USB Smart Charge Modules

Molex USB smart-charge modules lead the market by combining automotive-grade durability and off-the-shelf availability through distribution.

Features and Benefits

**Single Port Charger**

- **Modern Features**
  - Easy to read lettering and display.
  - Blue LED backlighting.
  - Panel Thickness: 3.4 mm to 3.8 mm.

- **Electric Performance**
  - 1A output current.
  - Battery Operating Voltage: 9V to 16V.
  - Operating temperature: -40°C to 85°C.

- **Quality Connector Styles**
  - Automotive-grade USB Type A on the front. 10K cycle life.
  - MicroFit on the rear.

- **Easy to Design-In**
  - Plastic housing designed to fit existing rocker panel switch cut out.

**Charging Profiles Supported:**
- USB Battery Charging Specification BC1.2 compliant.
- Apple MFI compliant.
- 1.2 V Mode.

**Single Port USB Smart Charger**

- **Modern Features**
  - Easy to read lettering and display.
  - LED backlight.
  - Painted and laser etched housing.
  - Panel Thickness: 2.35-2.65 mm.

- **Electric Performance**
  - 2.4A output current.
  - Battery Operating Voltage: 9V to 16V.
  - Operating temperature: -40°C to 85°C.

- **Quality Connector Styles**
  - Automotive-grade USB Type A on the front. 10K cycle life.
  - Molex Mini50 on the rear.

- **Safety Protection Features**
  - Over voltage, Reverse battery and over current protection.
  - ESD and short circuit protection

**Dual Port USB Smart Charger**

- **Modern Features**
  - Easy to read lettering and display.
  - Halo Lighting (Light Pipe).
  - Cosmetic Molding and Pad Printed Icon.
  - Panel Thickness: 2.5-3.5 mm

- **Electric Performance**
  - 2.4A output current.
  - Battery Operating Voltage: 9V to 16V.
  - Operating temperature: -40°C to 85°C.

- **Quality Connector Styles**
  - Automotive-grade USB Type A on the front. 10K cycle life.
  - Molex Mini50 on the rear

- **Charging Profiles Supported:**
  - USB Battery Charging Specification BC1.2 compliant.
  - Apple MFI compliant.
  - 1.2 V Mode.
USB Smart Charge Modules

Applications

Commercial Vehicle
- Construction equipment
- Farm equipment
- Trains
- Airplanes

Automotive
- Cars
- Pickup trucks
- SUVs

Specifications

Single Port USB Charger Module

REFERENCE INFORMATION
- Packaging: Individual
- Mates With: Micro-Fit 3.0™ Receptacle (Series No. 43645) and Micro-Fit 3.0™ Female Crimp (Series 43030, 45773)
- Use With: USB A Type Connector
- Designed In: Millimeters
- RoHS: Yes (with exemption)
- Halogen Free: No
- Glow Wire Compliant: No

ELECTRICAL
- Voltage (max.): 16V DC
- Input: 9 to 16V DC
- Output (max.): 5V DC +/-5% 1.0A
- Backlight: Blue LED, 12V DC

MECHANICAL
- Mating cycles: 5,000

Single Port USB Smart Charger Module

REFERENCE INFORMATION
- Packaging: Per PK-68532-4510
- Mates With: Mini50 and MicroFit
- Use With: Mini50 and MicroFit
- Designed In: Millimeters
- RoHS: Yes (with exemption)
- Halogen Free: No
- Glow Wire Compliant: No

MATERIALS
- PCB: FR4, UL 94V-0
- Plastic Housings: PC,
  - Color: black for rear housing, white for front housing
  - Color finish: black over white material
  - on front housing
- Terminal: phosphor bronze, plating: gold 0.75µm
- Shield: stainless steel, Ni 0.75µm min.
- Mini50 connector:
  - Housing material: polyester alloy, color: black
  - Terminal: brass, plating: tin

PHYSICAL
- Industrial Operating Range: -40°C to +85°C
- Non-operating: -55°C to +85°C
- Envelope Dimensions: 49.0 X 22.8 X 40.58 mm
- Insertion: 35n max
- Extraction: 10n min
- Durability: 10,000 cycles
- Pull out force for docking module measured on metal plate cut out/fixture (with recommended opening): 100n min.
- Module weight: 0.028 kg

ELECTRICAL
- Input voltage range: 9VDC – 16VDC
- Output voltage range: 5VDC +/- 10% USB output
- Maximum output charging current: 2.4 A DC, limited to 2.9 A
- Maximum input current at maximum load: 1.5A DC
- Maximum input current for illumination line: 12mA DC
USB Smart Charge Modules

Specifications

Dual Port USB Smart Charger Module

REFERENCE INFORMATION
Packaging: Per PK-68532-4460
Packaging for module 685324466 according to: rpk_68532_001/2
Mates With: Mini50 and MicroFit
Use With: Mini50 and MicroFit
Designed In: Millimeters
RoHS: Yes (with exemption)
Glow Wire Compliant: No

Supported charging schemes:
D+ and D- Divider Mode 2.7V and 2.7V
D+ and D- 1.2V Mode
D+ and D- Shorted Mode per USB Battery Charging Specification 1.2 (BC1.2).

MATERIALS
Front housing: pc+abs, cycloloy lg9000, pg05 black
Surface finish (faceplate): nissan#424
Light pipes: sc-28876 rtp 0300 2405 lt diff.
Rear housing: pc+abs, cycloloy lg9000, pg05 black
Rubber cover: empilon ha65s4
Printing circuit board: fr4, thickness 1.6 mm
Input power conn.: 2usb ports type a
Terminal: phosphor bronze, plating: gold 0.75µm
Shield: stainless steel, ni 0.75µm min.
Mini50 connector:
Housing material: polyester alloy, color: black
Terminal: brass, plating: tin

PHYSICAL
Industrial Operating Range: -40ºC to +85ºC
Non-operating: -55ºC to +85ºC USB Module
Color for illuminated usb halo is white
Candles per illuminated usb halo: ordinary switch
2cd/m2
Insertion: 49n max
Extraction: 68.8n min
Durability: 10,000 cycles

ELECTRICAL
Input voltage range: 9VDC – 16VDC
Output voltage range: 5VDC +/- 0.25V @ 2.4A
Maximum output charging current: 2.4 A DC, limited to 2.9 A
Maximum input current at no load: 26mA

Ordering Information

<table>
<thead>
<tr>
<th>Series No.</th>
<th>Ports</th>
<th>Output Current</th>
<th>Charging Profiles Supported</th>
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<tbody>
<tr>
<td>68532-4462</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>68532-4510</td>
<td>Single</td>
<td>1 Amp</td>
<td>USB Battery Charging Specification BC1.2 compliant. YD/T 1591-2009 (China Telecom Specification) Apple MFI compliant. 1.2 V Mode</td>
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<td>79540-5015</td>
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www.molex.com/link/invehiclesmartcharging.html

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