

Product Carbon Footprint: iotegzuzqd

29.694 kg CO2e

Total Product Footprint

Functional Unit

1.0 unit

Carbon Intensity

29.694 kg CO2e/unit

Top Material Hotspot

Circuit board (8.0 kg CO2e)

Primary Emission Scope

Scope 3 (Materials & Use)

Emission Breakdown

Lifecycle Stage Carbon Impact

Materials (Scope 3)	15.700 kg CO2e (52.87%)
Use Phase (Scope 3)	10.136 kg CO2e (34.13%)
Production Energy (Scope 2)	2.737 kg CO2e (9.22%)
Upstream Transport (Scope 3)	0.716 kg CO2e (2.41%)
End-of-Life (Scope 3)	0.081 kg CO2e (0.27%)
Downstream Transport (Scope 3)	0.024 kg CO2e (0.08%)
Direct Emissions (Scope 1)	0.000 kg CO2e (0.00%)

Material Carbon Impact

Circuit board	8.0 kg CO2e (50.96%)
Aluminum casing	5.0 kg CO2e (31.85%)
Lithium-ion battery	2.0 kg CO2e (12.74%)
Plastic enclosure	0.7 kg CO2e (4.46%)

Key Insights & Hotspots

- Materials are the largest contributor, accounting for **over 50%** of the total footprint, with the circuit board and aluminum casing being primary drivers.
- The product's use phase is a significant hotspot, contributing **around 34%** of emissions due to energy consumption over its 7-year lifespan.
- Production energy contributes approximately 9%, indicating opportunities for further decarbonization despite 60% renewable energy use.

Recommendations for Emissions Reduction

Material Optimization:

- Investigate lower-carbon materials, recycled content, or less energy-intensive manufacturing processes.
- Collaborate with suppliers to reduce the embodied carbon of key components.

Energy Efficiency in Use:

- Enhance product energy efficiency to minimize consumption during its lifespan.
- Educate end-users on sustainable use practices and renewable energy.

Decarbonization of Production:

- Increase renewable energy procurement beyond 60% for the China manufacturing facility.
- Engage with energy suppliers for a cleaner grid mix.