	7.7	L±0.5	2.5	0.50
8.0×9.5	8.0	9.5	L±1.0	3.5	0.60
10.0×10.5	10.0	10.5		5.0	0.60
10.0×11.5	10.0	11.5		5.0	0.60
10.0×16.0	10.0	16.0		5.0	0.60

• Standard Ratings

Rated Voltage [Vdc]	Rated Capacitance [μF]	Size ØD x L [mm]	ESR (20°C, 100kHz) [mΩ] [max.]	Rated Ripple Current (105°C, 100kHz) [mA rms]	Part Number
16	560	8.0 x 9.5	27	3100	16HRS560MD10
	1200	10.0 x 11.5	16	4100	16HRS1200ME11
	1800	10.0 x 16.0	11	5200	16HRS1800ME16
25	150	8.0 x 9.5	27	2300	25HRS150MD10
	220	8.0 x 9.5	27	2300	25HRS220MD10
	330	10.0 x 10.5	20	2500	25HRS330ME10
	680	10.0 x 16.0	16	4100	35HRS680ME10
	1200	10.0 x 16.0	11	5200	35HRS1200ME16
35	68	6.3 x 7.7	35	2700	35HRS68MC8
	100	8.0 x 9.5	27	2300	35HRS100MD10
	150	8.0 x 9.5	27	2300	35HRS150MD10
	220	10.0 x 10.5	20	2500	35HRS220ME10
	270	10.0 x 10.5	20	2500	35HRS270ME10
	330	10.0 x 10.5	14	4700	35HRS330ME10
	470	8.0 x 11.5	11	5200	35HRS470MD11
	680	10.0 x 16.0	11	5700	35HRS680MD16
50	47	8.0 x 9.5	30	1800	50HRS47MD10
	68	8.0 x 9.5	30	1800	50HRS68MD10
	100	10.0 x 10.5	28	2000	50HRS100ME10
	220	10.0 x 16.0	13	5100	50HRS220ME16
63	33	8.0 x 9.5	40	1700	63HRS33MD10
	47	8.0 x 9.5	40	1700	63HRS47MD10
	56	10.0 x 10.5	30	1800	63HRS56ME10
	68	10.0 x 10.5	30	1800	63HRS68ME10
	82	10.0 x 10.5	30	1800	63HRS82ME10
	180	10.0 x 16.0	15	4900	63HRS180ME16
80	22	8.0 x 9.5	45	1550	80HRS22MD10
	33	10.0 x 10.5	36	1700	80HRS33ME10
	47	10.0 x 10.5	36	1700	80HRS47ME10
	100	10.0 x 16.0	16	4400	80HRS100ME16