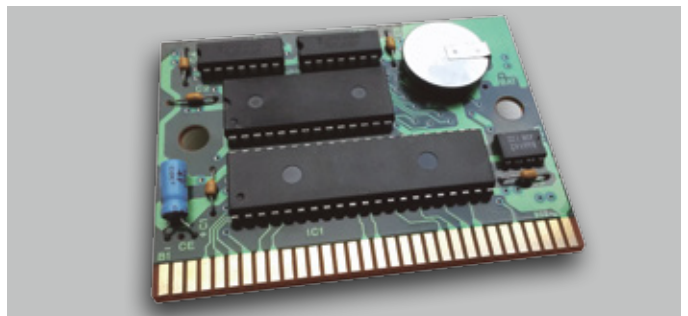


Catalog & Selection Guide



Alkaline Cylindrical



Carbon Zinc Cylindrical



Primary Lithium Cylindrical



Alkaline Button



Silver Oxide Button



Zinc Air Button



Lithium Coin



Contents

GP – Battery Experts for over 50 years	3
Battery Experts - Product Compliance	4
Battery Experts - Laboratory Services	5
Battery Experts - System Certification and Awards	6
Batteries Selection Guide	7
Alkaline Cylindrical Batteries	8
Carbon Zinc Cylindrical Batteries	10
Primary Lithium Cylindrical Batteries	11
Primary Lithium Coin Batteries	12
Alkaline Button Batteries	13
Sliver Oxide Button Batteries	14
Zinc Air Button Batteries	15
Sales and Marketing Offices	16



GP · Battery Experts for over 50 years

GP Batteries International Limited is a wholly-owned subsidiary of Gold Peak Group in Hong Kong. It is one of the world's major suppliers of primary and rechargeable batteries. Apart from retailing under the "GP" brand, it also supplies electronic manufacturers and major battery companies with an extensive range of battery products. The volume sales of GP alkaline battery, rechargeable battery and charger have been ranked No.1 in Hong Kong for 13 consecutive years (2004-2016).



R&D

GP has dedicated significant amount of resources and efforts each year to the R&D center for its construction, development of new products and introduction of advanced equipment. Our R&D center prides itself on various facilities, namely the professional trial-production workshops, performance test rooms, chemical labs and material analysis rooms.



Automation

In order to meet the increasing market demand, we have equipped ourselves with the cost-effective automated systems that enhance productivity and quality control. Factors such as distribution, parts procurement, labor and risks are thoroughly assessed in areas of our in-house production of tools, materials and technologies.



Quality

As an established brand, we speak with strong data and make continuous improvement practicing the Six Sigma philosophy. Factors/parameters that could affect product quality are hence prevented by data automation. Not to mention we also possess world-class inspection equipment exclusive to the battery industry such as AAS (Atomic Absorption Spectroscopy), UV-VIS (UV-Visible Spectrometry) and EDXRF (Energy Dispersive X-Ray Fluorescence).



Battery Experts



Product Compliance

As a major brand in consumer batteries, GP Batteries adheres to strict safety and complies with the highest international safety standards.

GP Batteries manufactured **4** out of **8** brands worldwide of certified primary 9V brands against UL217 specifically for Smoke Alarm application.

GP Batteries' IEC62133-certified NiMH and Lithium-ion batteries offer quick market penetration into **53** Certification Body scheme participating countries*.

GP Batteries is amongst the **First batch of Lithium-ion battery brands** that obtained voluntary CQC mark in China, as well as UR, BIS, and MC marks in the USA, India and Malaysia to respectively cater business needs more efficiently.

With **UN38.3** certification, all GP Lithium-ion batteries are easily transported by air and sea to **5** continents*.



* Subject to national deviation, additional tests may be needed.



Battery Experts

Laboratory Services

China and Singapore

GP Batteries's quality assurance centers, located strategically in China, Singapore and Hong Kong, provide full range R&D facilities for quality and safety assurance.

Both China and Singapore laboratories are well-recognized by more than **90** international regions under International Laboratory Accreditation Cooperation-Mutual Recognition Agreement (ILAC-MRA).

China (Dongguan) - Chemical & Calibration Laboratory

- CNAS (China National Accreditation Service for Conformity Assessment) Accreditation



中国认可
国际互认
检测 / 校准
TESTING / CALIBRATION
CNAS L2411

- Testing scope
 - 2011/65/EU (RoHS Directive)
 - 2006/66/EC (Battery & Accumulator Directive)

Battery Performance Test in Singapore

- SAC-SINGLAS (Singapore Laboratory Accreditation Scheme) Accreditation

- Testing scope
 - IEC 60086-1
 - IEC 60086-2
 - IEC 60086-5



Hong Kong Science Park

The Hong Kong laboratory, the **first** in Hong Kong, is the only **1** out of **6** certified to UL WTDP (Witnessed Test Data Program); it is also the only **1** out of **5** CTF (Customers' Testing Facilities - Stage 1) approved facilities in the China and Hong Kong region*.

UL Data Acceptance Program

- WTDP (Witnessed Testing Data Program)
 - UL1642
 - UL2054
 - UL62133
 - UN38.3



IEC Manufacturer's Testing Laboratory

- CTF (Customer's Testing Facilities (CTF) - Stage 1)
 - IEC62133

Reliability Test for Benchmarking

- Test conditions to be agreed with clients

* Record as at end 2016.



Battery Experts

System Certification

In order to meet the increasing market demand, we make continuous improvement to ensure our Management System excellence for our stakeholders and clients. GP Batteries is certified against ISO9001, ISO14001, OHSAS18001, SA8000, as well as the highlighted below:

Global Security Verification (GSV)

Safety matters. Our GSV certified supply chain security excellence ensuring our trade with our clients are secure, protect against terrorist acts, and to combat illegal trafficking.



ISO26000 Social Responsibility

We speak as a global excellence brands, we value the relationship with our society and environment. Our social responsibility performance is certified against ISO 26000 which proved our promises to the welfare of society and environment.



ISO17025

Our China and Singapore laboratories are certified against ISO17025 – the general requirement for the competence of testing and calibration laboratories to offer the most reliable service to our clients.

Awards

GP stands for excellence, and its track record is impressive. GP's unwavering adherence to high standards has brought recognition from various entities.

Asia Quality Best Practice Award:

Handed out by the International Six Sigma Council, the gold award celebrates GP being top in quality improvement.

MAKE (Most Admired Knowledge Enterprise) Award:

The award recognizes organisations which out-perform their peers in creating shareholder's wealth by transforming tacit and explicit enterprise knowledge and intellectual capital into superior products/services/solutions.



Batteries Selection Guide



GP Batteries offers support to cater an extensive variety of market needs, from general consumer gadgets to portable commercial devices to industrial applications for accuracy, its professional cell manufacturing and advanced technologies have built GP as a brand of safe, reliable and quality power supply.

Selection Guide for Cylindrical Primary Battery Types

Applications	Alkaline	Carbon Zinc	Lithium
Access Control System	●		●
Asset Tracking System	●		●
Cameras	●		●
Clocks		●	●
Electronic Door Locks	●		●
Electronic Shavers	●		●
Flashlights	●	●	●
Home Security System	●		●
IoT (Internet of Things)	●		●
Medical Equipment			●
Meters	●	●	●
Personal Care	●	●	
Remote Control		●	
Security Sensors	●	●	●
Smoke Detectors		●	●
Toys	●	●	

Selection Guide for Coin/Button Battery Types

Applications	Alkaline	Silver Oxide	Lithium	Zinc Air
Calculators	●	●	●	
Digital Clocks	●		●	
Hearing Aids				●
Electronic Watches		●	●	
Memory Backup	●	●	●	
Meters	●	●	●	
Electronic Price Tags			●	
RFID	●		●	
Remote Control	●		●	
Security Sensors	●		●	
Thermometers	●	●	●	
Toys	●	●	●	
Watches	●	●	●	

Alkaline Cylindrical Batteries

General Description

GP Alkaline Cylindrical Batteries – Ultra Plus and Super – possess a higher energy density and hence provide long lasting power to support industrial usage. They are designed for the maximization of value, performance and safety. Come in several sizes to fit most applications, the multiple grades of alkaline cylindrical battery intensity are suitable for different segments of battery operated devices.



Features

- Optimized current and continuous drain
- Superior performance at all drain levels
- Wide operating range of temperatures
- Environmentally friendly
- Comply with IEC, ANSI and JIS standards

Application

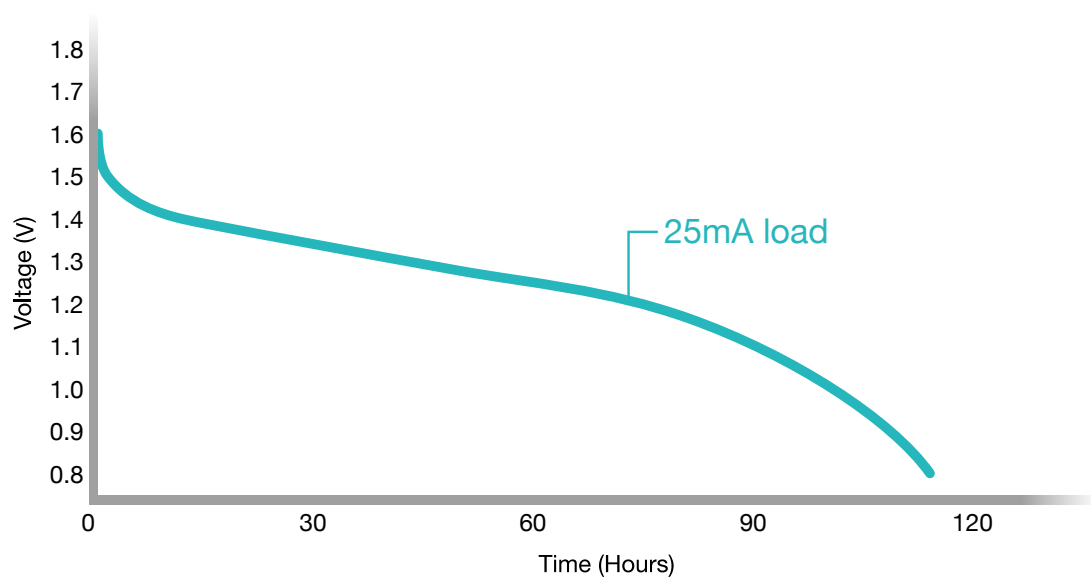
- Toys
- Security sensors
- Flashlights
- Electric shavers
- Personal care

Alkaline Cylindrical Batteries							
Model	Dimension (mm)		Voltage (V)	Cross reference			
	Diameter	Height		IEC	JIS	Energizer	Other
Ultra Plus (For high drain application, e.g. flashlight)							
13AUP	34.2	61.5	1.5	LR20	LR20	E95	D
14AUP	26.2	50.0	1.5	LR14	LR14	E93	C
15AUP	14.5	50.5	1.5	LR6	LR6	E91	AA
24AUP	10.5	44.5	1.5	LR03	LR03	E92	AAA
1604AUP	26.5(L)x17.5(W)x48.5(H)		9.0	6LF22	6LF22	522	-
Super (For low drain application, e.g. toys)							
13A	34.2	61.5	1.5	LR20	LR20	E95	D
14A	26.2	50.0	1.5	LR14	LR14	E93	C
15A	14.5	50.5	1.5	LR6	LR6	E91	AA
24A	10.5	44.5	1.5	LR03	LR03	E92	AAA
25A	8.3	42.5	1.5	LR8D425	-	E96	AAAA
910A	12.0	30.2	1.5	LR1	LR1	-	N
312A	62.0(L)x22.0(W)x67.0(H)		4.5	3LR12	-	-	-
908A	66.0(L)x66.0(W)x111.0(H)		6.0	4LR25	4LR25X	-	-
1604A	26.5(L)x17.5(W)x48.5(H)		9.0	6LF22	6LF22	522	-
1412AP	35.5(L)x9.2(W)x48.4(H)		6.0	-	-	539	J



Performance Characteristics

15A @25mA continuous discharge to 0.8V



Carbon Zinc Cylindrical Batteries

General Description

GP Carbon Zinc Cylindrical Batteries serve as an economical source of power for devices that require different drain rates. These premium carbon zinc batteries perform the best when applied to devices of light to moderate drains or continuous drains applications.



Features

- More economical in terms of hourly cost on moderate current drains/ use frequency when compared to the alkaline batteries
- Higher open circuit and initial close circuit voltages than alkaline batteries
- Extra heavy duty
- Environmentally friendly
- Comply to IEC, ANSI and JIS standards

Application

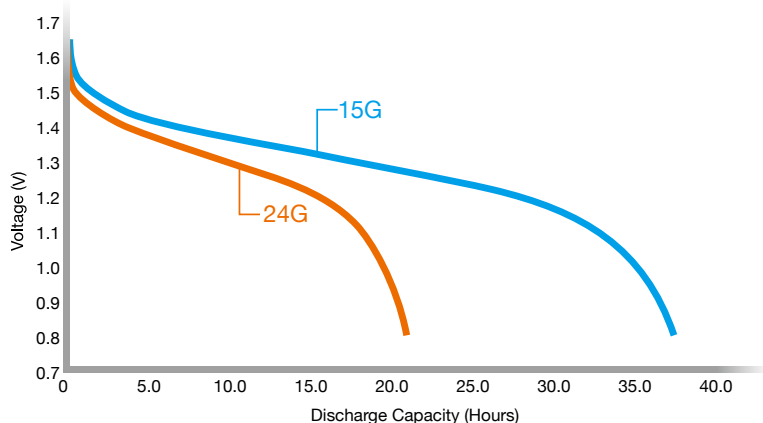
- Toys
- Remote control
- Clocks
- Multimeters
- Flashlights
- Radio
- Security sensors
- Smoke detectors

Carbon Zinc Cylindrical Batteries

Model	Dimension (mm)		Voltage (V)	Cross reference			
	Diameter	Height		IEC	JIS	Eveready	Other
13G	34.2	61.5	1.5	R20P	R20P	1250	D
14G	26.2	50.0	1.5	R14P	R14P	1235	C
15G	14.5	50.5	1.5	R6P	R6P	1215	AA
24G	10.5	44.5	1.5	R03	R03	1212	AAA
312G	62.0(L)x22.0(W)x67.0(H)		4.5	3R12	3R12	-	-
908G	66.0(L)x66.0(W)x111.0(H)		6.0	4R25	4R25	509	-
1604G	26.5(L)x17.5(W)x48.5(H)		9.0	6F22	6F22	1222	-

Performance Characteristics

25mA constant current continuous discharge curve at room temperature



Primary Lithium Cylindrical Batteries

General Description

GP Primary Lithium Cylindrical Batteries offer strong voltage, high energy density, durability, safety as well as operation stability. These lithium cylindrical batteries are all equipped with built-in Positive Temperature Coefficient (PTC) device (a passive electronic component used against overcurrent faults) for the protection of cells and users against safety issues such as external short circuit.



Features

- Low internal resistance
- Built-in PTC
- Leak proof crimping technique
- Wide operating range of temperature from -40°C to +60°C
- Durable power storage with low annual self-discharge rate (below 1% per year)
- Environmentally friendly
- Comply with UL and UN38.3 safety standards

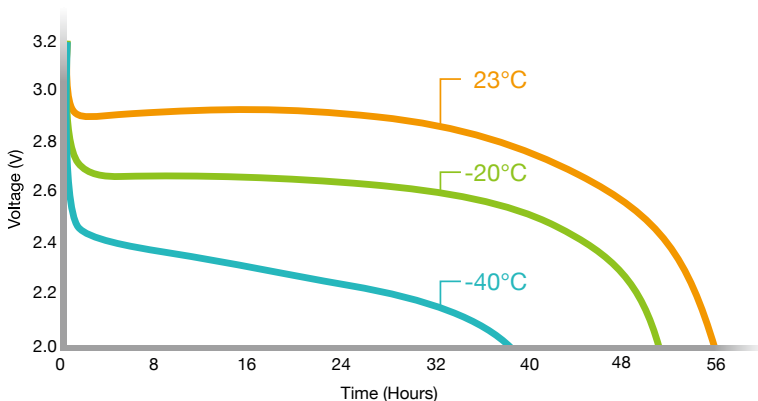
Application

- IoT (Internet of Things)
- Home security system
- Access control system
- Asset tracking system
- Meters (gas/electric/water)
- Cameras (conventional/digital/instant)

Primary Lithium Cylindrical Batteries								
Model	Dimension (mm)		Voltage (V)	Cross reference				
	Diameter	Height		IEC	Energizer	Duracell	Panasonic	Ultralife
CR14250	14.5	25.0	3.0	-	-	-	-	-
CR2	15.6	27.0	3.0	-	EL1CR2	DLCR2	CR-2	-
CR123A	16.8	34.5	3.0	CR17345	EL123	DL123A	CR-123A	-
CR2/3A	16.8	34.0	3.0	-	-	-	CR-2/3AZ	-
CR-P2	34.8(L)x19.5(W)x35.8(H)		6.0	CR-P2	EL223	DL223A	CR-P2	-
2CR5	34.0(L)x17.0(W)x45.0(H)		6.0	2CR5	EL2CR5	DL245	2CR-5	-
CR-V9	26.5(L)x17.5(W)x48.5(H)		9.0	-	LA522	DL1604	-	U9VL
15LF	14.5	50.5	1.5	FR6	L91	LF1500	-	-
24LF	10.5	44.5	1.5	FR03	L92	LF2000	-	-

Performance Characteristics

CR123A @100Ω continuous discharge to 2.0V at various temperatures



Primary Lithium Coin Batteries

General Description

GP Primary Lithium Coin Batteries supply power with high energy density and reliability that works for a variety of applications. Despite their small size, these lithium coin batteries possess high energy density. They are especially suitable for compact devices with extra low background drains.

Features

- High voltage of 3 volts
- Low self-discharge enables long service and shelf life
- Wide operating range of temperatures
- Constant operating voltage
- Environmentally friendly
- Customized welding tag available

Application

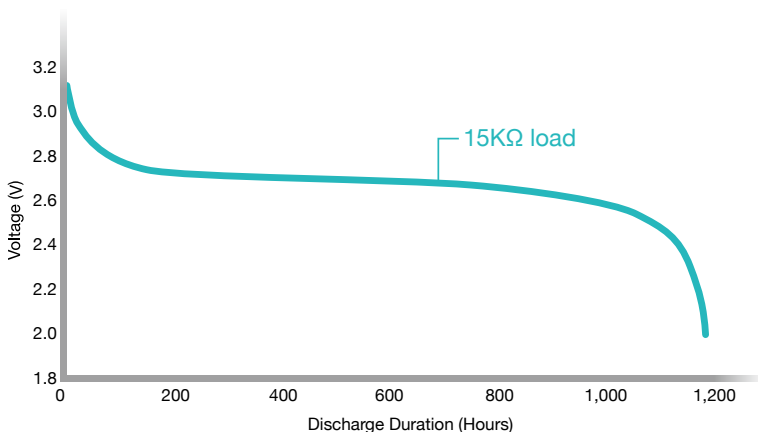
- IoT (Internet of Things)
- Calculators
- Electronic watches
- Memory backup
- RFID
- Remote control
- Electronic price tags
- Smart home



Primary Lithium Coin Batteries									
Model	Dimension (mm)		Voltage (V)	Nominal Capacity (mAH)	Cross reference				
	Diameter	Height			IEC / JIS	Energizer	Varta	Duracell	
CR1/3N	11.6	10.8	3.0	160.0	CR1/3N	-	-	DL1/3N	
CR1216	12.5	1.6	3.0	25.0	CR1216	ECR1216	CR1216	-	
CR1220	12.5	2.0	3.0	36.0	CR1220	ECR1220	CR1220	-	
CR1616	16.0	1.6	3.0	55.0	CR1616	ECR1616	CR1616	DL1616	
CR1620	16.0	2.0	3.0	78.0	CR1620	ECR1620	CR1620	DL1620	
CR1632	16.0	3.2	3.0	140.0	CR1632	ECR1632	CR1632	DL1632	
CR2016	20.0	1.6	3.0	90.0	CR2016	ECR2016	CR2016	DL2016	
CR2025	20.0	2.5	3.0	160.0	CR2025	ECR2025	CR2025	DL2025	
CR2032	20.0	3.2	3.0	220.0	CR2032	ECR2032	CR2032	DL2032	
CR2430	24.5	3.0	3.0	300.0	CR2430	ECR2430	CR2430	DL2430	
CR2450	24.5	5.0	3.0	600.0	CR2450	ECR2450	CR2450	-	

Performance Characteristics

CR2032: load: 15KΩ continuous discharge to 2.0V



Alkaline Button Batteries

General Description

GP Alkaline Button Batteries are mercury free and made for miniature applications. Available in various sizes, they support voltages that range from 1.5 to 12.0 volts.

Features

- High resistance to shock and vibration
- Long service life
- Mercury free
- Environmentally friendly

Application

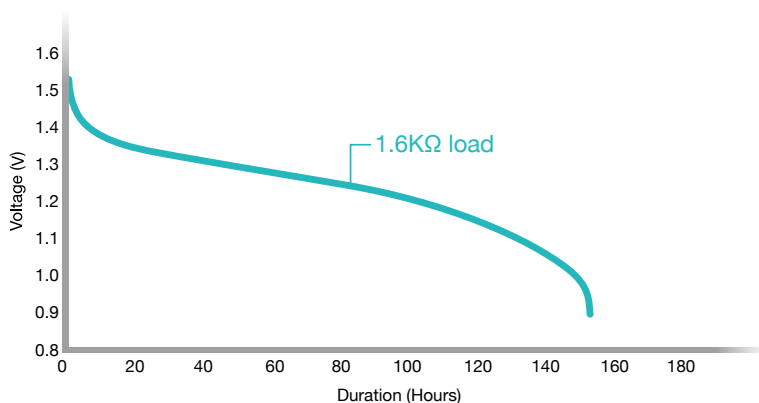
- Toys
- Meters
- Watches
- Calculators
- Digital Clocks
- Thermometers



Alkaline Button Batteries									
Model	Dimension (mm)		Voltage (V)	Nominal Capacity (mAh)	Cross reference				
	Diameter	Height			IEC	JIS	Energizer	Varta	Duracell
164	6.80	2.15	1.5	7	LR60	-	-	-	LR620
A76	11.60	5.40	1.5	110	LR44	LR44	A76	V13GA	LR44
177	6.80	2.60	1.5	12	LR626	LR626	-	-	-
186	11.60	4.20	1.5	70	LR43	LR43	186	V12GA	LR43
189	11.60	3.05	1.5	44	LR54	LR1130	189	V10GA	LR54
192	7.90	3.60	1.5	24	LR41	LR41	192	V3GA	-
PX625A	15.40	6.15	1.5	140	LR9	LR9	-	V625U	PX625A
10AF	10.22	9.00	9.0	38	-	-	-	-	-
11AF	10.22	6.00	6.0	28	-	-	-	-	-
23AF	10.22	12.00	12.0	46	-	-	A23	V23GA	MN21
26AF	8.00	6.00	6.0	18	-	-	-	-	-
27AF	8.00	12.00	12.0	18	-	-	-	-	-
29AF	8.00	9.00	9.0	18	-	-	-	-	-
476AF	13.00	6.00	6.0	105	4LR44	4LR44	A544	V4034PX	PX28A

Performance Characteristics

A76 1.6K Ω continuous discharge to 0.9V



Sliver Oxide Button Batteries

General Description

GP Silver Oxide Button Batteries and its compact structure offer stable voltage and high reliability for miniature and wearable applications, such as the high accuracy miniature instruments that require stable voltage performance.



Features

- High resistance to shock and vibration
- Long service life
- Mercury free
- Environmentally friendly

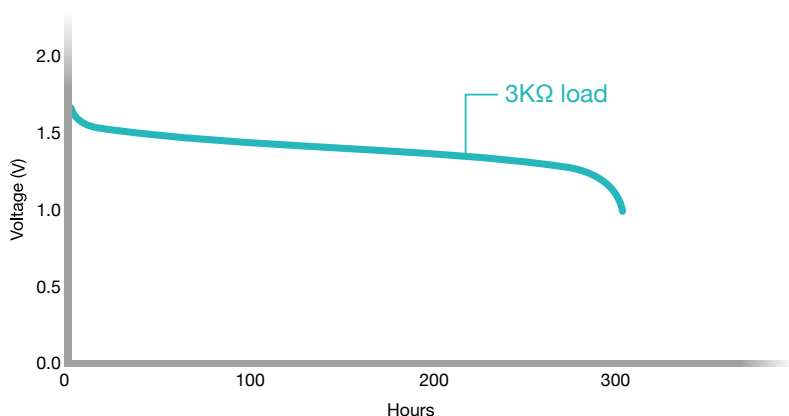
Application

- Watches
- Meters
- Calculators
- Thermometers

Silver Oxide Button Batteries									
Model	Dimension (mm)		Voltage (V)	Nominal Capacity (mAH)	Cross reference				
	Diameter	Height			IEC / JIS	Energizer	Varta	Duracell	Sony
357F	11.6	5.40	1.55	165	SR44	357	V357	D357	SR44SW
364F	6.8	2.15	1.55	18	SR60	364	V364	D364	-
377F	6.8	2.60	1.55	25	SR66	377	V377	D377	SR626SW
386F	11.6	4.20	1.55	120	SR43	386	V386	D386	SR43SW
389F	11.6	3.05	1.55	70	SR54	389	V389	-	SR1130SW
392F	7.9	3.60	1.55	42	SR41	392	V392	D392	SR42SW

Performance Characteristics

GP357 3KΩ continuous discharge to 1.0V



Zinc Air Button Batteries

General Description

GP Zinc Air Button Batteries are primarily designed to deliver stable and long lasting battery power for hearing aids due to their durable service time for minimization of replacements.

Features

- High resistance to shock, vibration, and acceleration
- Long service life and shelf life
- Exceptionally reliable
- Perfect anti-corrosion protection
- Mercury free
- Environmentally friendly

Application

- Hearing aids



Zinc Air Button Batteries								
Model	Dimension (mm)		Voltage (V)	Nominal Capacity (mAh)	Cross reference			
	Diameter	Height			IEC/JIS	Energizer	Varta	Duracell
ZA10	5.8	3.6	1.4	90.0	PR70	AC10	-	DA230
ZA13	7.9	5.4	1.4	290.0	PR48	AC13	V13A	DA13
ZA312	7.9	3.6	1.4	170.0	PR41	AC312	V312A	DA312
ZA675	11.6	5.4	1.4	620.0	PR44	AC675	V675HPA	DA675



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