

Introduction

DCA5-080 is an intelligent Vehicle DC-DC power supply (PATENT PENDING) designed to power small form factor low power computer boards and peripherals that require only 12V or 5V and 12V inputs. It is designed to survive in an automotive environment.

The DCA5-080 DC-DC power supply has a micro-controller that controls and monitors various functions of the power supply operation. It monitors vehicle battery voltage to protect against deep discharge. The ignition lead is monitored to start the PC when the ignition is turned on and to implement safe shutdown procedure. It controls and monitors motherboard signals to provide smooth power-up and power-down sequences.



The power supply can be configured to shut down the PC after a predetermined delay of up to 60 min. The power supply outputs are monitored to assure proper PC operation. Wake on interrupt feature in DC-DC together with Wake on LAN function on motherboards can be used to access the vehicle/mobile PC over wireless network without turning on the ignition switch for up to 20 min. at a time. This feature is useful for updating, uploading and down loading data/files of the car PC remotely. A green LED indicator in the power supply continually indicates the status and health. It is also used for troubleshooting.

Remote/trigger output of the DC-DC can be used to turn on/off slave devices such as head units, Audio Amplifiers, LCD monitors, DVD players, Two way radio units, etc.

There are features that are built-in for trouble free-free and safe PC operation. The input power is protected against transients, load dumps and double battery conditions. The PC does not reboot during engine start or cranking.

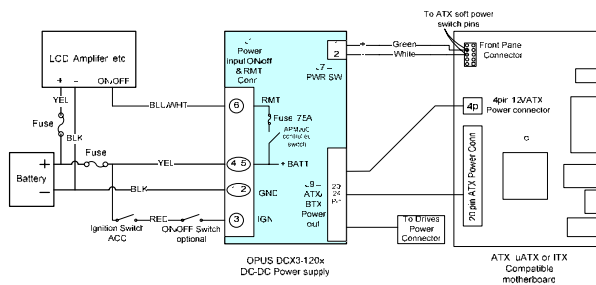
Features

- Wide input voltage range
- Load dump protected
- High efficiency (extended battery life)
- Ignition or on/off switch input
- Extended operating temperature range
- Delayed shut down timer
- User configurable Start-up / Shut down voltages
- Simple to Install

Applications

- Commell LV-671 Mini -ITX Pentium-M Motherboard
- VIA EPIA TC Mini -ITX C3- main board
- LCD monitors that require regulated 12V in automotive application, etc.

Application Example



Technical Specifications

Input:

Normal operating input voltage range: 7.5V to 32V DC
 Peak input voltage range: 7V to 36V DC (less than 1Sec at 50% duty cycle repetition)
 Idle state power consumption: < 3mA (without any output loads)
 Input Power Mating connector: Plug: Molex: 39-01-2060; 2 x 6 Mini Foot Jr.
 Input Protection: LC Pi filter and Transient protection
 Input Fuse: 10A mini blade (Automotive mini blade fuse)
 Input Power mating connector: Plug: Molex: P/N: 39-01-4030
 Crimps: Molex: P/N: 30490-2012

Output:

	80W	Ripple	Line + Load Regulation
DCA5-080-12 model			
+12 V:	6.7A max, 10A pk	100mv p-p max	1.5%
DCA5-080-512 model			
+5 V:	8A max, 12A pk	50mv p-p max	1.5%
+12 V:	3.5A max, 4.5A pk	100mv p-p max	1.5%
5 V standby:	1.5 A max, 2.5 A pk	50mv p-p max	1.5%

Power supplies overall efficiency: > 91% for 12V system and 86% for 24V system
Note: Power supply output is derated to 65W for 24V system use
 Transient Response: 5uS to steady-state output voltage (with in 0.2% of Vout) for 10- 90% load change
 Output Stability: 0.1% of Vout after 10 minute warm-up
 Output Power mating connector: Plug: Molex: 39-01-2080; 2 x 4 Mini Foot Jr.
 Power switch mating connector: Plug: JST: PHR-2; 2 pin polarized locking conn.

General

Shut Down Delay Time: 10 sec. (Default), 10 min, 30 min, or 60min (set by Jumper)
 Start-up Voltage: 9.5V, 10.5V, 11.5V or 12.0V ± 0.25V (Jumper selectable)
 Low battery shutdown voltage: 8.5V, 9.5V, 10.5V or 11V ± 0.25V
 Low battery detection duration: 10 Sec.
 Wake on interrupt operation time: 20 minutes (while Ignition is Off)
 Ignition or ON/OFF input current: <5 mA
 Remote/trigger output source current: 0.30A max. (Switched Battery)
 MTBF: 500,000 hrs min.
 Cooling: Forced air or thermal coupling to heat sink for loads above 60 W.
 Operating Temperature Range: -20°C to 65°C non condensing 5% to 95% RH
 Storage Temperature Range: -40°C to 70°C
 External Dimensions
 DC-DC PCB Module dimensions: 170mm (D) x 50mm (w) x 16mm (H)
 6.7" x 1.97" x 0.63"
 Weight: 100 Grams, 0.24 lb

Ordering Information

Part Number	Description
DCA5-080-12	80W, 12V output intelligent Vehicle DC-DC power supply
DCA5-080-512	80W, 5V & 12V & 5VSB outputs intelligent Vehicle DC-DC power supply
Options	
DCA5-080-xxxH	DC-DC with Horizontal input and output connectors
DCA5-080-xxxV	DC-DC with Vertical input and output connectors (Built to order only)
DCA5-UC	Enclosure /heat sink for DCA