

Lasting power



The 12 Best Buy batteries that will keep your gadgets going for longer, and why dirt-cheap batteries are a waste of money

Batteries are a key ingredient in our digital lives with the average UK household using 21 in a year. Battery life is improving – our latest tests show that today's batteries outperform those we tested in 2007. To discover which batteries are best for your gadgets, we tested 27 types of disposable, both AA and AAA sizes, plus nine types of rechargeable – and found that you needn't pay a high price to get a powerful performance.

Assault on battery

We included Energizer's new lithium AA and AAA batteries

in our tests to see if they could hold a candle to mainstream alkaline batteries. They're more expensive but they outperform the others, especially in very high-drain situations, and are worth considering if a long battery life is a priority.

Rechargeables

Although rechargeable batteries are initially more expensive to buy than disposables, they will save you money in the long run. Not only are they economical, costing a fraction of a penny to run each hour, but they're a good green option too.

Standard rechargeable batteries 'self-discharge' (go flat) relatively quickly, even when not used. This makes them unsuitable for some devices, such as smoke alarms, that require their charge to be held.

However, a new type of rechargeable battery is now on the market and we've got four of them on test. These have a lower self-discharge rate, with manufacturers claiming they'll retain up to 90% of their charge after a year. They come pre-charged, but you'll get much better performance once you've charged them fully yourself.

BARGAIN BATTERIES?

We found that cheap batteries last just six minutes

You may have seen cheap batteries being sold on market stalls – typically they're £1 for 24 AA cells. We were intrigued to find out how batteries like these stood up against normal batteries, so we bought some from a north London market and ran them through our tests. The Powercell Super Extra Heavy Duty batteries proved anything but. Typically, a good AA battery will give you around 17 hours' use in a medium-drain situation – the Powercells lasted just over two hours. In high-drain situations where you'd expect about six hours of use, they only managed half an hour before depletion. In very high-drain situations they lasted a pathetic six minutes before going flat.

Unsurprisingly, these batteries are not the bargain they initially appear – they may be cheap, but their performance is awful. Our advice is to avoid them.



**Which?
online**

Safe disposal

Find out how to dispose of batteries safely, plus more tips on getting the best from your batteries

Log on to www.which.co.uk/batteries for expert advice on how to recycle your batteries, plus a host of practical tips to help you make them last longer, from storing them at the right temperature to making sure the contacts are clean.



How we test

Battery of tests

We've tested AA and AAA disposable batteries plus AA rechargeables. To ensure consistency, we test nine of each type. A computer-controlled rig turns each battery on and off to simulate real-life use and we subject each battery to a variety of power-drain tests.

Our medium-drain test, similar to the power needs of a pocket radio, will typically see an AA disposable battery last around 17 hours. This usually plummets to around six hours in our high-drain test – equivalent to use in a personal CD player. Our

toughest very high-drain test simulates use in a digital camera with a display, and most AA batteries last less than two hours. Smaller AAA disposables undergo a similar regime, but we reduce the load due to their reduced capacity.

Rechargeable batteries are only subjected to one type of test because their performance is easier to predict. We compare their claimed capacity with their measured capacity to assess their overall score.



Long life tips

- **Buy multi-packs** If you can, buy your batteries in bulk as it will save you money. Unused disposable batteries last for five years with very little energy loss.
- **Don't mix new and used** Don't mix part-used and new batteries in the same device. The new batteries will treat the old ones as part of the 'load' and will try to recharge them, potentially causing leakage and damage.
- **Remove when not in use** If your device won't be used for a long time, remove the batteries.

AAA batteries

100% Energizer Ultimate Lithium

£6.99

1 AAA

It's pricey, but this battery gives a cracking performance. Medium and high-drain results are excellent. In very high-drain conditions it lasts for 3.7 hours – more than an hour better than the best alkalines.



91% Energizer Ultimate

2 AAA

This is one of the best AAA alkaline batteries on test. It'll last more than 8.5 hours in a high-drain situation and more than 2.5 hours in a very high-drain device.



91% Panasonic Evoia

3 AAA

The Panasonic Evoia AAA battery will give more than 8.5 hours' performance in a high-drain situation and 2.5 hours in a very high-drain device, such as a digital camera.



85% Duracell Plus

£2.88

4 AAA

Although it can't quite match the Energizer and Panasonic in high-drain situations, this excellent AAA battery will still last more than eight hours.



77% Duracell Ultra

£3.49

5 AAA

The Duracell Ultra matches its stable-mate the Duracell Plus in very high-drain situations, lasting more than 2.5 hours, but can't quite compete in our high-drain test where, on average, it goes flat in just under eight hours.



AA batteries

100% Energizer Ultimate Lithium

£6.99

14 AA

This long-lasting lithium battery can keep a digital camera running for nearly 4.5 hours.



88% Panasonic Evoia

£3.49

15 AA

The Panasonic Evoia battery will last more than seven hours in a high-drain situation and 2.4 hours in a very high-drain device.



81% Duracell Plus

£2.88

16 AA

The Duracell Plus gives great performance in medium and high-drain situations, lasting for 19 and 6.5 hours respectively.



MODEL	SPEC	WHICH? TEST PERFORMANCE			SCORE %
	PRICE FOR PACK OF FOUR (£)	MEDIUM DRAIN LIFETIME	HIGH DRAIN LIFETIME	VERY HIGH DRAIN LIFETIME	
AAA BATTERIES					
1 ENERGIZER Ultimate Lithium	6.99	★★★★★	★★★★★	★★★★★	100
2 ENERGIZER Ultimate	4.99	★★★★★	★★★★★	★★★★	91
3 PANASONIC Evoia	3.49	★★★★★	★★★★★	★★★★	91
4 DURACELL Plus	2.88	★★★★★	★★★★★	★★★★	85
5 DURACELL Ultra	3.49	★★★★★	★★★★	★★★★	77
6 MARKS & SPENCER Endurance Extra Long Life	3.00	★★★★★	★★★★	★★★	73
7 SONY Stamina Platinum	3.29	★★★★★	★★★★	★★★★	73
8 VARTA Max Tech	3.99	★★★★★	★★★★	★★	70
9 MAPLIN Extra Long Life	2.59	★★★★★	★★	★★	64
10 PHILIPS Extremelife+	3.49	★★★★★	★★★★	★	63
11 TESCO Power Hi Tech Extra Long Life	2.62	★★★★★	★★	★★	63
12 WILKO Powerplus Extra Long Life	1.75	★★★★★	★★	★★	62
13 GP Ultra	2.49	★★★★★	★★	★★	60
AA BATTERIES					
14 ENERGIZER Ultimate Lithium	6.99	★★★★★	★★★★★	★★★★★	100
15 PANASONIC Evoia	3.49	★★★★★	★★★★★	★★★★	88
16 DURACELL Plus	2.88	★★★★★	★★★★	★★★★	81
17 MORRISONS Extra Long Life	1.69	★★★★★	★★★★	★★★★	75
18 DURACELL Ultra	3.49	★★★★★	★★★★	★★★★	74
19 ENERGIZER Ultimate	4.99	★★★★	★★★★	★★★★	70
20 MARKS & SPENCER Endurance Extra Long Life	3.00	★★★★	★★★★	★★★★	65
21 SONY Stamina Platinum	3.29	★★★★	★★★★	★★★★	61
22 VARTA Max Tech	3.99	★★★★	★★★★	★★★★	60
23 TESCO Power Hi Tech Extra Long Life	2.62	★★★	★★★★	★★★★	55
24 MAPLIN Extra Long Life	2.59	★★★★	★★★★	★★★★	54
25 VARTA High Energy	2.99	★★★	★★★★	★★★★	48
26 SONY Walkman	3.97	★★★	★★★★	★★★★	48
27 PHILIPS Powerlife	2.49	★★	★★	★★	31

75% Morrisons Extra Long Life £1.69

17 AA

At just £1.69 for four, this bargain Best Buy battery works well in medium-drain situations – a pocket radio will run for more than 18 hours.



Using the table

All the leading brands were tested. The more stars the better.

Specification

Price This is a typical high-street price for a pack of four batteries. Savings may be made by buying batteries in larger multi-packs.

Test performance

We evaluated a disposable battery's overall performance by subjecting it to a range of medium, high or very high power-drain conditions.

Disposable AAs

Medium drain
★★★★★
more than 18 hrs
★★★★★
more than 17 hrs
★★★★
more than 16 hrs
★★ more than 15 hrs
High drain
★★★★★
more than 7 hrs
★★★★★
more than 6 hrs
★★★★
more than 5 hrs
★★ more than 4 hrs

Very high drain
★★★★★
more than 2.5 hrs
★★★★
more than 2 hrs
★★★★
more than 1.5 hrs
★★ more than 1hr
Disposable AAAs
High drain
★★★★★
more than 8.2 hrs
★★★★
more than 7.9 hrs
★★★★
more than 7.6 hrs
★★
more than 7.3 hrs
Very high drain
★★★★★
more than 3 hrs
★★★★
more than 2.7 hrs
★★★★
more than 2.4 hrs
★★
more than 2.1 hrs
★ under 2 hrs

Score

This ignores price and is based on:
Medium drain 45%
High drain 35%
Very-high drain 20%
Rechargeables
These are rated on how closely their measured capacity matches their stated capacity once fully charged.

100% Duracell ActiveCharge £14.99

1 RECHARGEABLE

This AA rechargeable battery from Duracell scored full marks in our tests. It's one of the new low 'self-discharge' rechargeable batteries, and comes pre-charged. Its claimed capacity is 2000mAh, and once fully charged it has a typical running time of around 6.3 hours. It's pricey though, at £14.99 for four.



100% GP ReCyko+ £9.99

2 RECHARGEABLE

It's cheaper than the Best Buy Duracell ActiveCharge, but this low 'self-discharge' AA rechargeable battery still performed impressively in our tests. It has a claimed capacity of 2050mAh, and comes pre-charged and ready to use. Once charged fully, the GP ReCyko+ performed as claimed, typically lasting more than 6.5 hours before running out of power.



100% Varta Rechargeable Power Accu £9.99

3 RECHARGEABLE

If you want a high-capacity rechargeable battery without a high price tag, this one is well worth considering. Its claimed capacity is 2700mAh and our tests confirm that it delivers on its promise. A full charge will give you around 8.5 hours of running time. For a high-capacity battery it isn't expensive either, at £9.99 for four.



RECHARGEABLE BATTERIES		SPECIFICATION			W? TEST	SCORE %
		PRICE FOR PACK OF FOUR (£)	CAPACITY (mAh)	COMES PRE-CHARGED	PERFORMANCE	
1	DURACELL ActiveCharge	14.99	2000	✓	★★★★★	100
2	GP ReCyko+	9.99	2050	✓	★★★★★	100
3	VARTA Rechargeable Power Accu	9.99	2700		★★★★★	100
4	PANASONIC Infinium	9.99	2100	✓	★★★★★	98
5	SANYO Advanced NiMH	9.99	2700		★★★★★	98
6	UNIROSS Rechargeable Performance	11.99	2700		★★★★★	98
7	SANYO eneloop	12.99	2000	✓	★★★★	96
8	PANASONIC Recharge Accu Power	9.99	2600		★★★★	95
9	UNIROSS Rechargeable Multi Usage+ Long Life	8.99	2100	✓	★★★★	94

USBCELL BATTERIES

The Moixa USBcell looks at first glance like a standard AA battery. However, one end flips up to reveal a USB plug that will fit into a standard USB port, so you can recharge it from a PC or laptop. A full charge takes about five hours.

The USBcell only claims a capacity of 1300mAh – less than half that of the largest

rechargeable AA cells in this batch. But we tested nine cells and found that this was an overestimate; 1170mAh was a more realistic average.

Typically they lasted around four hours before running flat compared with more than eight hours from the 2700mAh batteries, so they're not ideal for anything that needs



a long running time between charges.

However, some people may find these innovative batteries useful. They're around £10.99 for a pack of two.