

# Typical Temperature Effects

## Cylindrical Alkaline Manganese Dioxide



Cross Section  
Version: 1.1

Energizer Battery Manufacturing Inc. | 800-383-7323 (USA-CAN) | [www.energizer.com](http://www.energizer.com)

### Battery Types

Alkaline Cylindrical

Alkaline Miniature

Lithium Coin

Lithium Cylindrical

NiMH

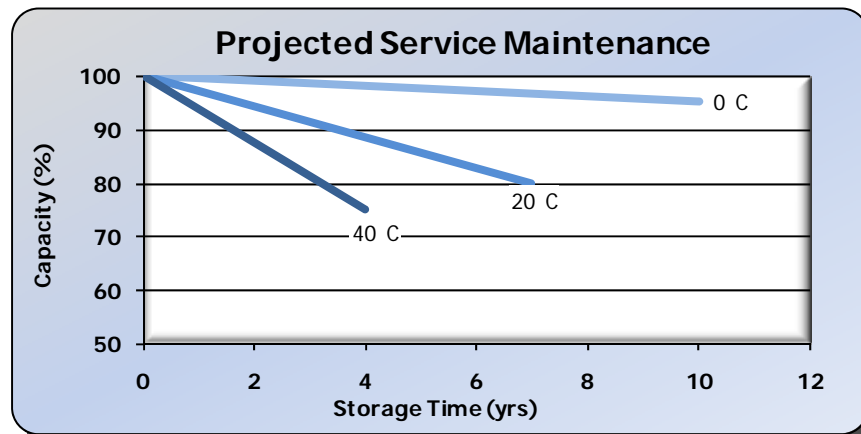
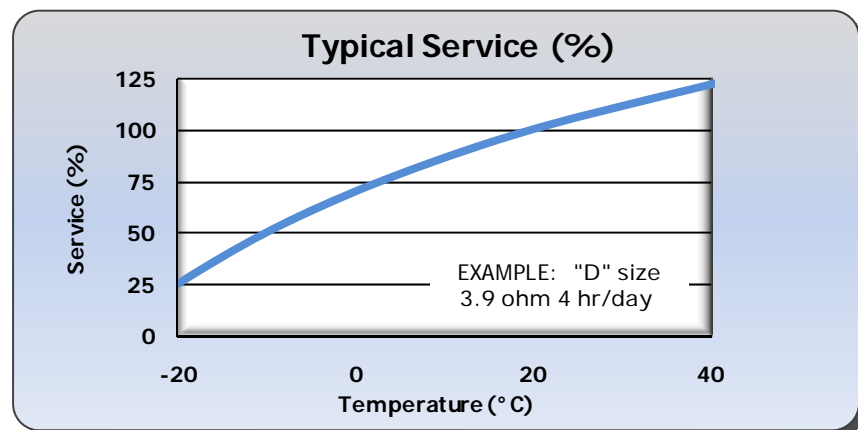
Silver Oxide

Zinc Air

## Overview

Since its commercial introduction in 1959, the Alkaline-Manganese Dioxide battery has advanced to a dominant position in the portable battery market. This came about because the alkaline system is recognized to have several advantages over carbon zinc type batteries. Some of these advantages of alkaline chemistry over the basic carbon zinc chemistry are: higher energy density and longer shelf life.

## Performance



# Typical Temperature Effects

## Alkaline Manganese Dioxide Miniature



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### Battery Types

Alkaline Cylindrical

Alkaline Miniature

Lithium Coin

Lithium Cylindrical

NiMH

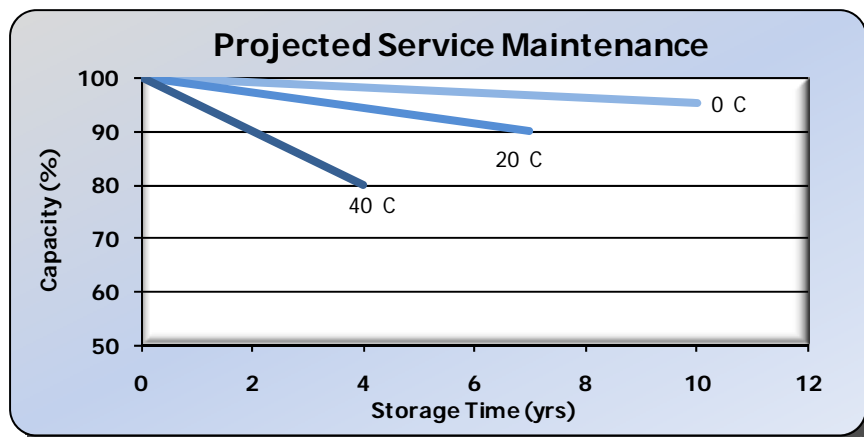
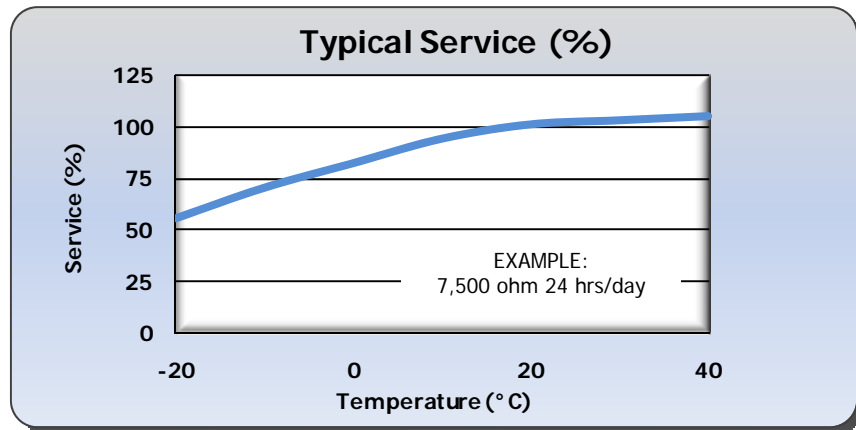
Silver Oxide

Zinc Air

## Overview

The miniature manganese dioxide primary battery is designed to provide an economical power source for device applications that do not require the flat voltage discharge curve characteristic of silver oxide batteries.

## Performance



### Battery Types

Alkaline Cylindrical

Alkaline Miniature

Lithium Coin

Lithium Cylindrical

NiMH

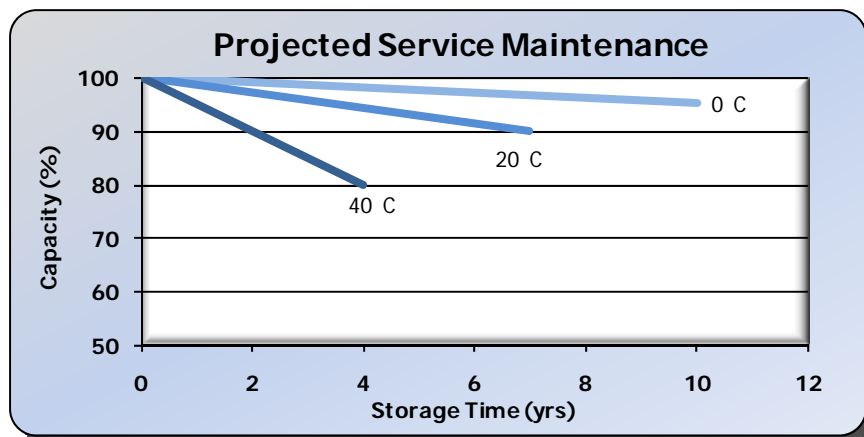
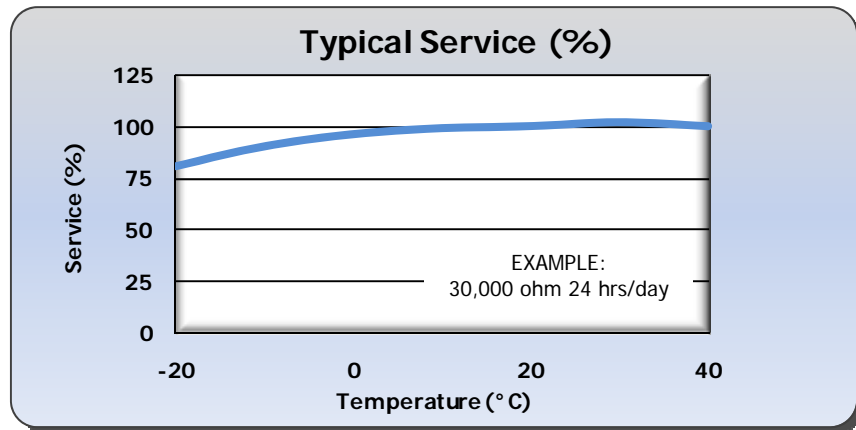
Silver Oxide

Zinc Air

## Overview

The most significant advantages of lithium batteries are long (10+ year estimated) shelf life at room temperature, good low temperature operation, high operating voltage and excellent leakage resistance.

## Performance



# Typical Temperature Effects

## Cylindrical Lithium Iron Disulfide



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### Battery Types

Alkaline Cylindrical

Alkaline Miniature

Lithium Coin

Lithium Cylindrical

NiMH

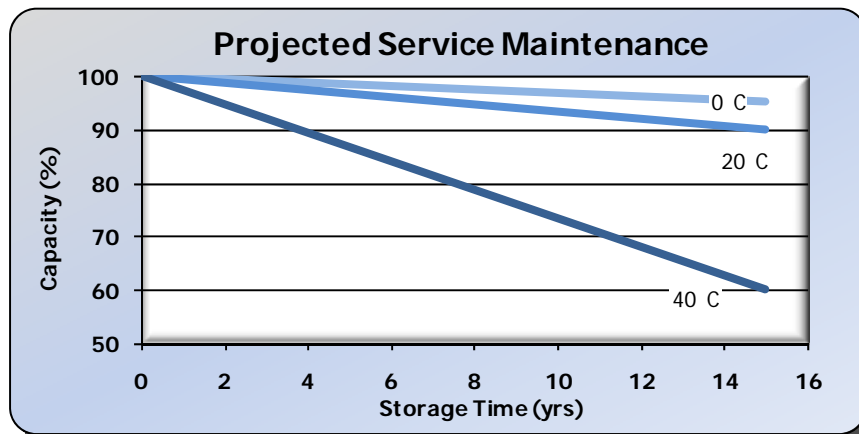
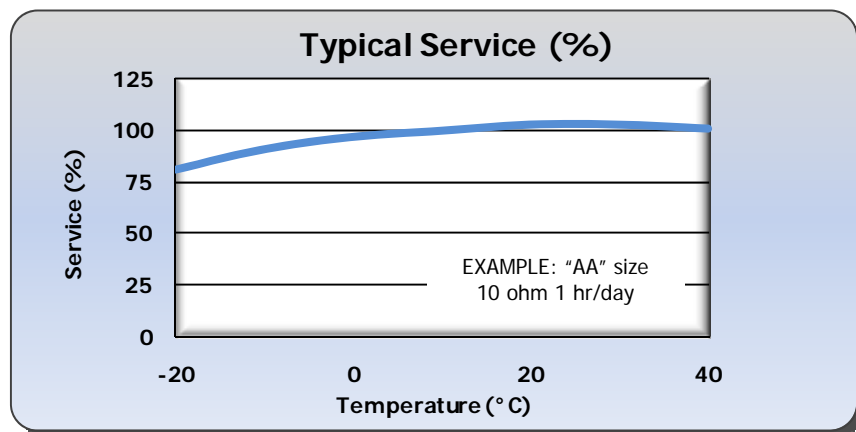
Silver Oxide

Zinc Air

## Overview

The cylindrical Lithium Iron Disulfide battery is designed for superior performance. It is compatible in any application using primary 1.5 volt battery types AA and AAA. Some of the advantages of this battery are: works at low temperature extremes where other types will not, excellent performance even after 15 year storage at ambient conditions and longer service than other primary battery types.

## Performance



# Typical Temperature Effects

## Nickel Metal Hydride Rechargeable

**Energizer**

Cross Section  
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### Battery Types

Alkaline Cylindrical

Alkaline Miniature

Lithium Coin

Lithium Cylindrical

NiMH

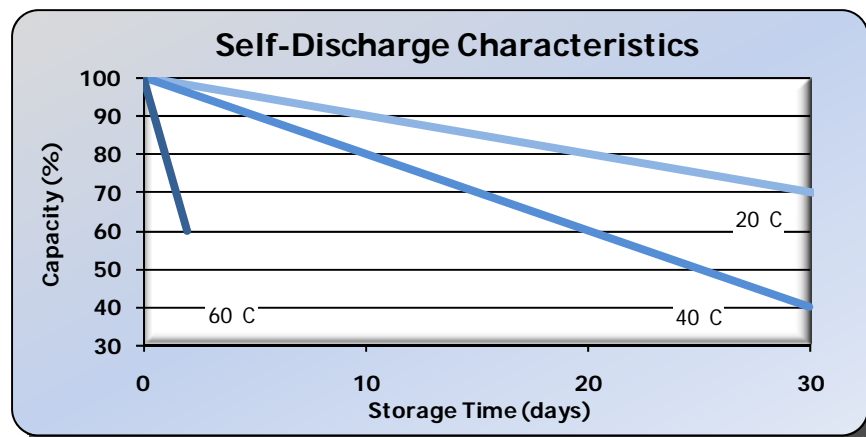
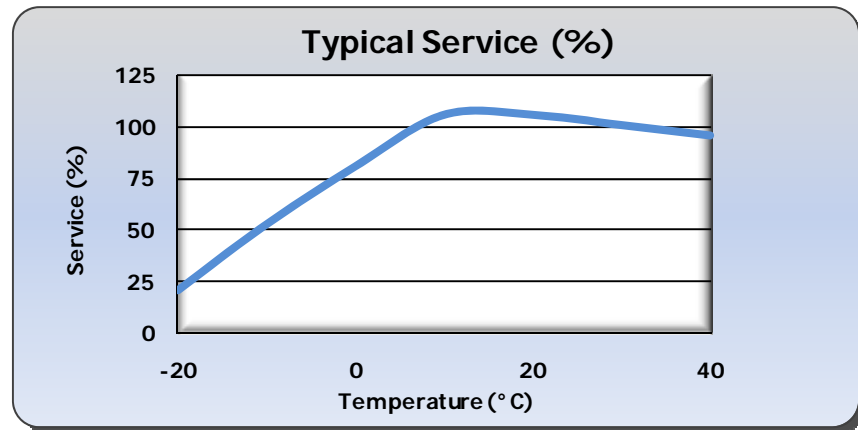
Silver Oxide

Zinc Air

## Overview

The nickel-metal hydride rechargeable battery is currently finding widespread application in high end portable electronic products where battery performance parameters, notably runtime, are a major consideration.

## Performance



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### Battery Types

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Lithium Cylindrical

NiMH

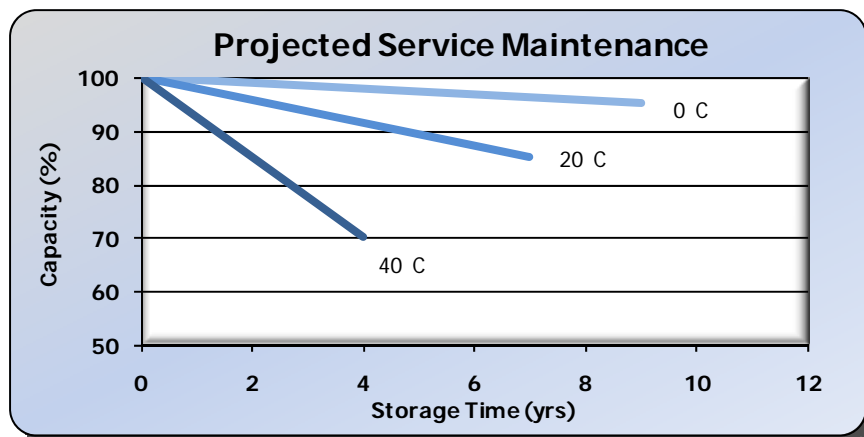
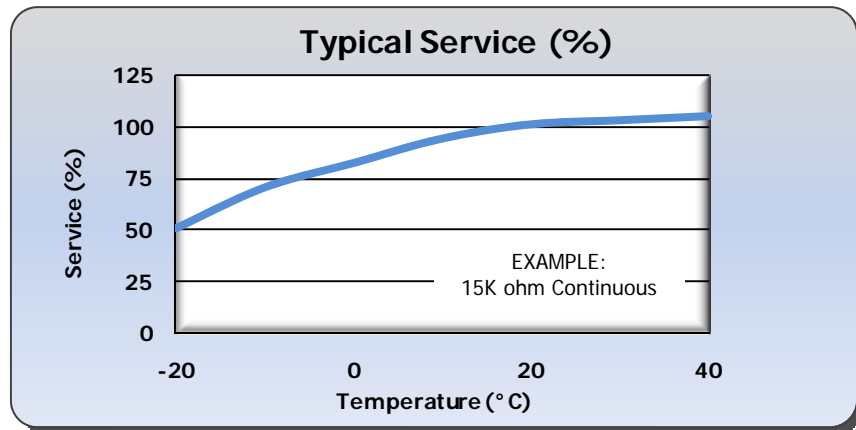
Silver Oxide

Zinc Air

## Overview

The silver oxide/zinc alkaline primary battery is the predominate system of the miniature battery product line. Its general characteristics include: good low temperature characteristics and good resistance to shock and vibration.

## Performance



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## Zinc Air



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## Overview

Miniature zinc air batteries are primarily designed to provide power to hearing aids. In most hearing aid applications, zinc air batteries give the longest hearing aid service of any common battery system.

## Performance

