

2. CR PRIMARY LITHIUM BUTTON CELLS



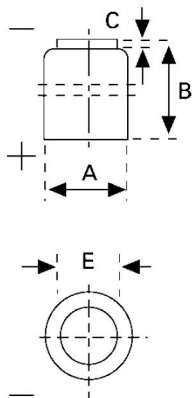
2.1 TYPES – TECHNICAL DATA



Type	Order No.	Nominal voltage (V)	Typical capacity ¹⁾ (mAh)	Standard load (kΩ)	Max. discharge current (continuous) (mA)	Max. discharge current (pulse) (mA)	Weight (g)
CR 1/3 N	6131 101 501	3	170	5.6	20	80	3.0
CR 1216	6216 101 501	3	27	39	2	5	0.7
CR 1220	6220 101 501	3	35	39	2	5	0.8
CR 1616	6616 101 501	3	55	39	3	8	1.2
CR 1620	6620 101 501	3	70	20	3	8	1.2
CR 2016	6016 101 501	3	90	15	3	10	1.8
CR 2025	6025 101 501	3	165	10	3	10	2.5
CR 2032	6032 101 501	3	230	5.6	3	10	3.0
CR 2430	6430 101 501	3	300	5.6	3	20	4.0
CR 2450	6450 101 501	3	620	5.6	2	20	6.2

Technical data, CR Primary Lithium Button Cells
¹⁾ Nominal capacity is determined to an end voltage of 2.0 V when the battery is allowed to discharge at standard load level at 20°C

CR 1/3 N



Type Number 6131
Designation IEC CR 11108
System Li-Manganese dioxide/
Organic Electrolyte

UL Recognition MH 13654
Nominal Voltage 3 V
Typical Capacity C 170 mAh (Load 5,6 kOhm,
at 20°C down to 2 V)

Weight (approx.) 3 g
Volume 1,1 ccm
Coding TBA

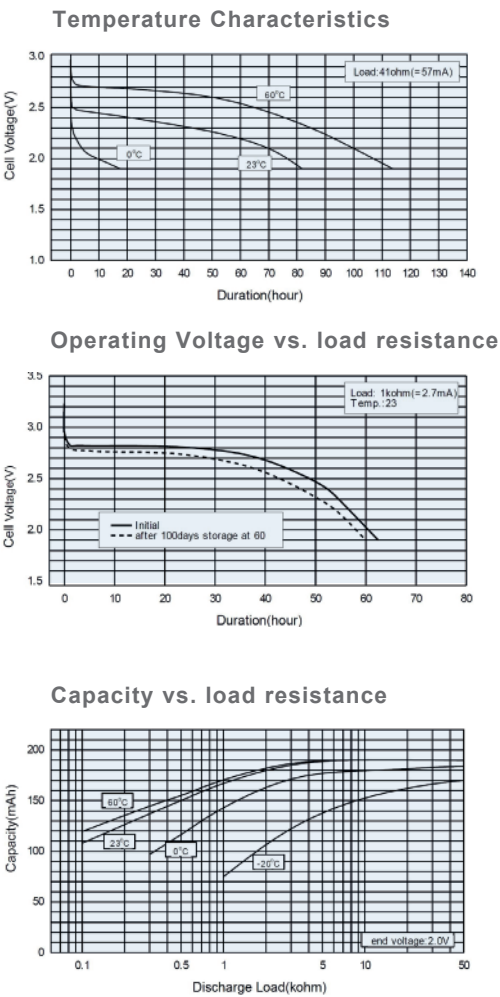
Temperature Ranges min. max.
Storage -55°C 70°C
Discharge -20°C 65°C¹

Dimensions min. max.
Diameter (A) 11,40 11,60
Height (B) 10,40 10,80
Shoulder Diameter [L] 7,60 8,00
Shoulder Height [M] 0,40

Typical Capacities (at 20°C)

Discharge Type	Load	End Voltage: 2,0 V
Continuous 24 h/d, 7 d/w Current [µA]	5600 Ω	Time: 335 h Capacity: 170 mAh Energy: 475 mWh

Performance Data

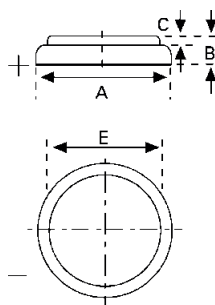


¹ Contact VARTA if the application is intended to be outside the range of -20°C to +65°C.

² depending on environmental condition and energy consumption

- Self-discharge rate < 1% at room temperature
- Storage life > 10 years
- Operating life² > 10 years

CR 1216



Type Number	6216
Designation IEC	CR 1216
System	Li-Manganese dioxide/ Organic Electrolyte
UL Recognition	MH 13654 (N)
Nominal Voltage	3 V
Typical Capacity C	27 mAh (Load 39 kOhm, at 20°C down to 2 V)

Weight (approx.)	0,7 g
Volume	0,17 ccm
Coding	Date of Manufacturing Month/Year

Temperature Ranges	min.	max.
Storage	-55°C	70°C
Discharge	-20°C	70°C ¹

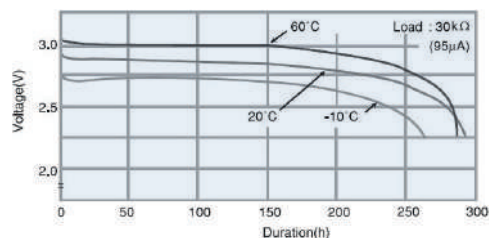
Dimensions	min.	max.
Diameter (A)	12,20	12,50
Height (B)	1,40	1,60
Shoulder Diameter [E]	10,00	
Shoulder Height [C]	0,20	

Typical Capacities (at 20°C)

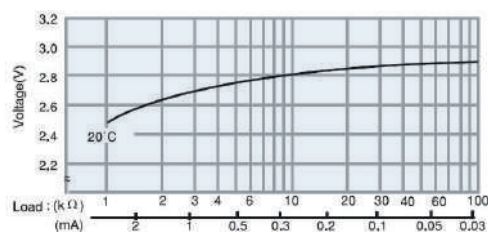
Discharge Type	Load	End Voltage: 2,0 V
Continuous 24 h/d, 7 d/w Current [μA]	39000 Ω	Time: 355 h Capacity: 27 mAh Energy: 77 mWh

Performance Data

Temperature Characteristics

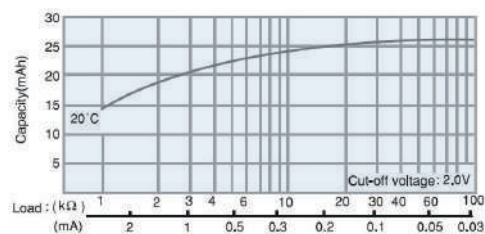


Operating Voltage vs. load resistance*

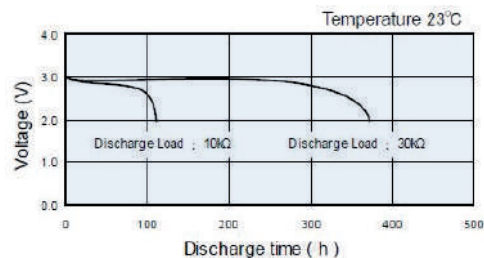


*Discharge depth 50%

Capacity vs. load resistance



Discharge Characteristics

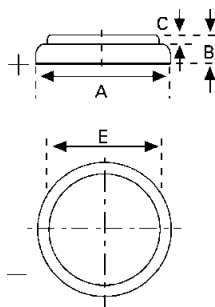


¹ Contact VARTA if the application is intended to be outside the range of -20°C to +70°C.

² depending on environmental condition and energy consumption

- Self-discharge rate < 1% at room temperature
- Storage life > 10 years
- Operating life² > 10 years

CR 1220



Type Number	6220
Designation IEC	CR 1220
System	Li-Manganese dioxide/ Organic Electrolyte
UL Recognition	MH 13654 (N)
Nominal Voltage	3 V
Typical Capacity C	35 mAh (Load 39 kOhm, at 20°C down to 2 V)
Weight (approx.)	0,8 g
Volume	0,2 ccm
Coding	Date of Manufacturing Month/Year

Temperature Ranges	min.	max.
Storage	-55°C	70°C
Discharge	-20°C	70°C ¹

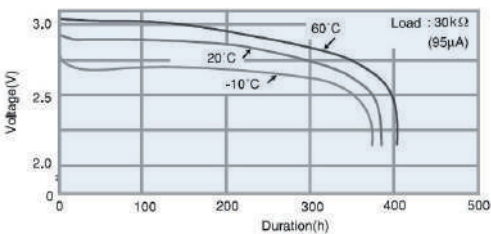
Dimensions	min.	max.
Diameter (A)	12,20	12,50
Height (B)	1,80	2,00
Shoulder Diameter [E]	10,00	
Shoulder Height [C]	0,30	

Typical Capacities (at 20°C)

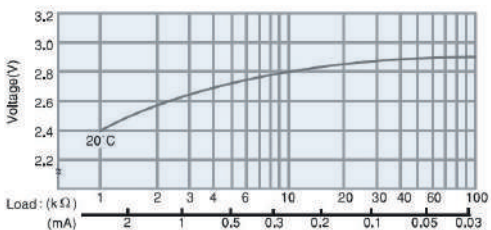
Discharge Type	Load	End Voltage: 2,0 V
Continuous 24 h/d, 7 d/w Current [µA]	39000 Ω	Time: 480 h Capacity: 35 mAh Energy: 100 mWh

Performance Data

Temperature Characteristics

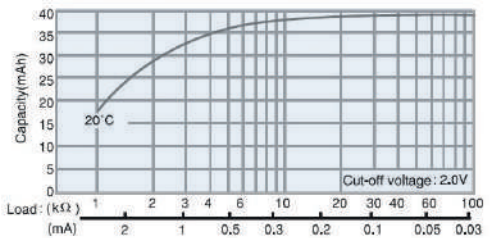


Operating Voltage vs. load resistance*

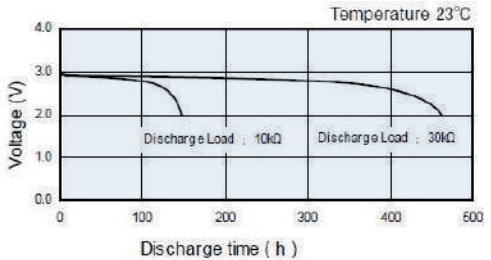


*Discharge depth 50%

Capacity vs. load resistance



Discharge Characteristics

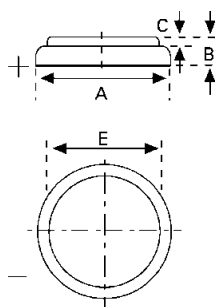


¹ Contact VARTA if the application is intended to be outside the range of -20°C to +70°C.

² depending on environmental condition and energy consumption

- Self-discharge rate < 1% at room temperature
- Storage life > 10 years
- Operating life² > 10 years

CR 1616



Type Number	6616
Designation IEC	CR 1616
System	Li-Manganese dioxide/ Organic Electrolyte
UL Recognition	MH 13654 (N)
Nominal Voltage	3 V
Typical Capacity C	55 mAh (Load 39 kOhm, at 20°C down to 2 V)

Weight (approx.)	1,2 g
Volume	0,3 ccm
Coding	Date of Manufacturing Month/Year

Temperature Ranges	min.	max.
Storage	-55°C	70°C
Discharge	-20°C	70°C ¹

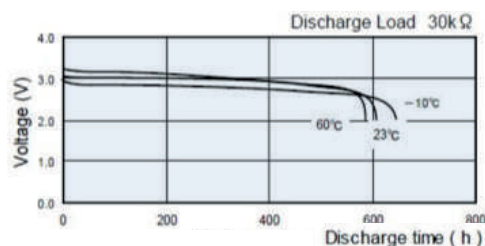
Dimensions	min.	max.
Diameter (A)	15,70	16,00
Height (B)	1,40	1,60
Shoulder Diameter [E]	12,00	
Shoulder Height [C]	0,20	

Typical Capacities (at 20°C)

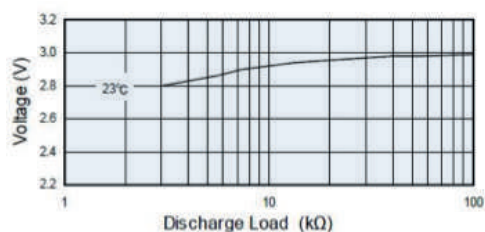
Discharge Type	Load	End Voltage: 2,0 V
Continuous 24 h/d, 7 d/w Current [µA]	39000 Ω	Time: 670 h Capacity: 50 mAh Energy: 142 mWh

Performance Data

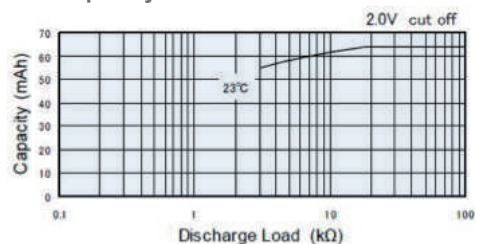
Temperature Characteristics



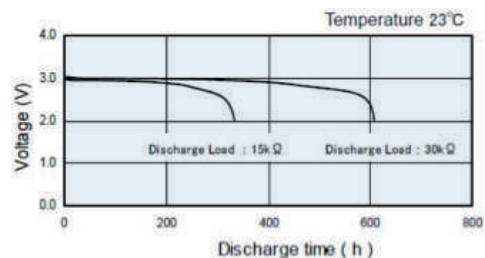
Operating Voltage vs. load resistance*



Capacity vs. load resistance



Discharge Characteristics

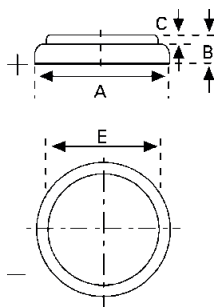


¹ Contact VARTA if the application is intended to be outside the range of -20°C to +70°C.

² depending on environmental condition and energy consumption

- Self-discharge rate < 1% at room temperature
- Storage life > 10 years
- Operating life² > 10 years

CR 1620



Type Number	6620
Designation IEC	CR 1620
System	Li-Manganese dioxide/ Organic Electrolyte
UL Recognition	MH 13654 (N)
Nominal Voltage	3 V
Typical Capacity C	70 mAh (Load 20 kOhm, at 20°C down to 2 V)
Weight (approx.)	1,2 g
Volume	0,4 ccm
Coding	Date of Manufacturing Month/Year

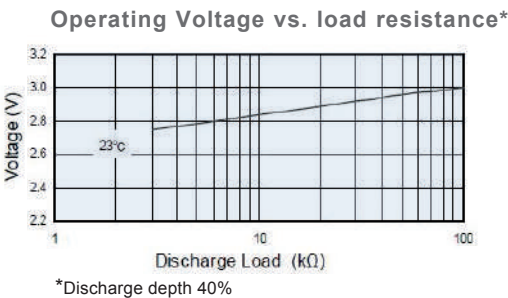
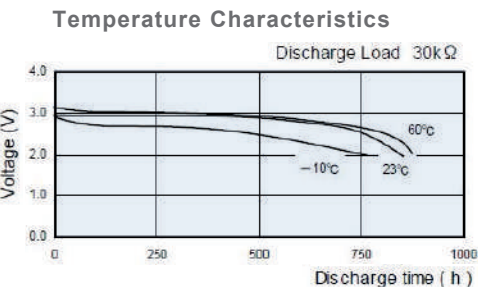
Temperature Ranges	min.	max.
Storage	-55°C	70°C
Discharge	-20°C	70°C ¹

Dimensions	min.	max.
Diameter (A)	15,70	16,00
Height (B)	1,80	2,00
Shoulder Diameter [E]	12,90	
Shoulder Height [C]	0,20	

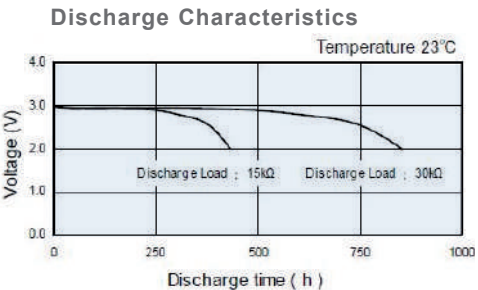
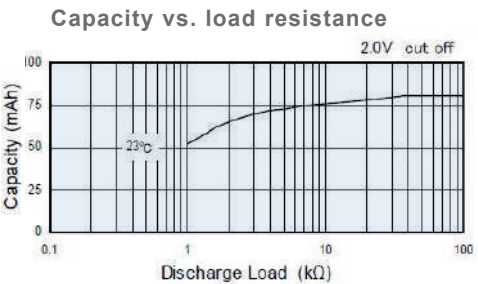
Typical Capacities (at 20°C)

Discharge Type	Load	End Voltage: 2,0 V
Continuous 24 h/d, 7 d/w Current [µA]	20000 Ω	Time: 500 h Capacity: 70 mAh Energy: 200 mWh

Performance Data



*Discharge depth 40%

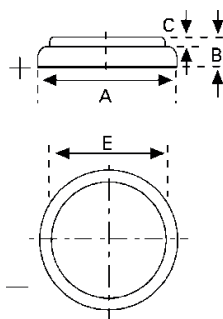


¹ Contact VARTA if the application is intended to be outside the range of -20°C to +70°C.

² depending on environmental condition and energy consumption

- Self-discharge rate < 1% at room temperature
- Storage life > 10 years
- Operating life² > 10 years

CR 2016



Type Number	6016
Designation IEC	CR 2016
System	Li-Manganese dioxide/ Organic Electrolyte
UL Recognition	MH 13654 (N)
Nominal Voltage	3 V
Typical Capacity C	90 mAh (Load 15 kOhm, at 20°C down to 2 V)
Weight (approx.)	1,8 g
Volume	0,5 ccm
Coding	Date of Manufacturing Month/Year

Temperature Ranges	min.	max.
Storage	-55°C	70°C
Discharge	-20°C	70°C ¹

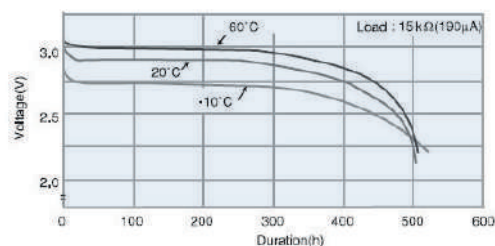
Dimensions	min.	max.
Diameter (A)	19,70	20,00
Height (B)	1,40	1,60
Shoulder Diameter [E]	18,40	
Shoulder Height [C]	0,10	

Typical Capacities (at 20°C)

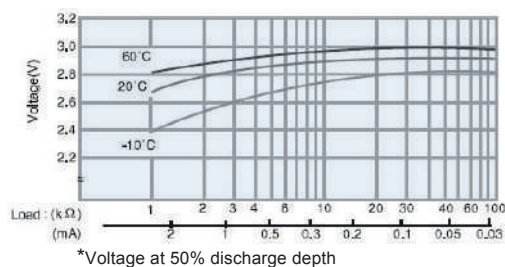
Discharge Type	Load	End Voltage: 2,0 V
Continuous 24 h/d, 7 d/w Current:	15000 Ω 200 μA	Time: 450 h Capacity: 90 mAh Energy: 270 mWh

Performance Data

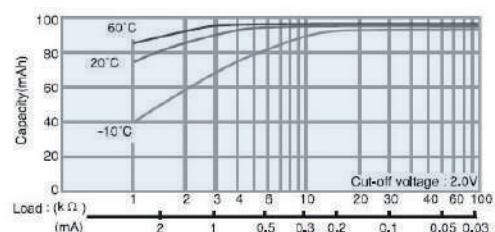
Temperature Characteristics



Operating Voltage vs. load resistance*



Capacity vs. load resistance

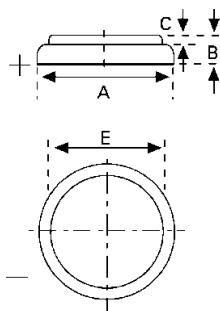


¹ Contact VARTA if the application is intended to be outside the range of -20°C to +70°C.

² depending on environmental condition and energy consumption

- Self-discharge rate < 1% at room temperature
- Storage life > 10 years
- Operating life² > 10 years

CR 2025



Type Number 6025
Designation IEC CR 2025
System Li-Manganese dioxide/
Organic Electrolyte

UL Recognition MH 13654 (N)
Nominal Voltage 3 V
Typical Capacity C 165 mAh (Load 10 kOhm,
at 20°C down to 2 V)

Weight (approx.) 2,5 g
Volume 0,75 ccm
Coding Date of Manufacturing
Month/Year

Temperature Ranges min. max.
Storage -55°C 70°C
Discharge -20°C 70°C¹

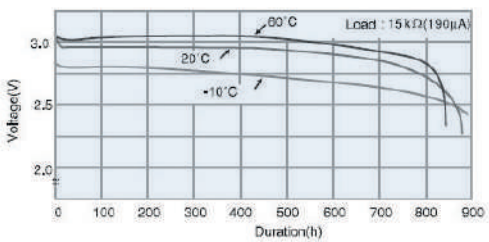
Dimensions min. max.
Diameter (A) 19,70 20,00
Height (B) 2,20 2,50
Shoulder Diameter [E] 18,30
Shoulder Height [C] 0,20

Typical Capacities (at 20°C)

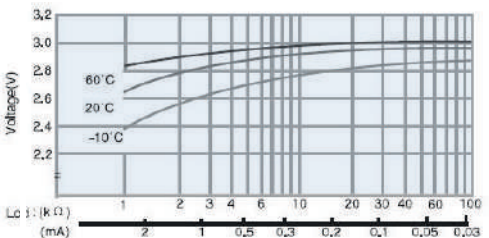
Discharge Type	Load	End Voltage: 2,0 V	
Continuous 24 h/d, 7 d/w Current [µA]	10000 Ω	Time:	580 h
		Capacity:	165 mAh
		Energy:	475 mWh

Performance Data

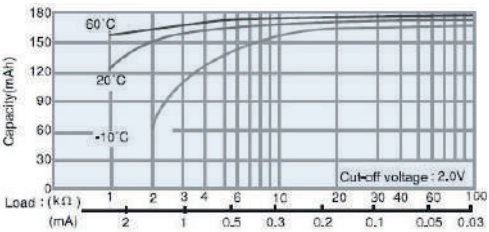
Temperature Characteristics



Operating Voltage vs. load resistance*



Capacity vs. load resistance

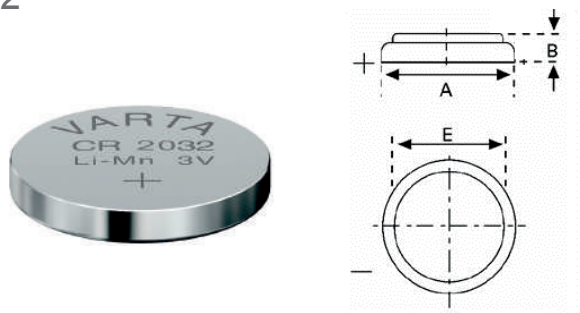


¹ Contact VARTA if the application is intended to be outside the range of -20°C to +70°C.

² depending on environmental condition and energy consumption

- Self-discharge rate < 1% at room temperature
- Storage life > 10 years
- Operating life² > 10 years

CR 2032



Type Number	6032
Designation IEC	CR 2032
System	Li-Manganese dioxide/ Organic Electrolyte
UL Recognition	MH 13654 (N)
Nominal Voltage	3 V
Typical Capacity C	230 mAh (Load 5,6 kOhm, at 20°C down to 2 V)
Weight (approx.)	3 g
Volume	0,95 ccm
Coding	Date of Manufacturing Month/Year

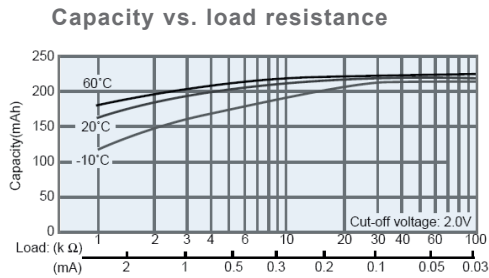
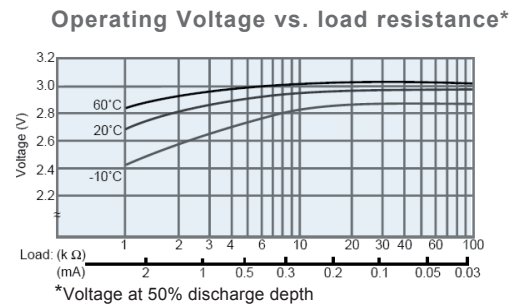
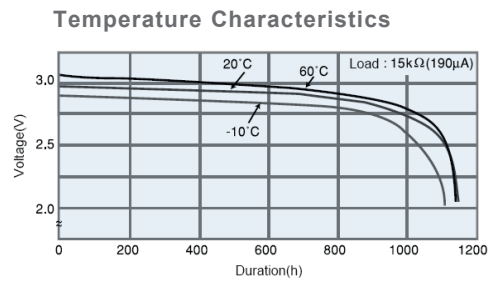
Temperature Ranges	min.	max.
Storage	-55°C	70°C
Discharge	-20°C	70°C ¹

Dimensions	min.	max.
Diameter (A)	19,70	20,00
Height (B)	2,90	3,20
Shoulder Diameter [E]	16,00	

Typical Capacities (at 20°C)

Discharge Type	Load	End Voltage: 2,0 V	
Continuous 24 h/d, 7 d/w Current [µA]	5600 Ω	Time:	460 h
		Capacity:	230 mAh
		Energy:	645 mWh

Performance Data

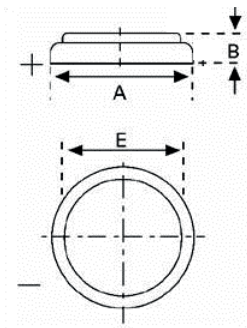


¹ Contact VARTA if the application is intended to be outside the range of -20°C to +70°C.

² depending on environmental condition and energy consumption

- Self-discharge rate < 1% at room temperature
- Storage life > 10 years
- Operating life² > 10 years

CR 2430



Type Number	6430
Designation IEC	CR 2430
System	Li-Manganese dioxide/ Organic Electrolyte
UL Recognition	MH 13654 (N)
Nominal Voltage	3 V
Typical Capacity C	300 mAh (Load 5,6 kOhm, at 20°C down to 2 V)
Weight (approx.)	4 g
Volume	1,3 ccm
Coding	Date of Manufacturing Month/Year

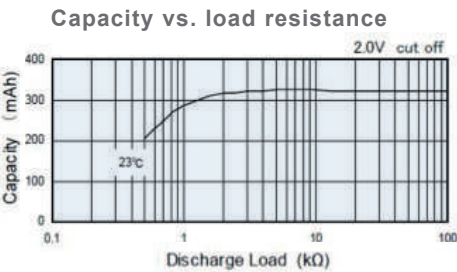
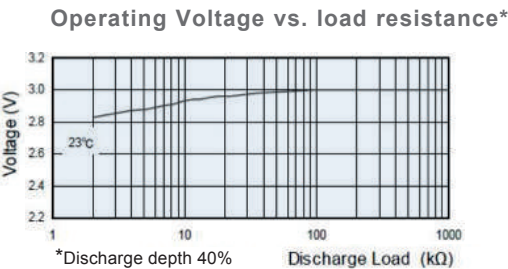
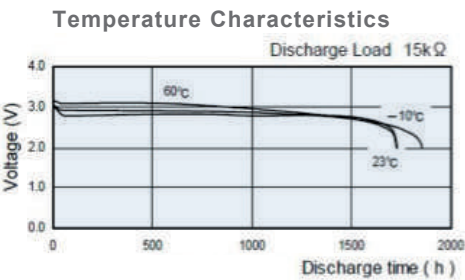
Temperature Ranges	min.	max.
Storage	-55°C	70°C
Discharge	-20°C	70°C ¹

Dimensions	min.	max.
Diameter (A)	24,20	24,50
Height (B)	2,70	3,00
Shoulder Diameter [E]	16,30	16,70

Typical Capacities (at 20°C)

Discharge Type	Load	End Voltage: 2,0 V	
Continuous 24 h/d, 7 d/w Current [µA]	5600 Ω	Time:	600 h
		Capacity:	300 mAh
		Energy:	840 mWh

Performance Data

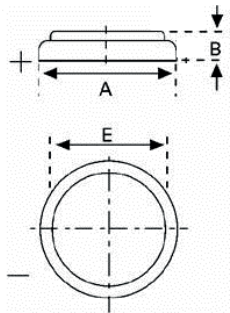


¹ Contact VARTA if the application is intended to be outside the range of -20°C to +70°C.

² depending on environmental condition and energy consumption

- Self-discharge rate < 1% at room temperature
- Storage life > 10 years
- Operating life² > 10 years

CR 2450



Type Number	6450
Designation IEC	CR 2450
System	Li-Manganese dioxide/ Organic Electrolyte
UL Recognition	MH 13654 (N)
Nominal Voltage	3 V
Typical Capacity C	620 mAh (Load 5,6 kOhm at 20°C down to 2 V)
Weight (approx.)	6,2 g
Volume	2,3 ccm
Coding	Date of Manufacturing Month/Year

Temperature Ranges	min.	max.
Storage	-55°C	70°C
Discharge	-20°C	70°C ¹

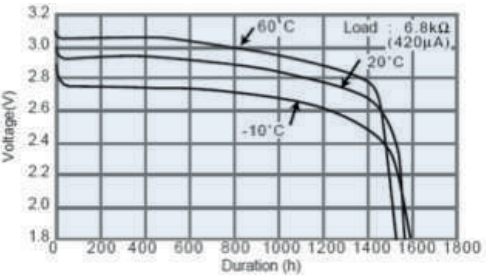
Dimensions	min.	max.
Diameter (A)	24,20	24,70
Height (B)	4,60	5,00
Shoulder Diameter [E]	21,00	

Typical Capacities (at 20°C)

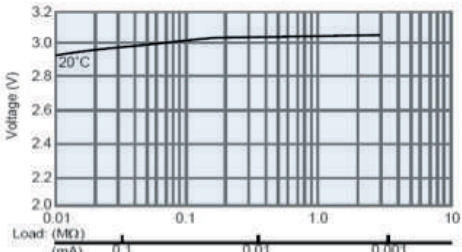
Discharge Type	Load	End Voltage: 2,0 V
Continuous 24 h/d, 7 d/w	5600 Ω	Time: 1250 h Capacity: 620 mAh Energy: 1730 mWh

Performance Data

Temperature Characteristics

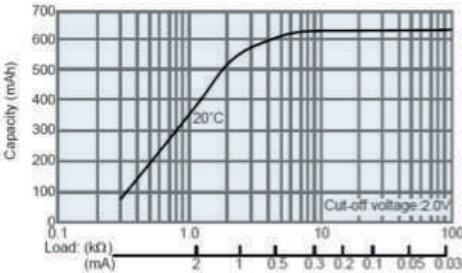


Operating Voltage vs. load resistance*



*Discharge depth 40%

Capacity vs. load resistance



¹ Contact VARTA if the application is intended to be outside the range of -20°C to +70°C.

² depending on environmental condition and energy consumption

- Self-discharge rate < 1% at room temperature
- Storage life > 10 years
- Operating life² > 10 years

2.2 ASSEMBLIES

CR 1/3 N

Type	Order No.	A	B	C	D	E	F	G	H	I	K	L	Fig. No.	Remarks
CR 1/3 N	6131 101 501	11.6	10.8	0.4	—	7.8	—	—	—	—	—	—	1	—
CR 1/3 N PC PCBD	6131 201 501	13.0	1.0	10.0	1.0 ±0.3	11.5 ±0.5	12.0 ±0.15	—	1.0 ±0.3	3.0	—	—	3	tag 0.25 mm
CR 1/3 N BE STO	6131 301 501	—	—	—	—	11.5	12.0	—	—	—	19.0	4.0	2	tag 0.25 mm 180°

Tag material: nickel plated sheet-steel. SLF: tip tinned.
Custom made assemblies are available on request for large volume.

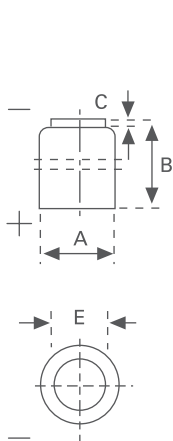


FIG. 1

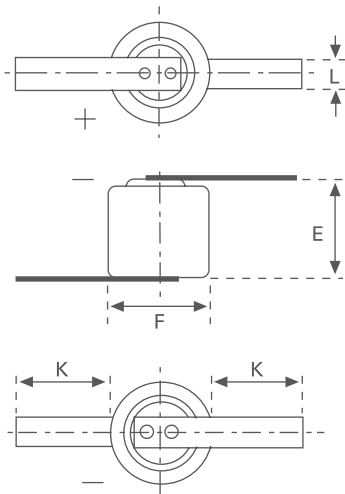


FIG. 2 LF

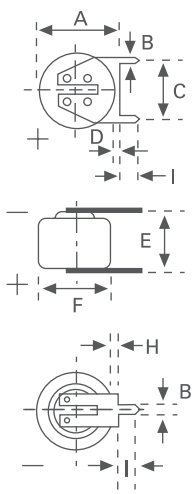


FIG. 3 SLF

CR Button

Type	Order No.	A	B	C	D	E	F	G	H	I	K	L	Fig. No.	Remarks
CR 1216	6216 101 501	12.5	1.6	0.2	—	10.0	—	—	—	—	—	—	4	
CR 1220	6220 101 501	12.5	2.0	0.3	—	10.0	—	—	—	—	—	—	4	
CR 1616	6616 101 501	16.0	1.6	0.2	—	12.0	—	—	—	—	—	—	4	
CR 1620	6620 101 501	16.0	2.0	0.02	—	12.9	—	—	—	—	—	—	4	
CR 2016	6016 101 501	20.0	1.6	0.1	—	—	—	—	—	—	—	—	4	
CR 2016 SC PCBD	6016 201 501	21.3	1.0	10.0±0.15	1.0 ±0.3	2.1 ±0.5	20.3±0.15	—	1.0±0.3	4.5	—	—	5	tag 0.25 mm
CR 2016 SC STO	6016 301 501	20.0	—	—	—	1.9	20.0	—	—	—	10.0	4.0	6	tag 0.15 mm
CR 2016 BE PCBD	6016 401 501	20.0	1.0	10.0	9.1	1.6	17.8	7.3	10.0	4.5	11.4	—	7	tag 0.15 mm
CR 2016 FM S STO	6016 301 012	20.5	3.5	1.8	3.0	2.2	—	—	—	—	—	—	—	

Tag material: nickel plated sheet-steel. SLF: tip tinned.
Custom made assemblies are available on request for large volume.

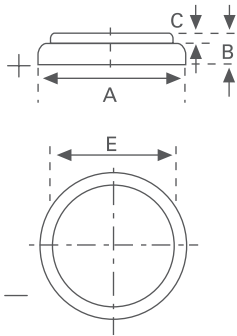


FIG. 4

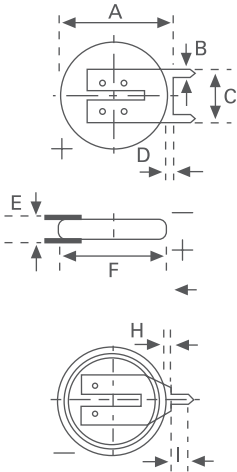


FIG. 5 SLF

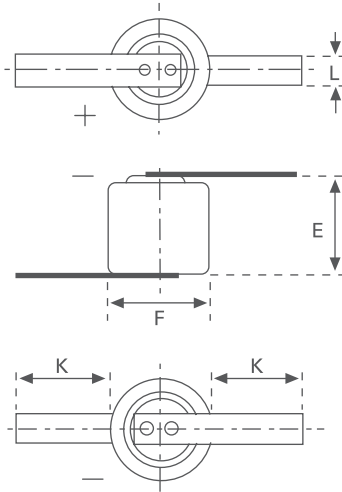


FIG. 6 LF

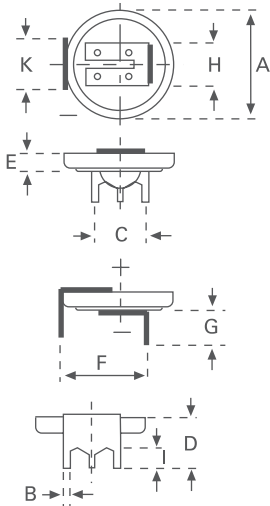


FIG. 7 PCB 3

CR Button

Type	Order No.	A	B	C	D	E	F	G	H	I	K	L	Fig. No.	Remarks
CR 2025	6025 101 501	20.0	2.5	0.2	—	—	—	—	—	—	—	—	8	—
CR 2025 ST	6025 201 501	21.3	1.0	10.0 ±0.2	1.0 ±0.3	3.0 ±0.5	20.3 ±0.15	—	1.0 ±0.3	4.5	—	—	9	tag 0.25 mm
CR 2025 SC STO	6025 301 501	20.0	—	—	—	2.8	20.3	—	—	—	10.0	4.0	10	tag 0.15 mm
CR 2025 BE PCBD	6025 401 501	20.0	1.0	10.0	10.0	2.8	17.8	7.3	10.0	4.5	11.4	—	11	tag 0.15 mm
CR 2032	6032 101 501	20.0	3.2	0.02	—	16.5	—	—	—	—	—	—	8	—
CR 2032 SC PCBD	6032 201 501	21.5	1.0	10.0	1.0 ±0.3	4.2	20.3	—	1.0	4.5	—	—	9	tag 0.25 mm
CR 2032 SC STO	6032 301 501	—	—	—	—	3.2	20.3	—	—	—	10.0	4.0	10	tag 0.15 mm
CR 2032 PCBD	6032 401 501	20.0	1.0	10.0	11.0	3.2	17.8	7.5	10.0	4.5	11.4	—	11	tag 0.25 mm
CR 2032 BE PCBS	6032 701 501	20.0	1.0	—	11.0	3.2	17.8	7.3	10.0	4.5	10.0	—	12	tag 0.20 mm
CR 2032 S WC ¹⁾	6032 101 013	20.7	—	—	—	5.5	30.0	—	—	—	96.0	2.0	13	tag 0.20 mm ²⁾
CR 2032 S STO	6032 101 012	20.0	7.0	2.8	5.0	3.8	—	—	—	—	—	—	14	—

Tag material: nickel plated sheet-steel. SLF: tip tinned.
¹⁾ using Molex 51021-03 connector (Other wire connectors and wire length are available on request.) ²⁾ in shrink sleeve with wire and connector
Custom made assemblies are available on request for large volume.

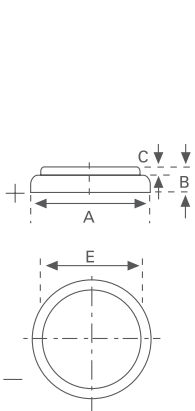


FIG. 8

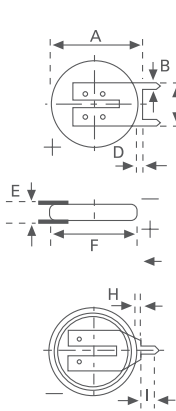


FIG. 9 SLF

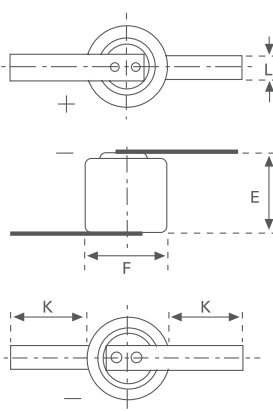


FIG. 10 LF

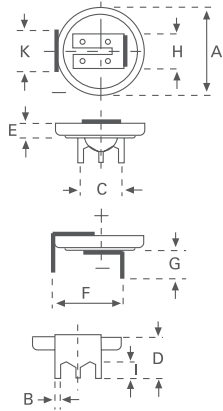


FIG. 11 PCB3

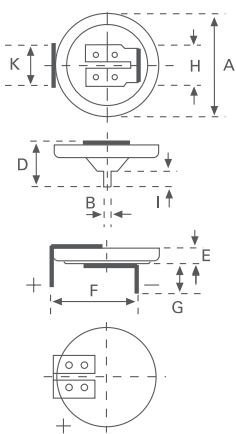


FIG. 12 PCB 2

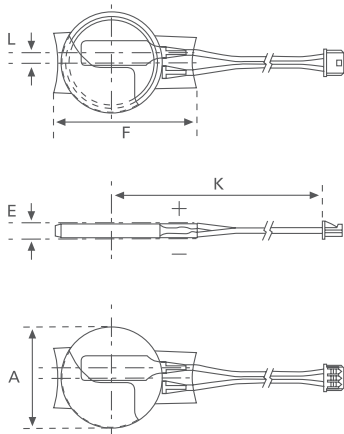


FIG. 13 WC

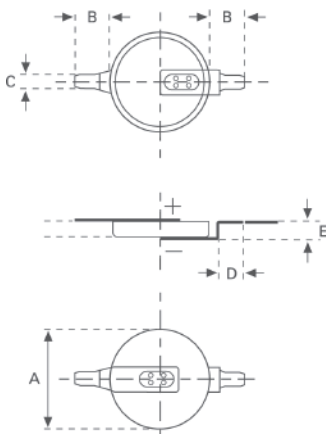


FIG. 14 SMT

CR Button

Type	Order No.	A	B	C	D	E	F	G	H	I	K	L	Fig. No.	Remarks
CR 2430	6430 101 501	24.5	3.0	0.3	—	20.0	—	—	—	—	—	—	15	—
CR 2430 SLF	6430 201 501	25.6	1.0	10.0	1.0	4.0	25.0	—	1.0	4.5	—	—	16	tag 0.25 mm
CR 2430 LF	6430 301 501	—	—	—	—	3.2	25.0	—	—	—	10.0	4.0	17	tag 0.15 mm
CR 2430 PCB 3	6430 401 501	24.5	1.0	10.0	11.0	3.0	17.8	7.5	10.0	4.5	11.4	—	18	tag 0.25 mm
CR 2430 PCB 2	6430 701 501	24.5	1.0	—	11.0	3.0	20.0	7.5	10.0	4.5	11.4	—	19	tag 0.20 mm
CR 2430 SMT	6430 301 012	24.5	5.2	4.0	5.0	3.3	—	—	—	—	—	—	20	—
CR 2450	6450 101 501	24.7	5.0	0.5	—	21.8	—	—	—	—	—	—	15	—
CR 2450 SLF	6450 201 501	25.6	1.0	10.0	1.0	6.0	25.0	—	1.0	4.5	—	—	16	tag 0.25 mm
CR 2450 PCB 3	6450 401 501	24.5	1.0	10.0	13.2	5.0	17.8	7.5	10.0	4.5	11.4	—	18	tag 0.25 mm
CR 2450 PCB 2	6450 701 501	24.7	1.0	—	12.7	5.0	17.8	7.5	10.0	4.5	11.4	—	19	tag 0.20 mm
CR 2450 SMT	6450 301 013	24.5	4.5	2.8	3.5	5.3	—	—	—	—	—	—	20	—

Tag material: nickel plated sheet-steel. SLF: tip tinned.
1) using Molex 51021-03 connector (Other wire connectors and wire length are available on request.) 2) in shrink sleeve with wire and connector
Custom made assemblies are available on request for large volume.

