CAR2512FP SERIES

2500 Watt +12V Front End Power Supply

Features:

- Leading Edge Power Density, 25W/in³ in 1U Form Factor
- Leading Edge Efficiency Optimized for Datacenter Applications
  - Up to 92.4% Efficiency
  - 90% Efficiency Beginning at only 20% Load
- Active Current Sharing (Single Wire)
- Remote On/Off, Remote Sense, Voltage Program Circuits
- Microprocessor Based Design Allows for Automatic Fan Speed Control
- Front Panel AC Access via IEC-320 Inlet
- I²C Serial Bus and PMBus Interface

RoHS COMPLIANT

FEATURES	BENEFITS
High Power Density 25W/in³	More system space for application circuits and hardware
Load Sharing & Fault Tolerant	Excellent reliability in N+1 operation
Automatic Fan Speed Control	Reduces audible noise and increases reliability
High Efficiency under light Loads	Supports the latest Server Farm trends

KEY MARKET SEGMENTS & APPLICATIONS

- Distributed Power
- Storage Equipment
- Mid-High End Servers
- High-End Routers & Switchgear

SPECIFICATIONS	2500 Watt 12V Front End Power Supply
Input Voltage Range	90-264 VAC, 47-63 Hz, derate for 140-180VAC Operation to 1.3kW; 1.2kW for 110 VAC Operation (90-132VAC)
Input Current Maximum	16A @ 180VAC, Full Load (max)
Inrush Current	40A max. cold start (per ETS 300 132-1 and Bellcore specifications)
Input Protection	Two fuse (line) - 20A & 250Vac (Line and Neutral) 5 x 20mm Style
Power Factor	0.99 typical complies with IEC555, EN60555-2, EN61000-3-2
Efficiency	Up to 92.4% (90% eff. @ 20% load, 91.9% eff @ 30% load, 91.9% eff @ 50%, 90.9% @ 100% Load), Operating under 12V output @ 230 VAC (including ORing MOSFETS)
Output Power	2500W at High Line Operation (180-264VAC), 1200W at Low Line Operation (90-132VAC)
Output Voltage Range	10.8V to 13.2Vdc
Output Current	208A @ 12V
Standby Bias Voltage	3.3VSB@1A, reference to Vout Return
Voltage Regulation	±2% of Vnom for any combination of line, load and temperature
Output Ripple & Noise	±1% (pk-pk) @ 20MHz with 0.1μF ceramic and 10μF electrolytic caps at the output
Transient Response	5% max deviation Recovery time 300μs @ 50% load step and di/dt < 1A/μs
Switching Frequency	200kHz (primary); 400kHz (secondary)
Hold-Up Time	12ms at full load measured down to 10.8V (with 230Vac). An early warning signal is provided 2ms prior to loss of output power. Ride thru is 8.3ms typically
Remote On/Off	TTL compatible. Open collector (High) for normal operation. Sink current: 1mA. Max collector voltage: 12Vdc. Logic 1 (TTL High) or open enables unit (ON); Logic 0 (TTL Low) or short shuts unit down (OFF). Cycling this signal resets the over-voltage protection memory.
Current Limit Protection	110-130% of Iout nominal
Short Circuit Protection	Self protected with auto recovery
Over Voltage Protection	Trip level: +14.8Vdc ± 1V, Reset condition by recycling the AC input or applying Remote On/Off
Operating Temperature	-10°C to +70°C
Over Temperature Protection	Non latching; protection active at 110°C internal temperature, restart at 95°C (typical)
EMI	FCC & EN55022, GR-1089-CORE, (A) Level EMI
LED Indicators	Green = AC OK & DC OK, Red = Fault
Analog Status & Control	Voltage Programming (V Prog), Load sharing (I Share), Remote ON/OFF, Current Monitor (I Monitor), Over temperature (Temp Warning), Fault, PS Present, Module Enable
Digital Status & Control	I²C Option and PMBus Option
Shock & Vibration	IEC68-2-27, MIL-STD-810E, Telcordia GR-63-CORE
Dimensions	15.375" x 4.00" x 1.61" / 378mm x 102mm x 41.9mm
Weight	4.73lbs / 2.15kg
Safety Approvals	IEC/UL/CSA/EN60950-1, CE Mark (LVD), TUV
Options	I²C Interface, PMBus, Bezel, 5VSB Output

Cherokee International (North America)
2841 Dow Avenue P: (714) 544-6665
Tustin, CA 92780 USA F: (714) 838-4742
sales@cherokeepwr.com

Cherokee International (Europe)
Boulevard de l'Europe, 131 P: +32.10.438.510
B-1301 Wavre, Belgium F: +32.10.438.213
sales.europe@cherokeepwr.com

Cherokee International (China) Power Supply Ltd.
1353 Chenqiao Road, Shanghai Sengpu Industrial Park
Shanghai, 201401 China P: 021 6710 8910
sales.china@cherokeepwr.com

Revision: 0309

cherokeepwr.com

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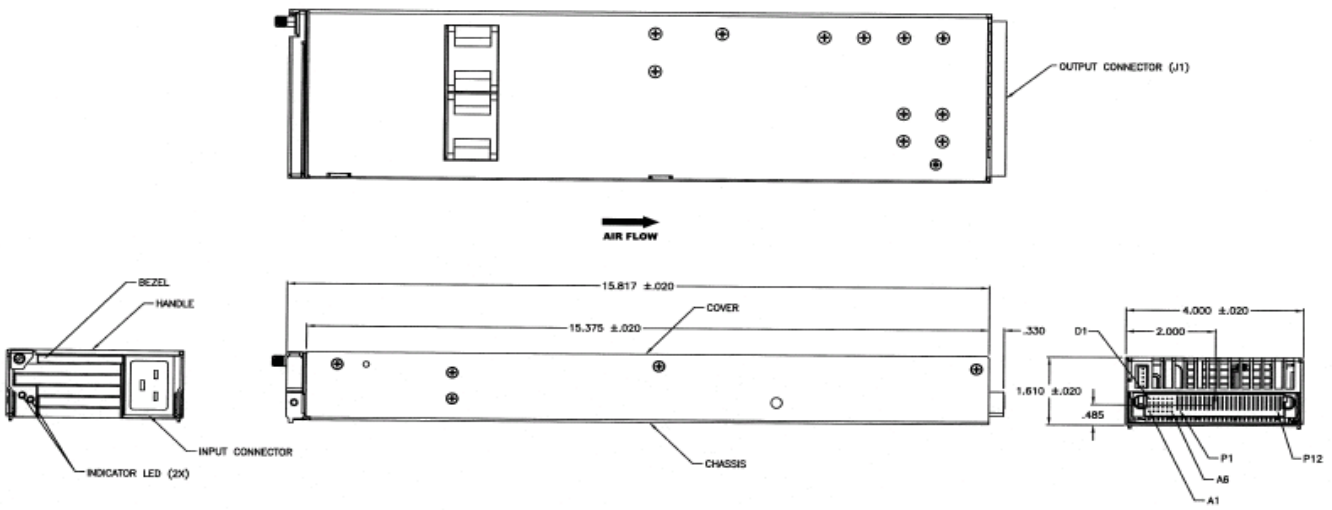
OUTLINE DRAWING



All Dimensions in Inches (mm)
Tolerance: .XX = ± .02 in (.50 mm)
.XXX = ± .010 in (.254 mm)

PART NUMBER DEFINITION GUIDE:

CAR 25 12 F P x x xx -1A

- **Series**
- **25** = 2500W — **Output Current**
- **12** = 12V — **Output Voltage**
- **F** = Front End — **Type**
- **P** = Positive — **Polarity**
- **x** — **Interface**: Blank = PM Bus; C = I²C; A = CAN Bus
- **x** — **Options**: B = Bezel Option; Blank = None
- **xx** — **RoHS**: Blank = Non-compliant; Y0 = 5 of 6 Compliant; Z0 = 6 of 6 Compliant
- **-1A** — **Rev.**

Example:
CAR2512FPB-Y01A
2500W/12V Front End, Bezel, RoHS/ Lead-Free

PIN	FUNCTION
A1	VSTB (3.3V)
A2	PS Present
A3	Signal Return
A4	Write Protect
A5	RS+
A6	RS-

PIN	FUNCTION
B1	Fault
B2	I Monitor
B3	Module Enable
B4	Vstb Rtn (3.3V)
B5	SDA
B6	SCL

PIN	FUNCTION
P1	Output Return
P2	Output Return
P3	Output Return
P4	Output Return
P5	Output Return
P6	Output Return
P7	+V out
P8	+V out
P9	+V out
P10	+V out
P11	+V out
P12	+V out

PIN	FUNCTION
D1	Vprog
D2	OVP Test Point
D3	Remote on/off
D4	DC OK
D5	AC OK
D6	Interrupt

PIN	FUNCTION
C1	I Share
C2	Not Connected
C3	Temp Warning
C4	I²C Address A0
C5	I²C Address A1
C6	I²C Address A2

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