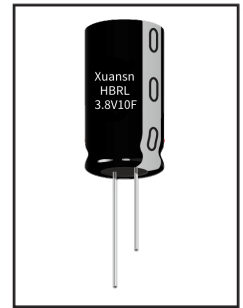


Features

- Low temperature series
- Low ESR
- RoHS compliant
- Consumer electronic
- Pulse power
- Hold-up power



Items	Characteristics		
Rated Voltage	3.8V~2.5V		
Operating Temperature Range	-25 ~+70°C		
Surge Voltage	4.2V		
Capacitance Range	10~220 F		
Capacitance Tolerance (20°C)	-20~+20%		
Temperature Characteristics	The specifications shall be met at category temperature range form -25°C to 70°C	Capacitance Change ESRAC	Within 50% of the value at 20°C Less than 1000% of the value at 20°C
High Temperature Loaded	The specifications shall be met after rated voltage applied at 70°C for 1000 hours	Capacitance Change ESRAC	Within 30% of the initial value Less than 200% of initial value
High Temperature Storage	The specifications shall be met after storage at 70°C for 1000 hours	Capacitance Change ESRAC	Within 30% of the initial value Less than 200% of initial value
Cycle Life	The specifications shall be met after 250,000 cycles at 25°C, cycle of charge/-discharge from 3.8~2.5V	Capacitance Change ESRAC	Within 30% of the initial value Less than 200% of initial value

Dimensions

mm

ΦD	8	10	12.5	16
p	3.5	5.0	5.0	7.5
Φd	0.6	0.6	0.6	0.8
a	1.5	2.0	2.0	2.0

Standard Ratings for HBRL Series

U _R (Surge Voltage) Code	Rated Cap. 25°C	Impedance		Rated Current	Max. Current	Leakage Current	Size ΦD×L	P/N
		ESR _{DC}	ESR _{AC} 1KHz					
(V)	(F)	(mΩ)	(mΩ)	(A)	(A)	(μA)	(mm)	-
3.8 (4.0) 3R8	10	1500	500	0.05	0.5	3.0	8x14	
	25	650	300	0.125	0.8	3.3	8x20	
	30	700	250	0.15	0.9	4.0	8x25	
	30	550	250	0.15	1.0	4.0	10x16	
	50	450	200	0.25	1.8	6.0	10x20	
	70	250	100	0.35	3.0	8.0	10x25	
	110	220	90	0.55	4.0	10.0	10x30	
	120	200	80	0.6	5.0	12.0	12.5x25	
220	100	60	1.1	8.0	25.0	16x25		