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## Product Carbon Footprint for npxpihgpn

**Total Footprint: 38.21 kg CO<sub>2</sub>e/unit**

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# Key Performance Indicators

Total Footprint

**38.21 kg CO2e**

per unit of npxpihgnd

Carbon Intensity

**38.21 kg CO2e**

per unit produced

Top Emission Hotspot

**Downstream Transport**

20.0 kg CO2e (51.54% of positive emissions)

Primary Emission Scope

**Scope 3**

Value Chain Emissions

# Lifecycle Stage Breakdown

Distribution of positive carbon emissions across product lifecycle stages.

Materials (Scope 3, Cat 1)	2.83 kg CO2e (7.27%)
Production (Scope 1 & 2)	8.50 kg CO2e (21.88%)
Transportation (Scope 3, Cat 4 & 9)	20.02 kg CO2e (51.54%)
Use Phase (Scope 3, Cat 11)	7.50 kg CO2e (19.31%)

Note: End-of-Life treatment resulted in a reduction of 0.64 kg CO2e/unit due to recycling and circular programs. This is not included in the positive emission breakdown above but contributes to the overall net reduction of the product's carbon footprint.

## Illustrative Material Carbon Impact

Conceptual breakdown of carbon impact by key materials from the Bill of Materials.

Circuit Board (PCB)	1.20 kg CO2e (42.48%)
Plastic Enclosure	0.88 kg CO2e (30.97%)
Aluminum Heat Sink	0.75 kg CO2e (26.55%)

## Highlights & Hotspots

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Downstream transportation (delivery from factory to customer) is the largest contributor to the product's carbon footprint, accounting for over half of positive emissions.

The use phase and manufacturing processes (Scope 1 & 2) also represent significant emission hotspots, requiring targeted decarbonization efforts.

End-of-life strategies, particularly recycling and take-back programs, demonstrate a positive impact by reducing the overall net carbon footprint.

## Recommendations for Reduction

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Prioritize collecting primary data for high-impact materials and processes to enhance accuracy.

Collaborate with suppliers to understand and reduce upstream emissions, focusing on material production and logistics.

Invest in energy-efficient manufacturing and increase renewable energy sourcing to cut Scope 2 emissions.

Optimize logistics through efficient transport modes and routes, and greener last-mile delivery options.

Enhance product durability and energy efficiency during use, and expand recyclability and take-back programs.

Prepare for detailed reporting under the 2026 GHG Protocol LSR Standard for materials with land-based origins.

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