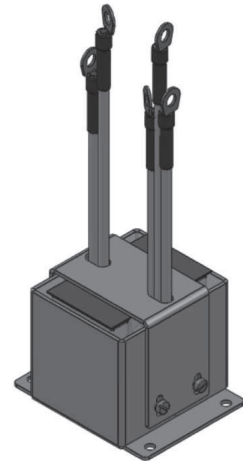


BCT SERIES

Automotive EV/HEV Isolated 3.3kW Battery Charger Transformer

Features

- Design for high performance 3.3kW on-board battery chargers
- Cubic format for higher power density
- Working frequency from 65 to 200kHz
- Reinforced 3kV isolation between primary and secondary
- Primary to secondary creepage distance > 8mm
- High operating temperature range -40 to +125°C
- UL94V-0 and RoHS material
- Design compliant with AEC-Q200 requirements
- No thermal aging effect
- Weight : approx. 0.4kg

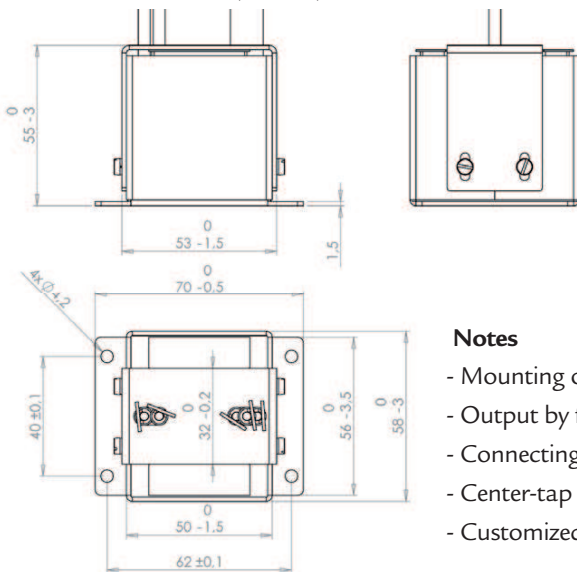


Application

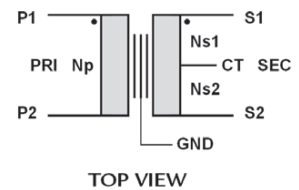
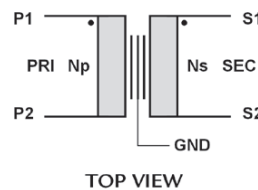
- Power stage after 400V PFC rectification
- Automotive EV/HEV AC/DC on-board battery chargers
- Half- or full-bridge ZVS or LLC resonant topologies
- Industrial high-power SMPS



Dimensions (mm)



Electrical Diagram



Notes

- Mounting onto cold-plate heatsink by 4x M4 screws
- Output by flexible cables protected under sleeve
- Connecting M4 or M5 terminals on demand
- Center-tap secondary side on demand
- Customized case on demand

Electrical specifications

| Code | MAX Output Power (kW) | DC-Link Input Voltage (Vdc) | Output Voltage (Vdc) | MAX Output Current (Adc) | Switch. Freq. (kHz) | Topology | Turn Ratio (Pri:Sec) | Magnetizing Induct. | MAX Leakage Induct. |
|---------|-----------------------|-----------------------------|----------------------|--------------------------|---------------------|-------------------|----------------------|---------------------|---------------------|
| BCT-001 | 3.3 | 390-410 | 250-430 | 12 | 100 | Full-Bridge ZVS* | 13:18 | 1mH MIN | 2μH |
| BCT-002 | 3.3 | 360-400 | 260-410 | 13 | 65 | Full-Bridge ZVS* | 17:21+21 | 1.7mH MIN | 3μH |
| BCT-003 | 3.3 | 375-430 | 275-450 | 12 | 90-200 | Half-Bridge LLC** | 13:22 | 50μH +/-5% | 2μH |

(*) A 4 to 6μH resonant inductor in series with the transformer primary winding is recommended for soft switching operation

(**) Resonant tank made of $L_r = 12.5\mu\text{H}$ and $C_r = 120\text{nF}$ in series

Notes

- (1) All test data are referenced to 25°C ambient temperature
- (2) The inductance values are measured at 100kHz/1Vac
- (3) The isolation is 100% tested at 3kVac/50Hz/2sec/3mA

- (4) The Pri/Sec creepage distance is guaranteed > 8mm
- (5) The component must be properly cooled down by mounting onto a water-plate heatsink at +85°C MAX
- (6) Other winding arrangements available on demand