#### **PRODUCTS**

## INDUSTRIAL SOLUTIONS

#### **LITHIUM - Coin Type**

Coin type lithium batteries are high energy, high reliability batteries for a variety of applications. The full 3 volts in these high energy density batteries is about twice that of conventional dry batteries.

Panasonic coin type lithium batteries are available in two types: 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.

The CR Lithium primary coin cells contain Perchlorate over the limit specified by the state legislature of California and are therefore subject to requirements in the California Code of Regulations, title 22, division 4.5: Chapter 33 – Best Management Practices for Perchlorate Materials.



#### Features:

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

BR Coin Cells: -30°C ~ +80°C CR Coin Cells: -30°C ~ +60°C

#### **Applications:**

- Calculators
- Cameras
- Compact, low power consuming cordless applications
- Electronic translators
- Electronic watches (digital and analog)
- Memory back-up in all types of devices (with tab terminals)

Technical Data - Table 1 - (CF)n/LI: Poly-Carbon Monofluoride (BR)									
Model No.	Electrical Characteristics (20°C)		Standard Load	Dimensions				Tab Configurations	
	Nominal Voltage (V)	*Nominal Capacity (mAh)	Continuous Drain (mA)	Diameter (mm)	Height (mm)	Weight (g)		1 ao Comigurations	
BR1220	3	35	0.03	12.5	2.00	0.7			
BR1225	3	48	0.03	12.5	2.50	0.8			
BR1632	3	120	0.03	16.0	3.20	1.5			
BR2032	3	190	0.03	20.0	3.20	2.5			
BR2325	3	165	0.03	23.0	2.50	3.2			
BR2330	3	255	0.03	23.0	3.00	3.2			
BR3032	3	500	0.03	30.0	3.20	5.5			
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<sup>\*</sup> Nominal capacity shown is based on standard drain and cut off voltage down to 2.0V at 20°C.

Technic	Technical Data - Table 2 - Mn0 <sub>2</sub> /LI:Manganese Dioxide (CR)								
Model	Electrical Characteristics (20°C)		Standard Load	Dimensions			Tab Configurations		
No.	Nominal Voltage (V)	*Nominal Capacity (mAh)	Continuous Drain (mA)	Diameter (mm)	Height (mm)	Weight (g)		Tao Configurations	
<u>CR1025</u>	3	30	0.10	10.0	2.50	0.7			
<u>CR1216</u>	3	25	0.10	12.5	1.60	0.7			

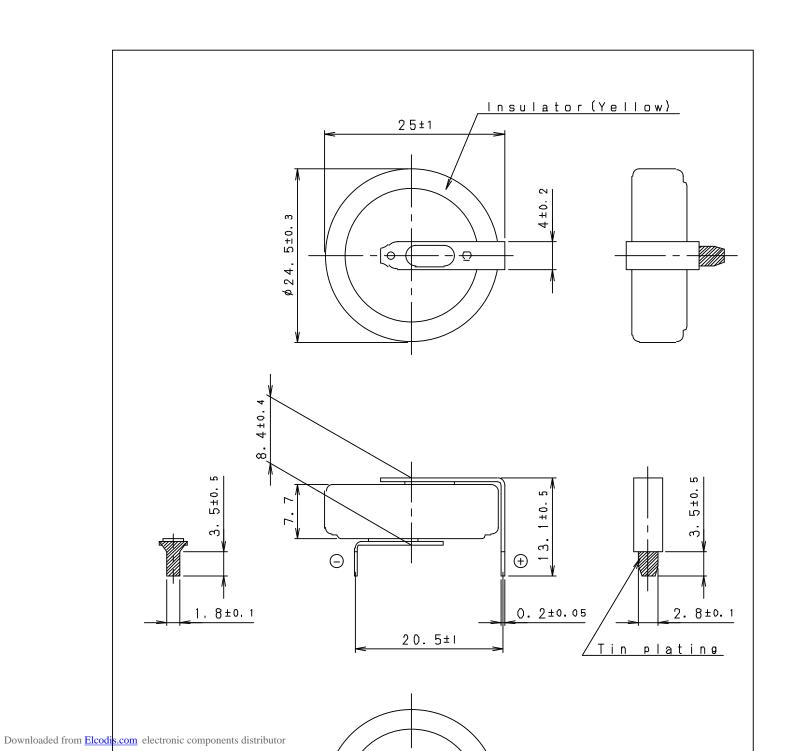
<u>CR1220</u>	3	35	0.10	12.5	2.00	1.2	
<u>CR1612</u>	3	40	0.10	16.0	1.20	0.8	
<u>CR1616</u>	3	55	0.10	16.0	1.60	1.2	
<u>CR1620</u>	3	75	0.10	16.0	2.00	1.3	
<u>CR1632</u>	3	140	0.10	16.0	3.20	1.8	
<u>CR2016</u>	3	90	0.10	20.0	1.60	1.6	
<u>CR2025</u>	3	165	0.20	20.0	2.50	2.3	
<u>CR2032</u>	3	225	0.20	20.0	3.20	2.9	
<u>CR2330</u>	3	265	0.20	23.0	3.00	3.8	
<u>CR2354</u>	3	560	0.20	23.0	5.40	5.8	
<u>CR2412</u>	3	100	0.20	24.5	1.20	2.0	
<u>CR2450</u>	3	620	0.20	24.5	5.00	6.3	
<u>CR2477</u>	3	1000	0.20	24.5	7.70	10.5	
<u>CR3032</u>	3	500	0.20	30.0	3.20	6.8	

<sup>\*</sup> Nominal capacity shown is based on standard drain and cut off voltage down to 2.0V at 20°C. Note: Cells are available in assorted tab configurations.

Consult your local regional office for additional information.

Technical Data - Table 3 - Coin Cell Tab Configurations (BR Series)						
Model No.	Tab Description Drawing					
BR1225/1HC	2 pin, horizontal mount, through hole, (with insulation wrap)					
BR1225/1VC	2 pin, vertical mount, through hole, (with insulation wrap)					
BR1632/1HF	2 pin, horizontal mount, through hole, (with insulation wrap)					
BR2032/1GU	3 pin, horizontal mount, through hole, (without insulation wrap)					
BR2032/1HE	2 pin, horizontal mount, through hole, (without insulation wrap)					
BR2032/1VB	2 pin, vertical mount, through hole, (without insulation wrap)					
BR2032/1F2	2 pin, flat mount, (with insulation wrap)					
BR2325/1HC	2 pin, horizontal mount, through hole, (with insulation wrap)					
BR2325/1HB	2 pin, horizontal mount, through hole, (without insulation wrap)					
BR2325/1VC	2 pin, vertical mount, through hole, (without insulation wrap)					
BR2325/1HG	2 pin, horizontal mount, through hole, (without insulation wrap)					
BR2325/1VG	2 pin, vertical mount, through hole, (without insulation wrap)					
BR2330/1HE	2 pin, horizontal mount, through hole, (without insulation wrap)					
BR2330/1VC	2 pin, vertical mount, through hole, (with insulation wrap)					
BR2330/1GVF	3 pin, vertical mount, through hole, (with insulation wrap)					

Technical Data - Table 4 - Coin Cell Tab Configurations (CR Series)						
Model No.	Tab Description Drawing					
CR1220/1HF	2 pin, horizontal mount, through hole, (with insulation wrap)					
CR1616/1F2	2 pin, flat mount, (without insulation wrap)					
CR2016/1F2	2 pin, flat mount, (with insulation wrap)					
CR2032/1F4	2 pin, flat mount, (with insulation wrap)					
CR2330/1HF	2 pin, horizontal mount, through hole, (with insulation wrap)					
CR2330/1VC	2 pin, vertical mount, through hole, (with insulation wrap)					
CR2354/1HF	2 pin, horizontal mount, through hole, (with insulation wrap)					
CR2354/1GU	3 pin, horizontal mount, through hole, (without insulation wrap)					
CR2354/1VC	2 pin, horizontal mount, through hole, (without insulation wrap)					
<u>CR2477/1VC</u>	2 pin, vertical mount, through hole, (with insulation wrap)					
CR2477/1HF	2 pin, horizontal mount, through hole, (with insulation wrap)					



# **Coin Type Lithium Batteries**

### Manganese Dioxide Lithium Batteries (CR Series)



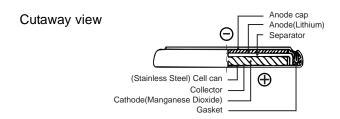




### **Features**

As with the BR series of coin-type lithium batteries, these batteries feature a high energy density, and they were developed and commercialized via Panasonic's extensive experience and battery technology. These batteries have proven to be especially useful in equipment requiring relatively high currents.

#### Construction



## **Applications**

Calculators Electronic watches (digital and analog)

Cameras Memory backup

Compact, low power consuming cordless appliances IC card

Note: Always confirm that the battery to be used is suitable for the intended application before purchase and/or use.



### **General Specifications**

Model No.	Electrical Characteristics (20°C)			Dimensions (mm)		Weight (g)	JIS	IEC
woder No.	Nominal Voltage (V)	*Nominal Capacity (mAh)	Continuous Drain (mA)	Diameter	Height	weight (g)	0.0	ILO
CR1025	3	30	0.1	10.0	2.5	0.7	CR1025	CR1025
CR1216	3	25	0.1	12.5	1.6	0.7	CR1216	CR1216
CR1220	3	35	0.1	12.5	2.0	1.2	CR1220	CR1220
CR1612	3	41	0.1	16.0	1.2	0.8	CR1620	-
CR1616	3	55	0.1	16.0	1.6	1.2	CR1616	CR1616
CR1620	3	75	0.1	16.0	2.0	1.3	-	CR1620
CR1632	3	140	0.1	16.0	3.2	1.8	-	-
CR2012	3	55	0.1	20.0	1.2	1.4	CR2012	CR2012
CR2016	3	90	0.1	20.0	1.6	1.6	CR2016	CR2016
CR2025	3	165	0.2	20.0	2.5	2.3	CR2025	CR2025
CR2032	3	225	0.2	20.0	3.2	2.9	CR2032	CR2032
CR2330	3	265	0.2	23.0	3.0	3.8	CR2330	CR2330
CR2354	3	560	0.2	23.0	5.4	5.8	CR2354	CR2354
CR2412	3	100	0.2	24.5	1.2	2.0	-	-
CR2450	3	620	0.2	24.5	5.0	6.3	CR2450	CR2450
CR2477	3	1000	0.2	24.5	7.7	10.5	-	-
CR3032	3	500	0.2	30.0	3.2	6.8	-	CR3032

<sup>\*</sup> Nominal capacity shown above is based on standard drain and cut off voltage down to 2.0V at 20°C



## Poly-carbonmonofluoride (BR Series) and Manganese Dioxide (CR Series)

### **COIN CELL TAB CONFIGURATIONS**

Model	Tab	Configuration							
Number	With Insulation Wrap	Diagram No.							
BR TYPE									
BR1220	/1HF	/1HE	1						
BR1220	/1VC	/1VB	2						
BR1225	/1HC	/1HB	3						
BR1225	/1VC		4						
BR1632	/1HF		5						
BR2032	/1HM		6						
BR2032		/1HG	7						
BR2032	/1HS	/1HSE	8						
BR2032	/1GUF	/1GU	9						
BR2032	/1HF	/1HE	10						
BR2032		/1VB	11						
BR2032	/1GVF	/1GV	12						
BR2032	/1F4		13						
BR2032	/1F2		14						
BR2325	/1HC	/1HB	15						
BR2325	/1VC		16						
BR2325		/1HG	17						
BR2325	/2HC		18						
BR2325		/1VG	19						
BR2330	/1HF	/1HE	20						
BR2330	/1GUF	/1GU	21						
BR2330	/1VC	/1VB	22						
BR2330	/1GVF	/1GV	23						
BR2330	/1F3		24						
BR2330	/1F4C		25						
BR3032	/1VC		26						
BR3032	/1F2		27						

**Note:** Refer to page 60 for BR "A" (High Temp) Tab configurations. Please contact Panasonic for requests on custom Tab configurations. Minimum order requirements may apply.

Model	Tab	Configuration						
Number	With Insulation Wrap	Diagram No.						
CR TYPE								
CR1220	/1HF	/1HE	1					
CR1220	/1VC	/1VB	2					
CR1616		/1F2	28					
CR1632	/1HF		29					
CR2016	/1F2		6					
CR2025	/1F2		30					
CR2032		/1HU3	31					
CR2032	/1VS1		32					
CR2032		/1HG	8					
CR2032	/1HS	/1HSE	9					
CR2032	/1GUF	/1GU	10					
CR2032	/1HF	/1HE	11					
CR2032		/1VB	12					
CR2032	/1GVF	/1GV	13					
CR2032	/1F4		14					
CR2032	/1F2		15					
CR2330	/1HF	/1HE	20					
CR2330	/1GUF	/1GU	21					
CR2330	/1VC	/1VB	22					
CR2330	/1GVF	/1GV	23					
CR2330	/1F3		24					
CR2330	/1F4C		25					
CR2354	/1HF	/1HE	33					
CR2354	/1GUF	/1GU	34					
CR2354	/1VC	/1VB	35					
CR2477	/1VC	/1VB	36					
CR2477	/1HF	/1HE	37					
CR2450	/H1A		38					
CR2450	/G1A		39					
CR3032	/1VC		26					
CR3032	/1F2		27					

## **BR & CR Series Coin Cell Tab Configurations**

### **DIMENSIONS / MM (INCH) cont.**

Model No.	Dimensions/mm (inch)	Model No.	Dimensions/mm (inch)
CR2354/1HF 1HE	1.8(0.07) e; 0; (0.81±0.02) (0.008) (0.008) (0.008)	CR2354/1GUF 1GU	5.4(0.21) 5.4(0.21) 6.0.03) & 0.75(0.03) 6.0.003) & 0.75(0.03) 6.0.003) & 0.75(0.03) 6.0.003) & 0.75(0.03)
CR2354/1VC 1VB	2.8(0.11) 1.8(0.07) 0.2(0.008)  9.2±0.5(0.36±0.02) 6.1(0.24)	CR2477/1VC 1VB	36 Insulation Wrap (yellow)  7.8(0.31)  7.8(0.31)  7.8(0.31)  1.8(0.07)  1.8(0.07)  9.2±0.5(0.36±0.02)  7.8(0.33)
CR2477/1HF 1HE	Insulation Wrap (yellow)  Insulation Wrap (yellow)	CR2450/H1A	1.8(0.07) © (0.81±0.04) (0.008±0.02) 2.8(0.11)
CR2450/G1A	0.75(0.03) ¢; († (1.0±0.04) (0.405) (0.405) (0.405)		

**Panasonic**