BridgePower Corporation

Total Quality Assurance and Customer Satisfaction

Innovative Power Solutions for a Changing World
Established in 1987, Bridgepower Corporation is one of the leading switching power supply (SMPS/converter) and battery charger, LED driver manufacturers in Korea. The Company’s brand represents one of the most robust lines available in external power from 10-200 watts, with all their products satisfying industry ROHS and Energy Star V requirements. Bridgepower’s products are sold across a range of electronic market segments including medical, data communications, computer/computer peripherals, and industrial. Bridgepower have two factories, located in Korea and China, with agents and distributors in 12 countries globally.

<table>
<thead>
<tr>
<th>I.T.E Power Supply</th>
<th>Medical Power Supply</th>
<th>Battery Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="I.T.E Power Supply" /></td>
<td><img src="image2" alt="Medical Power Supply" /></td>
<td><img src="image3" alt="Battery Charge" /></td>
</tr>
</tbody>
</table>

- Telecommunications
- Data Communication
- Computer Peripherals
- Medical
1-1. Manufacturing facilities and Production capa.

<table>
<thead>
<tr>
<th>Production Facility</th>
<th>Land Area</th>
<th>Building</th>
<th>Employee</th>
<th>Capacity/annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>China Plant</td>
<td>65k sq meter</td>
<td>15k sq meter</td>
<td>501</td>
<td>5M (one shift)</td>
</tr>
<tr>
<td>Korea Plant</td>
<td>6k sq meter</td>
<td>4k sq meter</td>
<td>85</td>
<td>3M pcs</td>
</tr>
</tbody>
</table>

**Transformer Line**
- 150 employee (500,000pcs/Mon)

**SMPS Line**
- 200 employee 6 Line (500,000pcs/Mon)

**SMD Line**

**Cable Line**

**Burn in Line**
1-2. Manufacturing facility (Korea/China)
## Product lines and Facilities / month

<table>
<thead>
<tr>
<th>No</th>
<th>Lines</th>
<th>Monthly</th>
<th>Line facilities</th>
</tr>
</thead>
</table>
| 1  | SMPS        | 300K    | • AUTO SOLDER 7EA  
• AUTO TESTER 6EA  
• I.C.T TESTER 5EA |
| 1-1| SMT         | 300K    | • DISPENSOR TDM-1000 2SET (S/T 0.14, 8HOUR, 160K POINT)  
• SCREEN PRINTER TPM-1100 (S/T 30SEC)  
• CHIP MOUNTER TCM-1050 (S/T 0.14, 8HOUR, 160K POINT)  
• CHIP MOUNTER TCM-1100 (S/T 0.12, 8HOUR, 190K POINT)  
• CHIP MOUNTER TCM-3000E (S/T0.10, 8HOUR, 230K POINT) |
| 1-2| Cable A’ssy | 300K    |                                                      |
| 1-3| Transformer | 300K    |                                                      |
| 1-4| Injection (Enclosure) | 300K | • INJECTION MACHINE 5SET |
SMD LINE
SMPS LINE
BURN-IN
TRANS LINE
INJECTION LINE

㈜브리지파워
2. Bridge Power (Korea) Organization

President
HK Eun

Quality Assurance
YB Seung
- standard
- reliability
- regulation
- information
- education

Sales & Marketing
IYOh
- Sales and market

Manufacturing
JC Lee
- materials
- component
- facility
- process
- supplier
- standard

R & D
YH Song
- Design
- component
- standard
3. Bridge power – QA Organization

Team Manager
Y.B Seung

D.G.Lee
- RMA
- equipment
- Process
- ISO Support

H.S Lim
- OQC
- Line sampling inspection
- QC control & analysis

S.K.Seo
- IQC
- RoHS
- Quality Data

- EMS control
  - (RoHS / LEAD FREE)
  - QMS control
  - RoHS(customer, supplier)
  - RMA Response
  - ISO Control
4. China Factory - Organization

Vice President
HS Eun

General Manager
SY. Baek

Production Manager
Mr. SY. Baek

Operation
WANG YU WEI

HR Team
CH GUANG

Pur/Mat/Ware
JW. Lee

QA Manager
Y. Kim

Assistant
XP Ping

SMPS
Xuguang

CABLE
Dan Qi Wei

TRANSFORMER
LJ Guang

INJECTION
Y Deuk Chio
1, Design Process

CUSTOMER

SALES

CUSTOM SPEC

R&D

brain storming

PRODUCTION

Design Roadmap Planning

Design Concepts Review

Design

Engineering Samples

Design Review

Final Approval Samples

Pre Production

Release to Production

Function Test

Temp. Test

EMC

Design Verification

Reliability Test

Agency
5. Main biz items

- ITE. External AC/DC Switching Mode Power Supply
- Medical. External AC/DC Switching Mode Power Supply
- Internal AC/DC Switching Mode Power Supply
- External Battery Chargers
- LED Driver
- POE
6. ITE. External Switching Mode Power Supply

- Universal input (90VAC - 250VAC)
- 10 to 200 Watts.
- Single and multiple output up to 200 watts
- Worldwide safety approvals
- Option (PFC Included – over 60 Watts)

- Safety: UL, CSA, TUV, PSE
- FCC, CISPR class B emissions
- No minimum load required
- Impact resistant thermoplastics enclosure (polycarbonate)
- Applications
  - Bar-code scanners/ Medical equipment/ Data-telecommunication products/ Test equipment/ LAN equipment/ security systems/ Modems/ Computer Peripherals
### 6-1. I.T.E standard details - Energy star V

<table>
<thead>
<tr>
<th>Power (W)</th>
<th>5V</th>
<th>9V</th>
<th>12V</th>
<th>15V</th>
<th>18V</th>
<th>24V</th>
<th>48V</th>
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</thead>
<tbody>
<tr>
<td>10W</td>
<td></td>
<td></td>
<td>12V</td>
<td>15V</td>
<td>18V</td>
<td>24V</td>
<td></td>
</tr>
<tr>
<td>18W</td>
<td></td>
<td></td>
<td>12V</td>
<td>15V</td>
<td>18V</td>
<td>24V</td>
<td></td>
</tr>
<tr>
<td>28W</td>
<td></td>
<td></td>
<td>12V</td>
<td>15V</td>
<td>18V</td>
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</tr>
<tr>
<td>40W</td>
<td></td>
<td></td>
<td>12V</td>
<td>15V</td>
<td>18V</td>
<td>24V</td>
<td></td>
</tr>
<tr>
<td>50W</td>
<td></td>
<td></td>
<td>12V</td>
<td>15V</td>
<td>18V</td>
<td>24V</td>
<td></td>
</tr>
<tr>
<td>60W</td>
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<td>12V</td>
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<tr>
<td>80W</td>
<td></td>
<td>12V</td>
<td>15V</td>
<td>18V</td>
<td>24V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90W</td>
<td></td>
<td>12V</td>
<td>15V</td>
<td>18V</td>
<td>24V</td>
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<td></td>
</tr>
<tr>
<td>100W</td>
<td></td>
<td>12V</td>
<td>15V</td>
<td>18V</td>
<td>24V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>120W</td>
<td></td>
<td>12V</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>130W</td>
<td></td>
<td>12V</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>150W</td>
<td></td>
<td>12V</td>
<td>15V</td>
<td>18V</td>
<td>24V</td>
<td></td>
<td></td>
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<tr>
<td>200W</td>
<td></td>
<td>12V</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Bridge Power Corporation
7. Medical version of SMPS

- 10 to 200 Watts
- Designed to UL2601 or CSA601 or IEC601-1
- Dielectric Strength Tested to 4,000VAC
- Meets FCC/CISPR Class B EMI/RFI levels
- Available with output cord and connector
- Three(3) year warranty

• APPLICATIONS
  - Infusion pumps / Blood analyzers
  - Rehabilitation equipment
  - Laboratory equipment
  - Mobile patient monitors
  - Electrocardiogram (E.C.G)
### 7.1. Medical standard - Energy star V

<table>
<thead>
<tr>
<th>Watt</th>
<th>5V</th>
<th>9V</th>
<th>12V</th>
<th>15V</th>
<th>18V</th>
<th>24V</th>
</tr>
</thead>
<tbody>
<tr>
<td>10W</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>18W</td>
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<td></td>
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<tr>
<td>28W</td>
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<tr>
<td>40W</td>
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<tr>
<td>50W</td>
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<tr>
<td>60W</td>
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<td>80W</td>
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<tr>
<td>90W</td>
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<tr>
<td>100W</td>
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<td>120W</td>
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<tr>
<td>130W</td>
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<tr>
<td>150W</td>
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<tr>
<td>200W</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. External Battery Chargers

- Universal INPUT (90VAC~250VAC)
- Light-weight wall plug-in and dual cord styles
- Available for 6V, 12V, and 24V get cell and sealed lead Acid batteries
- For Li-lon, Li-polymer, Ni-cd, Ni-MH

- Available with input, output cord and connector
- Three(3) years warranty
- Available custom designs
- Applications
  - Medical instruments/
  - Computer/
  - Communication equipment/
  - Industrial equipment
9. **Internal type of SMPS**

- **FEATURES**
  - Universal input voltage (90-250VAC)
  - EMI to meet FCC Class-A
  - UL1950, CSA950, EN60950
  - Single, Dual, Multi Output

- **Applications**
  - For industrial market / Factory automation control equipment / Manufacturing & test equipment / ATM / Telecommunication equipment / Set-top Box / Network System / POS System
9.1 Internal type of SMPS
## 10. New product roadmap – ITE GRADE

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OUTPUT (3.3V, 5V, 6V, 9V, 12V, 24V, 48V)</strong></td>
<td>10W ~ 120W Series</td>
<td>150W Series</td>
<td>200W Series</td>
<td>250W Series</td>
<td>300W Series</td>
<td>350W Series</td>
</tr>
<tr>
<td><strong>Efficiency</strong></td>
<td>85%</td>
<td>86%</td>
<td>90%</td>
<td>92%</td>
<td>92%</td>
<td>94%</td>
</tr>
<tr>
<td><strong>Watts</strong></td>
<td>1 ~ 4W</td>
<td>0.75W</td>
<td>0.5W</td>
<td>0.3W</td>
<td>0.15W</td>
<td>0.1W</td>
</tr>
<tr>
<td><strong>SIZE</strong></td>
<td>L</td>
<td>223</td>
<td>208</td>
<td>208</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>W</td>
<td>90</td>
<td>76</td>
<td>76</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>H</td>
<td>56</td>
<td>45.5</td>
<td>34</td>
<td>34</td>
<td>25</td>
</tr>
<tr>
<td><strong>Topology</strong></td>
<td>FLY BACK</td>
<td>HALF BRIDGE</td>
<td>HALF BRIDGE (Resonant) + SYNCHRONOUS</td>
<td>HALF BRIDGE (Resonant) + SYNCHRONOUS + BRIDGE LESS</td>
<td>FULL BRIDGE (Resonant) + SYNCHRONOUS + BRIDGE LESS</td>
<td>FULL BRIDGE (Resonant) + SYNCHRONOUS + BRIDGE LESS + PLANER TYPE CORE</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STBY (3.3V OR 5V) &amp; REMOTE CONTROL</td>
<td>STBY (3.3V OR 5V) &amp; REMOTE CONTROL</td>
</tr>
</tbody>
</table>
## 11. New product roadmap – (Medical)

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OUTPUT</strong></td>
<td><strong>(3.3V,5V,6V,9V,12V,24V,)</strong></td>
<td><strong>10W ~ 120W Series</strong></td>
<td><strong>150W Series</strong></td>
<td><strong>200W Series</strong></td>
<td><strong>250W Series</strong></td>
<td><strong>300W Series</strong></td>
</tr>
<tr>
<td>Efficiency</td>
<td>85%</td>
<td>86%</td>
<td>90%</td>
<td>92%</td>
<td>92%</td>
<td>94%</td>
</tr>
<tr>
<td>watts</td>
<td>1 ~ 4W</td>
<td>0.75W</td>
<td>0.5W</td>
<td>0.3W</td>
<td>0.15W</td>
<td>0.1W</td>
</tr>
<tr>
<td>SIZE</td>
<td>L</td>
<td>223</td>
<td>208</td>
<td>208</td>
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<td>200</td>
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<tr>
<td></td>
<td>W</td>
<td>90</td>
<td>76</td>
<td>76</td>
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<td>56</td>
<td>45.5</td>
<td>34</td>
<td>34</td>
<td>25</td>
</tr>
<tr>
<td>Technology</td>
<td>FLY BACK</td>
<td>HALF BRIDGE</td>
<td>HALF BRIDGE (Resonant) + SYNCHRONOUS</td>
<td>HALF BRIDGE (Resonant) + SYNCHRONOUS + BRIDGE LESS</td>
<td>FULL BRIDGE (Resonant) + SYNCHRONOUS + BRIDGE LESS</td>
<td>FULL BRIDGE (Resonant) + SYNCHRONOUS + BRIDGE LESS + PLANER TYPE CORE</td>
</tr>
</tbody>
</table>
| remark      | Meet Medical Safety Agency Requirements Enclose Leakage : Less than 100uA (ITE = 0.75mA) Dielectric Withstand : 4,000VAC or 5656VDC Primary – Secondary (ITE = 3,000VAC or 4,250VDC)
## 12. LED POWER

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
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<tr>
<td><strong>OUTPUT WATTAGE</strong></td>
<td>10W Series</td>
<td>100W Series</td>
<td>600W Series</td>
<td>1KW ~</td>
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<td></td>
<td>20W Series</td>
<td>200W Series</td>
<td>800W Series</td>
<td></td>
</tr>
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<td></td>
<td>40W Series</td>
<td>350W Series</td>
<td>1KW Series</td>
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<td></td>
<td>100W Series</td>
<td>500W Series</td>
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<tr>
<td>Efficiency</td>
<td>90%</td>
<td>90%</td>
<td>93%</td>
<td>93% ~</td>
</tr>
<tr>
<td>Power factor</td>
<td>0.9</td>
<td>0.95</td>
<td>0.95</td>
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<tr>
<td>Protections</td>
<td>CC, CV, Remote Dimming</td>
<td>CC, CV, Remote Dimming</td>
<td>CC, CV, Remote Dimming</td>
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</tr>
<tr>
<td>Technology</td>
<td>FLY BACK</td>
<td>HALF BRIDGE (Resonant) +</td>
<td>FULL BRIDGE (Resonant) +</td>
<td>FULL BRIDGE (Resonant) +</td>
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<tr>
<td></td>
<td></td>
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<td>SYNCHRONOUS + INTERLEAVE</td>
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<td>IPX65</td>
<td>IPX65</td>
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</tr>
<tr>
<td>application</td>
<td>lamp</td>
<td>Advertising, signboard, street lamp</td>
<td>Advertising, signboard, street lamp</td>
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</tr>
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Major customers

- HP
- Hewlett Packard
- IBM
- Motorola
- Dell
- Samsung
- LG
- Lenovo
- Lexmark
- Panasonic
- Sanyo
- Sony
- Sharp
- Canon
- Creative
- Iomega
- Foxconn
- Flextronics
- Sanmina-SCI
- Jabil
- Asus
- CyberTAN
- Viewquest
- Daewoo International
- Vestel
- Bosch
- LITEON
- Funai
- TPV
- Vision Innovator
- Solectron
- Garmin
Major customers

BridgePower Corporation

JDSU

Sensormatic

Trimble

NDS

APC by Schneider Electric

MITEL

Orthofix Orthopedics

DynaVox Mayer-Johnson

Baxter Worldwide

Suprema

SAMSUNG

LG

Life’s Good

D&T

ENTEL Korea

GE Healthcare Australia & New Zealand

Siemens

Sony

JVC

Sharp

Epson

Dräger Medical

CyDen

Toshiba

Otoku Electric Co., Ltd.

OLYMPUS

Bioptron

3M
Equipment
- XRF (X-ray fluorescence spectrometry)
# Major Safety Approvals

<table>
<thead>
<tr>
<th>Country</th>
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<td>CCC</td>
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Thank You. Sir!