

# Charging Junction Block with 800V boosting Function

Under development

Junction block for quick charging of 800V battery EVs, supporting bypass connection for 800V chargers and a voltage-boosting function for 400V chargers

## Background or Assignment

800V battery EVs cannot be directly charged with a 400V quick charger. A boosting function that converts 400V to 800V is required to enable quick charging anywhere.

## Solutions to Challenges

- 1 The 400V quick-charging voltage is boosted to 800V on the vehicle side, eliminating charging unavailability due to voltage mismatch
- 2 Achieves high-efficiency, low-loss charging by bypassing the boost circuit when an 800V quick charger is connected.
- 3 Compatible with both 400V and 800V chargers. Ensures stable operation and user convenience regardless of charging conditions.
- 4 Downsizing by using high-density, high-efficiency power supply modules. Improves flexibility of mounting and saves space.

## Main performance, specifications, and structure

Item		Value			Unit	Remarks	
		Min.	Typ.	Max.			
High-voltage	Input voltage	800V charging		1,000	V		
		400V charging		450	V		
	Input current	800V charging		400	A	Max	
		400V charging		350	A	Max	
	Output voltage	800V charging		1,000	V		
		400V charging		900	V		
Output current	800V charging		400	A	Max		
	400V charging		175	A	Max		
Output power (when boosting)			150	kW	Max		
Low-voltage	12V power	+B or IG	8	12	16	V	
	Dark current				0.5	mA	
	Operating current				TBD	A	
Environment	Operating temperature range		-30		60	°C	Liquid-cooled
	Coolant temperature				70	°C	
	Insulation distance	Pollution degree		3		-	
		Overvoltage category		II		-	
		Elevation		6000		m	
Functional safety			ASIL B				

