#### **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

Technical Data - Table 1 - (CF)n/LI: Poly-Carbon Monofluoride (BR)

- Electronic watches (digital and analog)
- Memory back-up in all types of devices (with tab terminals)

Model	Electrical Characteristics (20°C)		Standard Load	Dimensions				Tak Configurations	
No.	Voltage Capacity Drain	Continuous Drain (mA)	Diameter (mm)	Height (mm)	Weight (g)		Tab Configurations		
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			
* Nominal ca	anacity show	wn is hased c	n standard drain and	cut off volta	nae down ta	2 0V at 20	1ºC	_	

Model	Electrical Characteristics (20°C)		Standard Load	I Dimensions		s	
No.	Nominal Voltage (V)	*Nominal Capacity (mAh)	Continuous Drain (mA)	Diameter (mm)	Height (mm)	Weight (g)	Tab Configurations
<u>CR1025</u>	3	30	0.10	10.0	2.50	0.7	
CR1216	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		7
<u>CR1616</u>	3	55	0.10	16.0	1.60	1.2		7
<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		1
CR2016	3	90	0.10	20.0	1.60	1.6		7
CR2025	3	165	0.20	20.0	2.50	2.3		
CR2032	3	225	0.20	20.0	3.20	2.9		
CR2330	3	265	0.20	23.0	3.00	3.8		7
<u>CR2354</u>	3	560	0.20	23.0	5.40	5.8		7
<u>CR2412</u>	3	100	0.20	24.5	1.20	2.0		
CR2450	3	620	0.20	24.5	5.00	6.3		
<u>CR2477</u>	3	1000	0.20	24.5	7.70	10.5		7
CR3032	3	500	0.20	30.0	3.20	6.8		
Note: Cells	are avail	lable in assor	ed on standard drain ted tab configuration e for additional info	ns.	II voltage	down to 2	.0V at 20°C.	
Note: Cells Consult you	are avail ur local r	lable in assor	ted tab configuratio	ns. rmation.				
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Note: Cells Consult you  Technic  Model 1  BR1225/ BR1632/ BR2032/ BR2032/ BR2032/	are availur local rall Data  No.  (1HC) (1HC) (1HF) (1HE) (1HE) (1VB) (1F2)	a - Table :  2 pin, horizon 2 pin, horizon 3 pin, horizon 2 pin, horizon	ted tab configuration of the for additional information of the formation o	ab Continue of Description hole, (with in hole, (with hole, (without n wrap))	figuration Drawing the insulation who insulation who insulation thout insulation to the insulation out insulation the insulation of the in	ons (BF  g n wrap) vrap) n wrap) ation wrap ation wrap on wrap)	R Series)	
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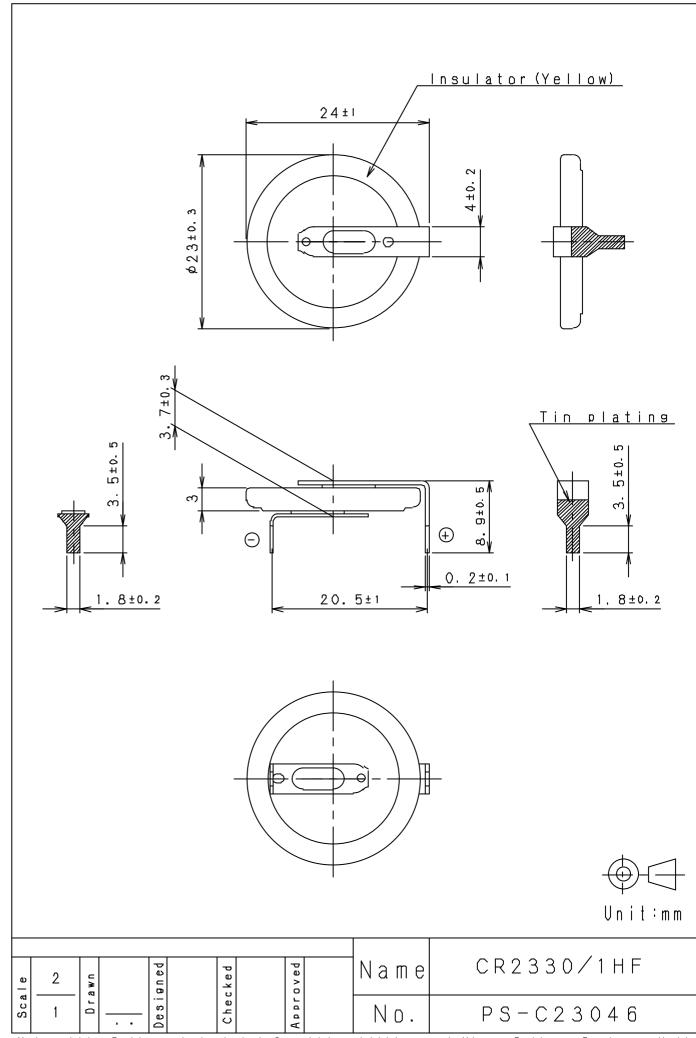
2 pin, vertical mount, through hole, (with insulation wrap)

3 pin, vertical mount, through hole, (with insulation wrap)

BR2330/1VC

BR2330/1GVF

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



# **Coin Type Lithium Batteries**

## Manganese Dioxide Lithium Batteries (CR Series)



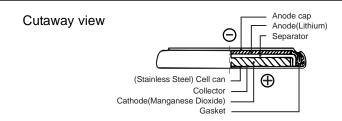




### <u>Features</u>

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	
Model No.	Nominal Voltage (V)	*Nominal Capacity (mAh)	Continuous Drain (mA)	Diameter	Height	weight (g)	313	IEC
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**

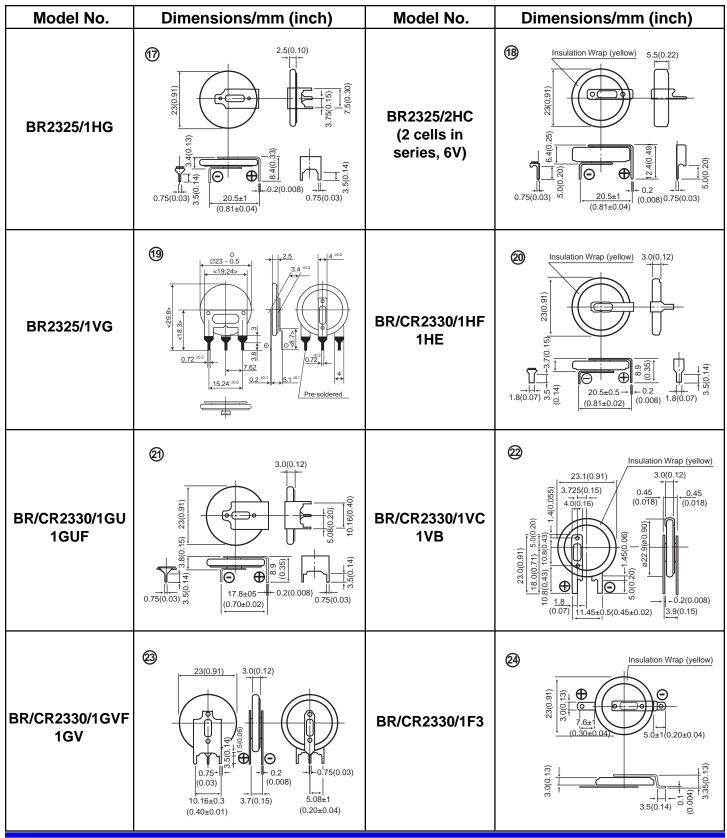
Model	Tab	Configuration			
Number	With Insulation Wrap	Without Insulation Wrap	Diagram No.		
BR TYPE					
BR1220	/1HF	/1HE	1		
BR1220	/1VC	/1VB	2		
BR1225	/1HC	/1HB	3		
BR1225	/1VC		4		
BR1632	/1HF		5		
BR2032	/1HM		6		
BR2032		/1HG	7		
BR2032	/1HS	/1HSE	8		
BR2032	/1GUF	/1GU	9		
BR2032	/1HF	/1HE	10		
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.**



**Panasonic** 

LITHIUM HANDBOOK

**AUGUST 2005**