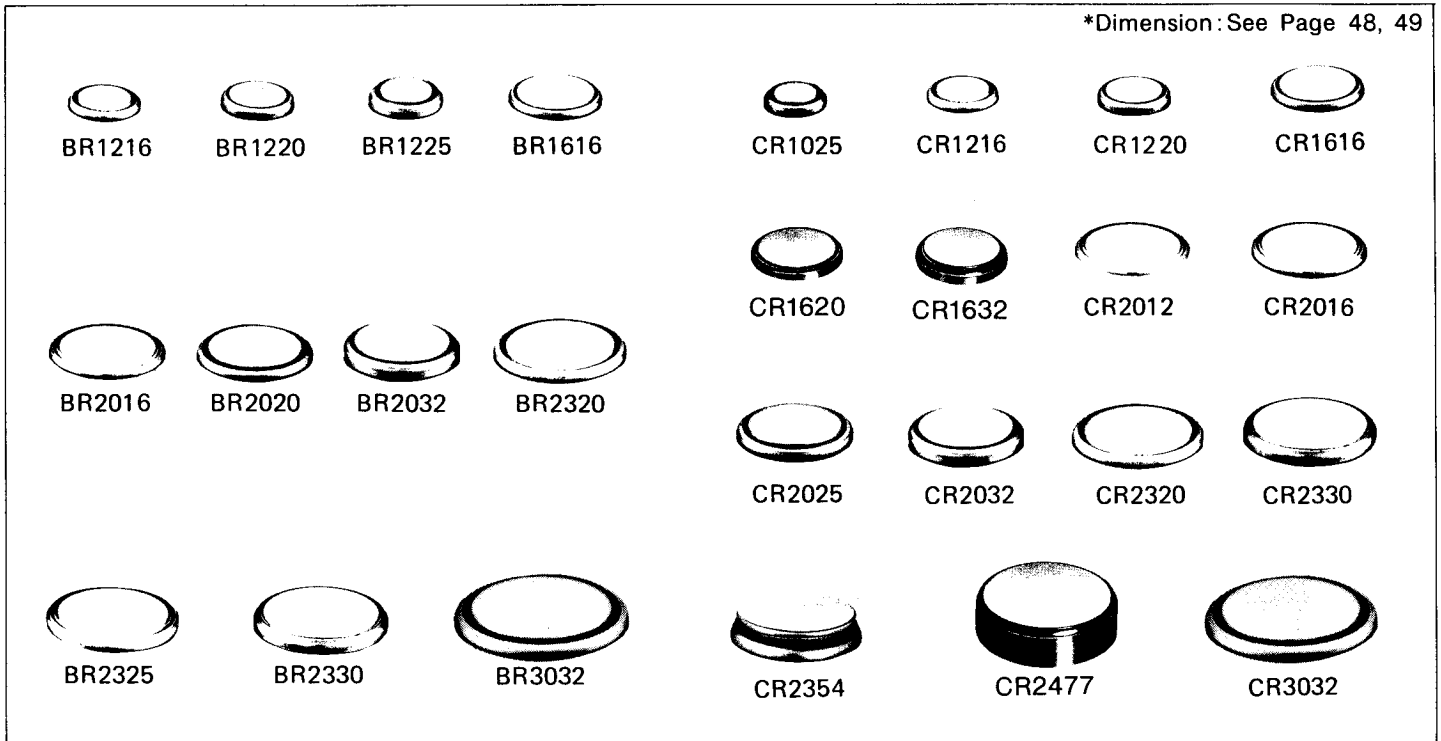


5. Coin type Lithium Batteries



5.1 Overview

Panasonic coin type lithium batteries are high energy, high reliability batteries for consumer appliances; developed first by Panasonic, combining the best of Panasonic's battery technologies. The full 3 volts in these high energy density batteries is about twice that of conventional batteries.

Two types of coin type lithium batteries are available — poly-carbonmonofluoride lithium batteries (BR series) for uses that require extended reliability and safety, and manganese dioxide lithium batteries (CR series) for uses that require high voltage and strong load pulse characteristics.

5.2 Features

- High voltage of 3 volts (about twice that of conventional batteries).
- Extremely small self-discharge for a long service and shelf life.
- A wide operational temperature range.
- Compact and lightweight, with extremely high energy density per unit weight.
- Extremely safe (poly-carbonmonofluoride lithium batteries)
- Extremely strong load pulse characteristics (manganese dioxide lithium batteries).

5.3 Applications

- Electronic watches (digital and analog)
- Calculators
- Cameras
- Electronic translators
- For memory backup in all types of devices (available with tab terminals)
- Other compact, low power cordless applications

5.4 Battery Sizes and Designations

Diameter (mm) \ Height (mm)	30	24.5	23	20	16	12.5	10
7.7		CR2477					
5.4			CR2354				
3.2	BR3032 CR3032			BR2032 CR2032	CR1632		
3.0			BR2330 CR2330				
2.5			BR2325	CR2025		BR1225	CR1025
2.0			BR2320 CR2320	BR2020	CR1620	BR1220 CR1220	
1.6				BR2016 CR2016	BR1616 CR1616	BR1216 CR1216	
1.2				CR2012			

Note, BR : (CF)n/Li system
CR : MnO₂/Li system

5.5 Specification Table

(CF)_n/Li Batteries

Model No.	JIS	IEC	Electrical characteristics(20°C)					Dimensions		
			Nominal Voltage (V)	Nominal Capacity (mAh)	Recommended Drain			Diameter (mm)	Height (mm)	Weight (g)
					Pulse (mA)	Standard (mA)	Low (μA)			
BR1216	-	-	3	25	5	0.03	1	12.5	1.60	0.6
BR1220	-	-	3	35	5	0.03	1	12.5	2.00	0.7
BR1225	-	-	3	38	5	0.03	1	12.5	2.50	0.9
BR1616	-	-	3	48	8	0.03	1	16.0	1.60	1.0
BR2016	-	-	3	75	10	0.03	1	20.0	1.60	1.5
BR2020	-	-	3	100	10	0.03	2	20.0	2.00	2.0
BR2032	-	-	3	190	10	0.03	4	20.0	3.20	2.5
BR2320	-	-	3	110	10	0.03	2	23.0	2.00	2.5
BR2325	-	-	3	165	10	0.03	3	23.0	2.50	3.0
BR2330	-	-	3	255	10	0.03	5	23.0	3.00	3.2
BR3032	-	-	3	500	10	0.03	10	30.0	3.20	5.5

M_nO₂/Li Batteries

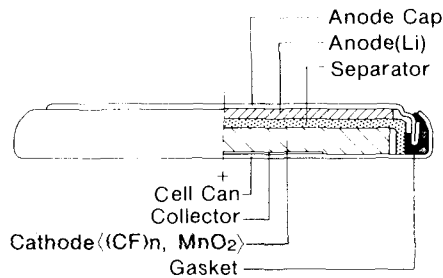
Model No.	JIS	IEC	Electrical characteristics (20°C)					Dimensions		
			Nominal Voltage (V)	Nominal Capacity (mAh)	Recommended Drain			Diameter (mm)	Height (mm)	Weight (g)
					Pulse (mA)	Standard (mA)	Low (μA)			
CR1025	CR1025		3	32	5	0.10	1	10.0	2.50	0.7
CR1216	CR1216		3	25	5	0.10	1	12.5	1.60	0.7
CR1220	CR1220	CR1220	3	35	5	0.10	1	12.5	2.00	0.9
CR1616	CR1616		3	50	8	0.10	1	16.0	1.60	1.2
*CR1620		CR1620	3	70	8	0.10	1	16.0	2.00	1.3
*CR1632			3	110	8	0.10	1	16.0	3.20	1.8
CR2012	CR2012		3	55	10	0.10	1	20.0	1.20	1.4
CR2016	CR2016	CR2016	3	70	10	0.10	2	20.0	1.60	1.7
CR2025	CR2025	CR2025	3	150	15	0.20	3	20.0	2.50	2.5
CR2032	CR2032	CR2032	3	210	15	0.20	4	20.0	3.20	3.3
CR2320	CR2320		3	125	15	0.20	3	23.0	2.00	3.0
CR2330	CR2330		3	250	15	0.20	5	23.0	3.00	4.0
CR2354			3	560	15	0.20	5	23.0	5.40	5.9
*CR2477			3	1,000	10	0.20	10	24.5	7.70	10.5
CR3032			3	500	15	0.20	10	30.0	3.20	7.1

*New Product

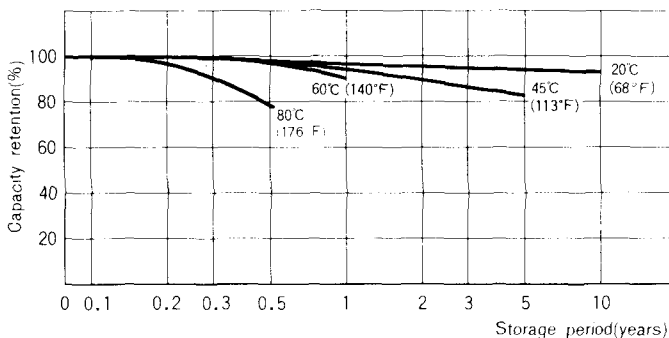
Note: Nominal Capacity shown above is based on standard drain.

Some items require special order manufacture, so be sure to confirm lead time, etc with Panasonic.

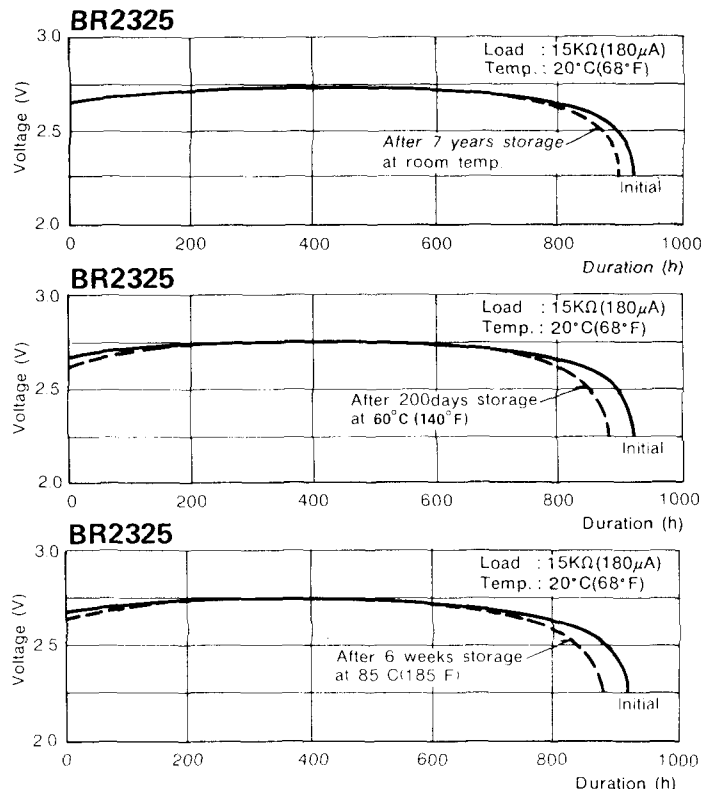
5.6 Cutaway View



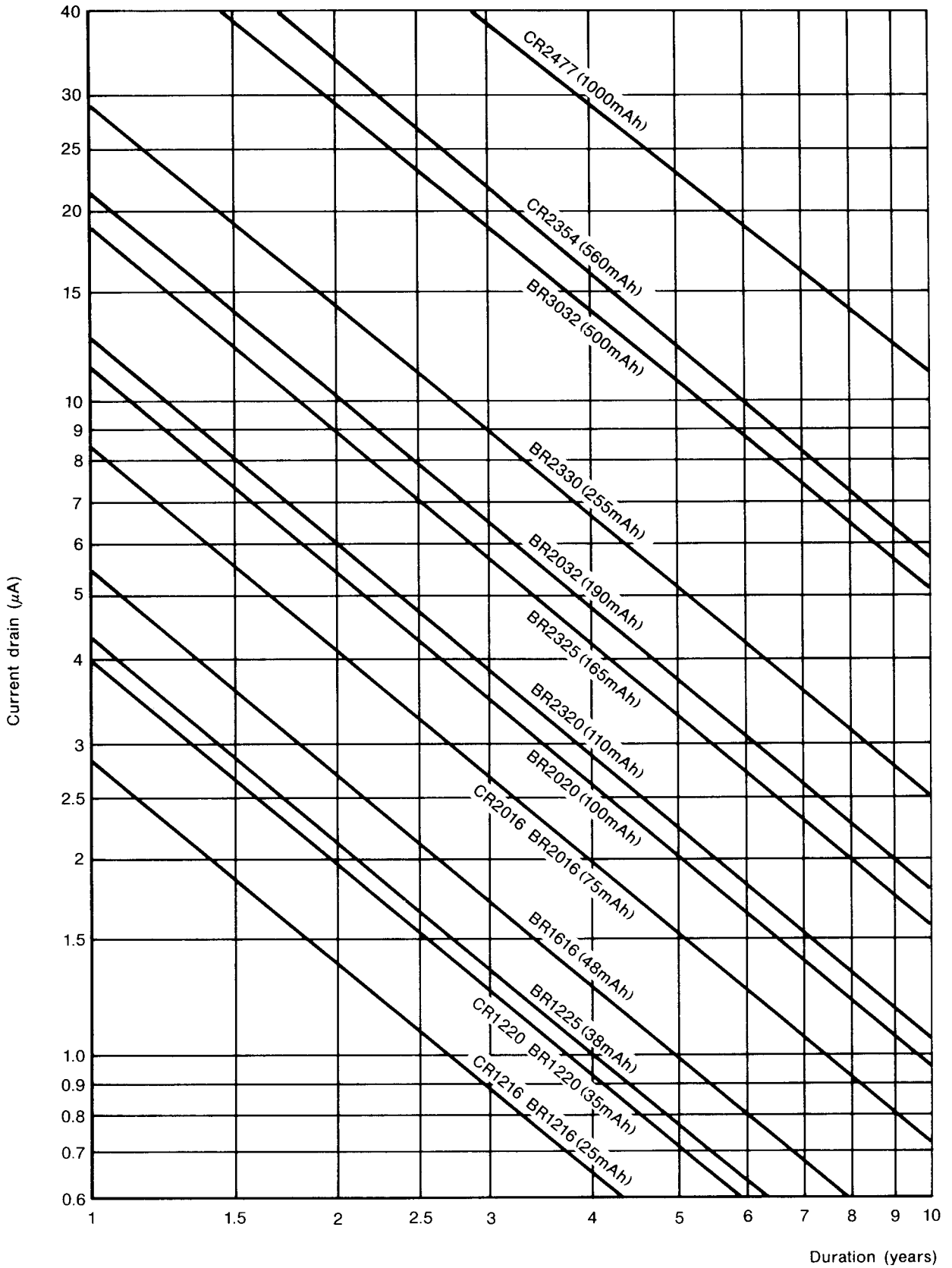
5.7 Shelf Life Characteristics (BR Type)



5.8 Storage Characteristics



5.9 Battery Selector Chart

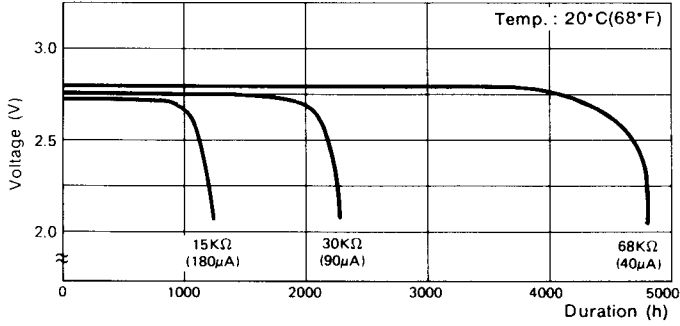


Formula

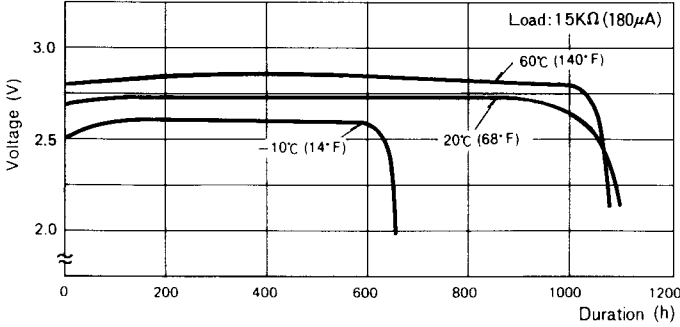
$$\text{Duration (years)} = \frac{\text{Nominal Capacity (mAh)}}{\text{Current drain (mA)} \times 24 \text{ (hours)} \times 365 \text{ (days)}}$$

BR2032

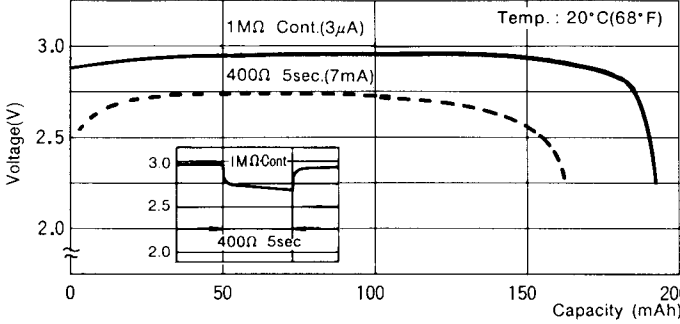
● Load characteristics



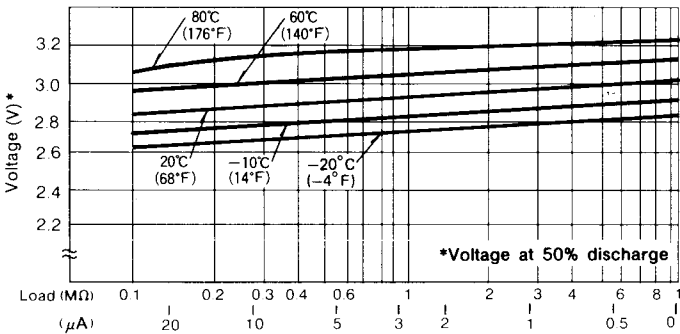
● Temperature characteristics



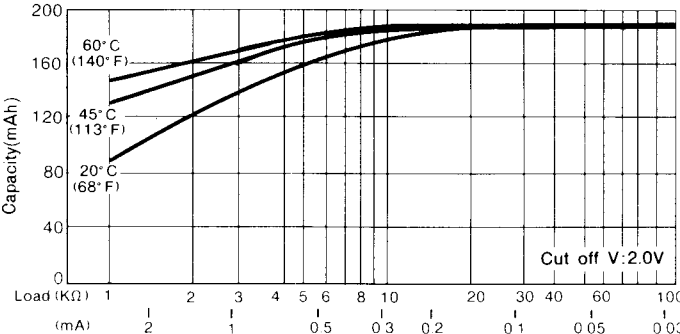
● Pulse discharge characteristics



● Operating voltage vs. load resistance

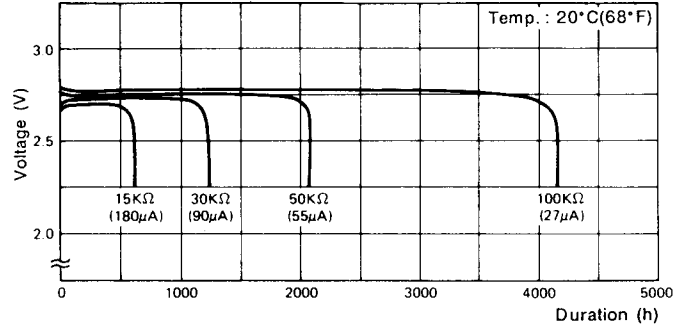


● Capacity vs. load resistance

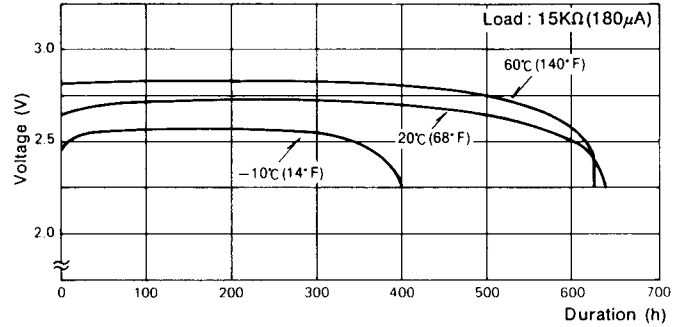


BR2320

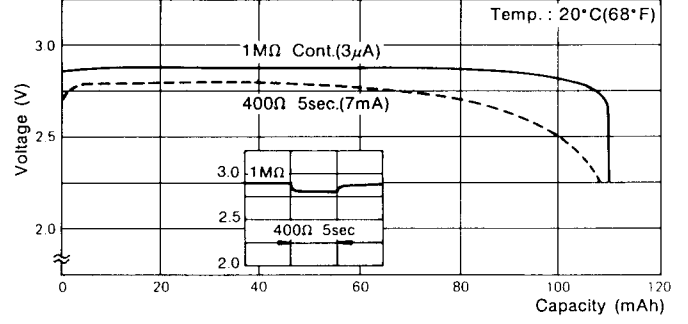
● Load characteristics



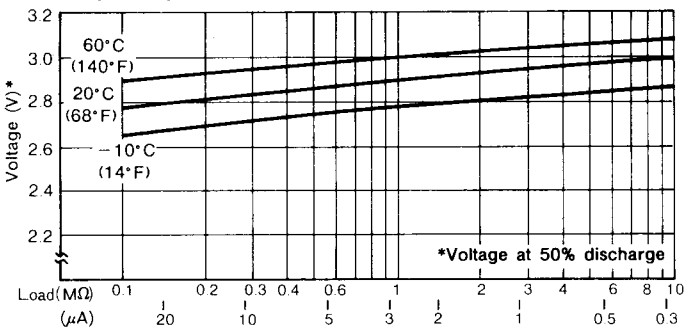
● Temperature characteristics



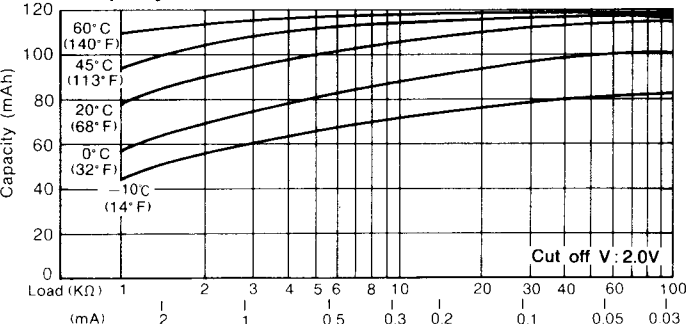
● Pulse discharge characteristics



● Operating voltage vs. load resistance

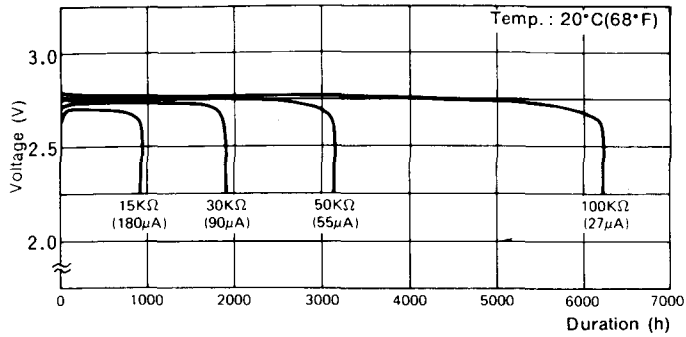


● Capacity vs. load resistance

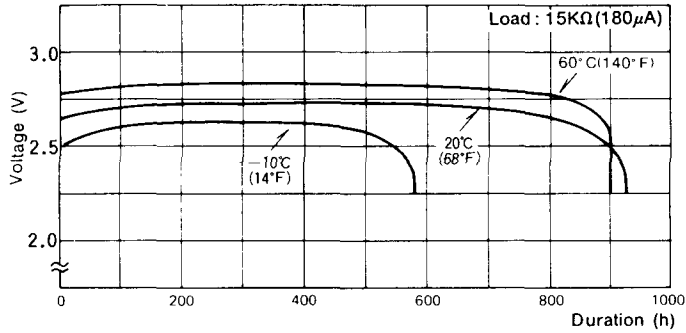


BR2325

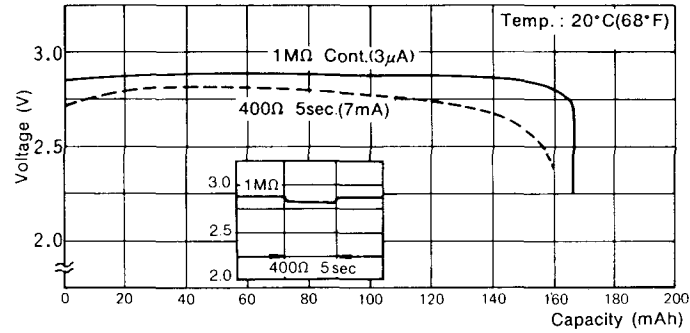
● Load characteristics



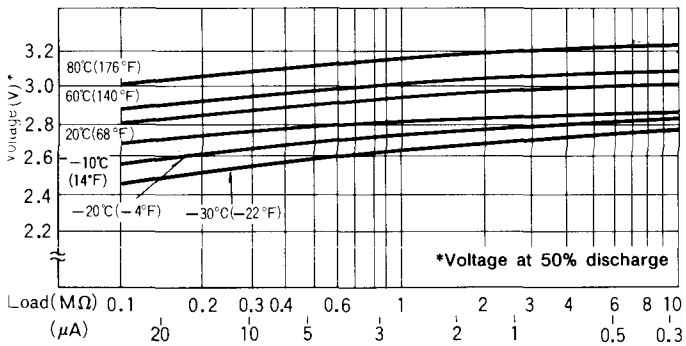
● Temperature characteristics



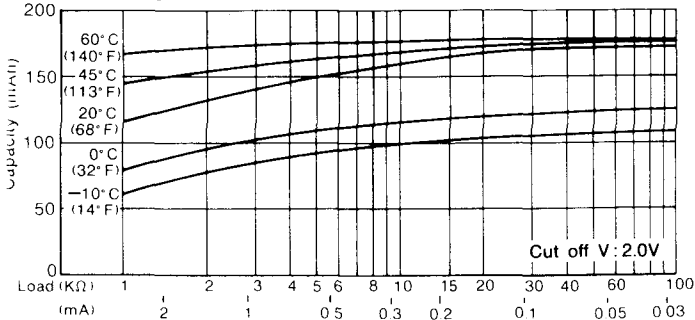
● Pulse discharge characteristics



● Operating voltage vs. load resistance

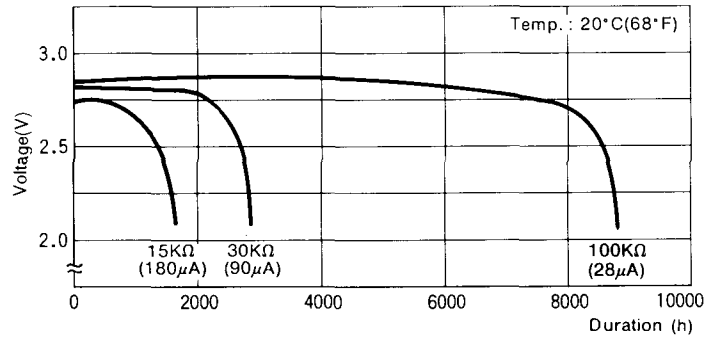


● Capacity vs. load resistance

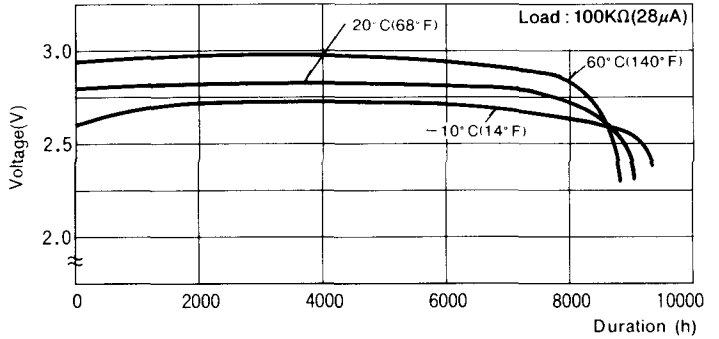


BR2330

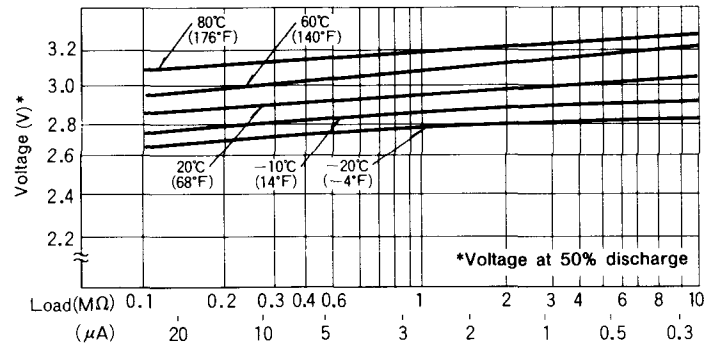
● Load characteristics



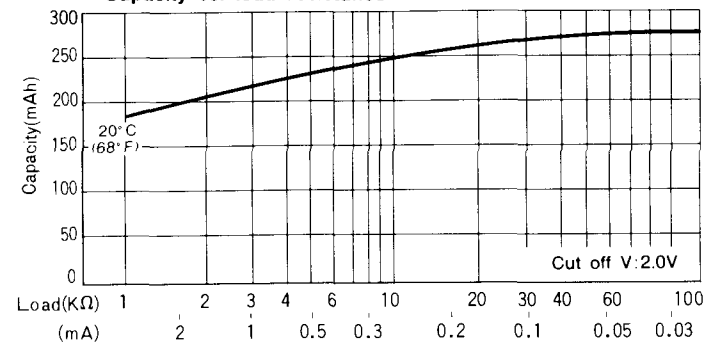
● Temperature characteristics

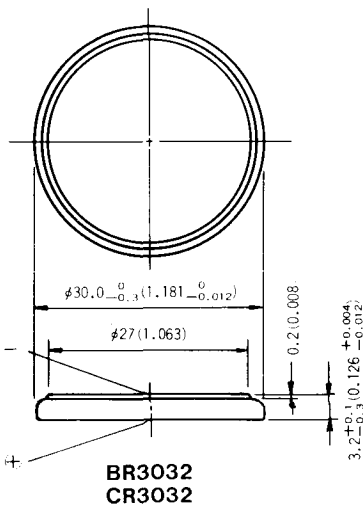
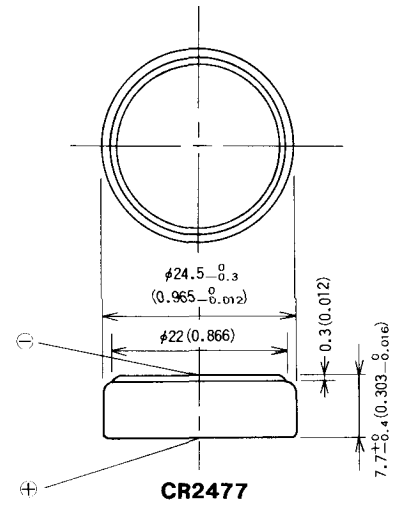
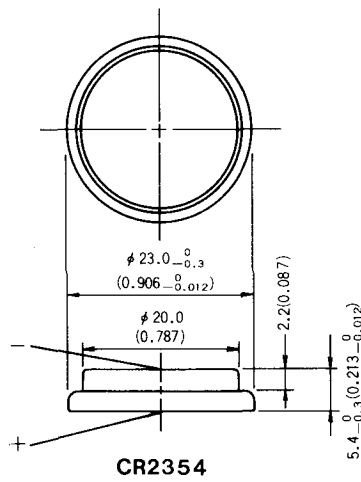
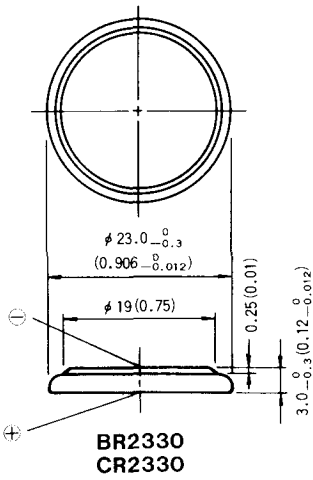
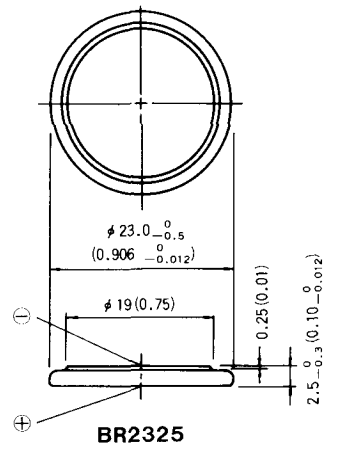
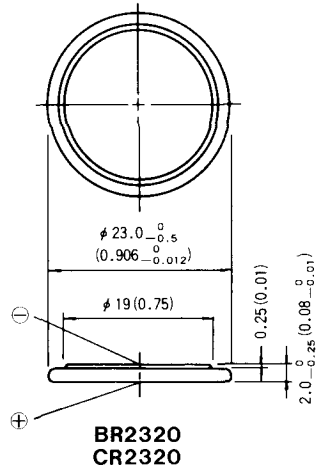
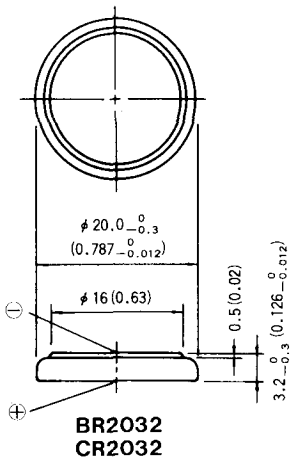


● Operating voltage vs. load resistance



● Capacity vs. load resistance





For further information on dimension & tolerances, please contact Panasonic.