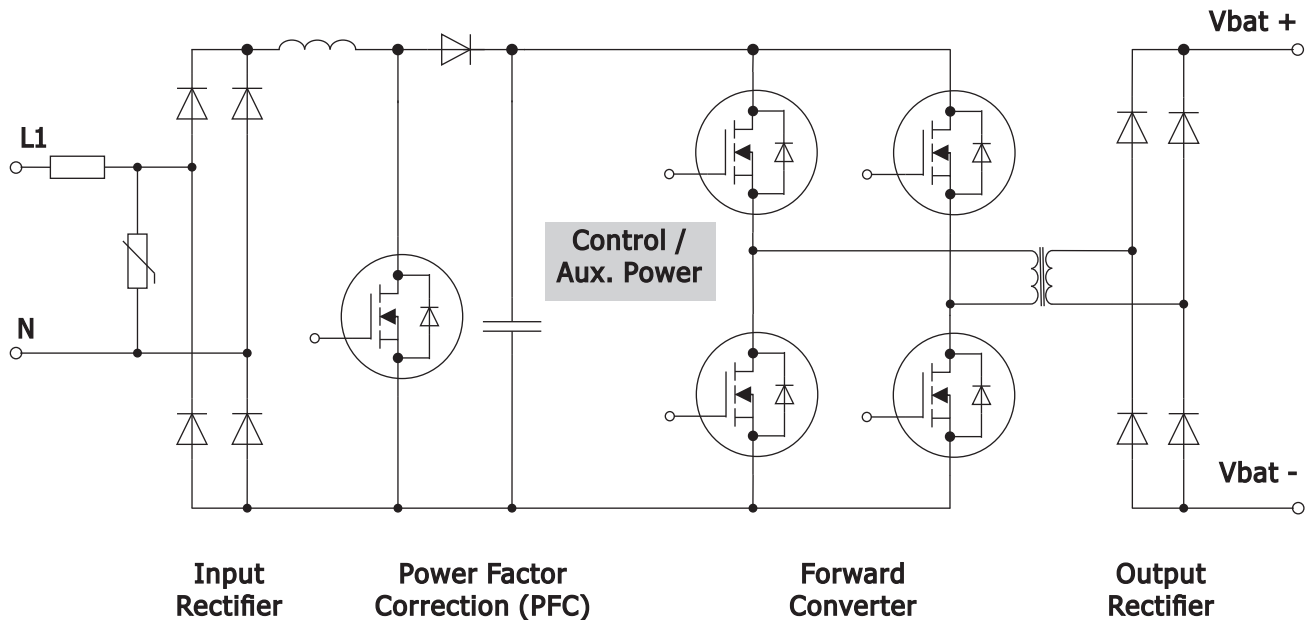




# **On-board Charger For Electric Vehicles**

## Example of 1~ OBC



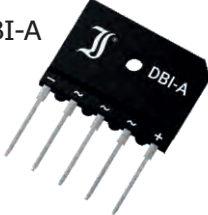







An onboard charger (OBC) is a device that is integrated into the electric vehicle (EV) and is responsible for charging the battery pack. It typically operates on AC power and converts it to DC power to charge the battery. The charger can be either built into the vehicle or added as an aftermarket accessory.

The voltage and power range of an on-board charger can vary depending on the specific make and model of the EV. However, most on-board chargers for EVs operate on a voltage range of 100-240 V AC and have a power output range of 3 to 10 kW. Some high-end EVs may have on-board chargers with a higher power output, up to 20 kW or more.








It is important to note that the charging time and capacity of the battery depend on the charger's power output and the battery's capacity. A higher power output charger will generally charge the battery faster, but it may also require a control of the charging process, which can be helpful for managing charging times and optimizing battery life.

Input / Output Rectifier - Auxiliary Power - Bootstrap

Partnumber*	Package	Type	$I_{FAV} / P_{PPM}$	$V_{RRM}$
<a href="#">GBI25J</a>	GBI 	1~ Bridge	25 A	600 V
<a href="#">GBI40W</a>		1~ Bridge	40 A	1600 V
<a href="#">GBU8J</a>	GBU 	1~ Bridge	8 A	600 V
<a href="#">GBU12M</a>		1~ Bridge	12 A	1000 V
<a href="#">DBI25-12A</a>	DBI-A 	3~ Bridge	25 A	1200 V
<a href="#">DBI25-16A</a>		3~ Bridge	25 A	1600 V
<a href="#">DBI25-18A</a>		3~ Bridge	25 A	1800 V
<a href="#">SICW20C120</a>	TO-247-3L 	SiC Schottky	20 A	1200 V
<a href="#">SICW40C120</a>		SiC Schottky	20 A	1200 V
<a href="#">ESW6006</a>		Superfast Efficient	60 A	600 V
<a href="#">P600K</a>	D8X7.5 	Standard Recovery	6 A	800 V
<a href="#">P2000M</a>		Standard Recovery	20 A	1000 V
<a href="#">P2500Y</a>		Avalanche Standard Recovery	25 A	2000 V
<a href="#">AM2000</a>	DO-213AB/Melf 	Avalanche Standard Recovery	1 A	1600 V
<a href="#">SM3000</a>		Standard Recovery	1 A	3000 V
<a href="#">SM4000</a>		Standard Recovery	1 A	4000 V
<a href="#">US1J-AQ</a>	DO-214AC/SMA 	Ultrafast Recovery	1 A	600 V
<a href="#">BYG10M-AQ</a>		Avalanche Standard Recovery	1.5 A	1000 V
<a href="#">BYG23T-AQ</a>		Avalanche Superfast Recovery	1 A	1300 V
<a href="#">BYG10Y-AQ</a>		Avalanche Standard Recovery	1.5 A	1600 V
<a href="#">SK810-3G</a>	DO-214AB/SMC 	Schottky	8 A	100 V
<a href="#">5.0SMCJ28CA-AQ</a>		TVS	5 kW	28 V
<a href="#">S5Y-AQ</a>		Standard Recovery	5 A	2000 V

\* -AQ = AEC-Q101 qualified

Power Factor Correction (PFC) / Forward Converter

Partnumber*	Package	$I_D/I_F$	$V_{DS}/V_{RRM}$	$R_{DS(on)}/V_F$	$t_r/t_f/t_{rr}/Q_C$
<b>Power MOSFETs</b>					
<a href="#">DI045N10PQ-AQ</a>	 Power QFN 5x6	40 A	100 V	6.5 mΩ	38 ns / 23 ns
<a href="#">DI100N10PQ-AQ</a>		100 A	100 V	4.5 mΩ	69 ns / 31 ns
<a href="#">DID3A2N65</a>	 TO-251/I-PAK	3.2 A	650 V	2.6 Ω	145 ns / 330 ns
<a href="#">DI2A7N70D1K</a>	 TO-252AA/D-PAK	2.7 A	700 V	1.6 Ω	20 ns / 105 ns
<a href="#">DI5A7N65D1K</a>		5.7 A	650 V	430 mΩ	56 ns / 93 ns
<a href="#">DI7A5N65D2K</a>	 TO-263AB/D²PAK	7.5 A	650 V	430 mΩ	56 ns / 93 ns
<b>Boost Diode</b>					
<a href="#">MUR860</a>	 TO-220AC	8 A	600 V	1.50 V	50 ns
<a href="#">UFT800J</a>		8 A	600 V	1.75 V	35 ns
<a href="#">SIT08C065**</a>		8 A	650 V	1.70 V	22 nC
<a href="#">SIT10C065**</a>		10 A	650 V	1.70 V	28 nC
<a href="#">SIT12C065**</a>		12 A	650 V	1.75 V	28 nC
<a href="#">SIT20C065**</a>		20 A	650 V	1.80 V	65 nC
<a href="#">UGB8JT</a>	 TO-263AB/D²PAK	8 A	600 V	1.75 V	35 ns
<a href="#">SI20C120D2**</a>		20 A	1200 V	1.80 V	80 nC
<a href="#">SICW20C120**</a>	 TO-247-3L	2x 10 A	1200 V	1.80 V	41 nC
<a href="#">SICW40C120**</a>		2x 20 A	1200 V	1.80 V	80 nC

\* -AQ = AEC-Q101 qualified



\*\* Silicon Carbide (SiC)

Gate Driver / Auxiliary Power / Protection

Partnumber*	Package	$I_F / P_{PPM}$	$V_{RRM} / V_{WM}$	$t_{tr} / V_{BR} / C_j$
<b>ESD &amp; Load Dump Protection</b>				
<a href="#">ESD3B5V0WS</a>	 SOD-323	350 W	5 V	200 pF
<a href="#">ESD3B24WS</a>		350 W	24 V	50 pF
<a href="#">1.5SMC350A</a>	 DO-214AB/SMC	1500 W	324 V	360...340 V
<a href="#">3.0SMCJ18A-AQ</a>		3000 W	18 V	20.0...22.2 V
<a href="#">LDP01-28AYD2-AQ</a>	 TO-263AB/D <sup>2</sup> PAK	5000 W	24 V	26.7...30.7 V
<a href="#">LDP02-68AYD2-AQ</a>		6600 W	58 V	64.4...74.10 V
<b>Bootstrap Diode</b>				
<a href="#">FR2YSMA</a>	 DO-214AC/SMA	2A	2000 V	500 ns
<a href="#">BYG23T(Avalanche)</a>		1 A	1300 V	75 ns
<b>Snubber (TVS+Blocking Diode)</b>				
<a href="#">TGL200CF08</a>	 DO-213/Melf	300 W	800 V/200 V	250 ns
<b>Active Clamping</b>				
<a href="#">P6SMB400A...550CA</a>	 DO-214AA SMB	600 W	342...495 V	400...550 V
<a href="#">1.5SMC400A...559CA</a>	 DO-214AB SMC	1500 W	342...495 V	400...550 V

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Linear Voltage Regulators/Controls

Partnumber	Package	Tol	V <sub>inMAX</sub>	I <sub>oMAX</sub>	V <sub>out</sub>	I <sub>Q</sub>	V <sub>D</sub>
<a href="#">DI78L Series</a>	 SO-8	±5%	30...40V	0.1 A	3.3...24 V	6 mA	1.7 V
<a href="#">DI79L Series</a>	 SOT-89	±5%	-20...-39V	0.1 A	-5.0...-240V	6 mA	1.7 V
<a href="#">DI78M Series</a>	 TO-92	±5%	35 V	0.5 A	5.0 V	6 mA	2.0 V
<a href="#">LDI1117-xxH Series</a>	 SOT-223	±1%	20 V	1.0 A	1.25...5 V	5 mA	1.15 V
<a href="#">DI6206x Series</a>	 SOT-23	±1% ±2%	7.0 V	0.2 A	1.5...3.6 V	8 µA	250 mV