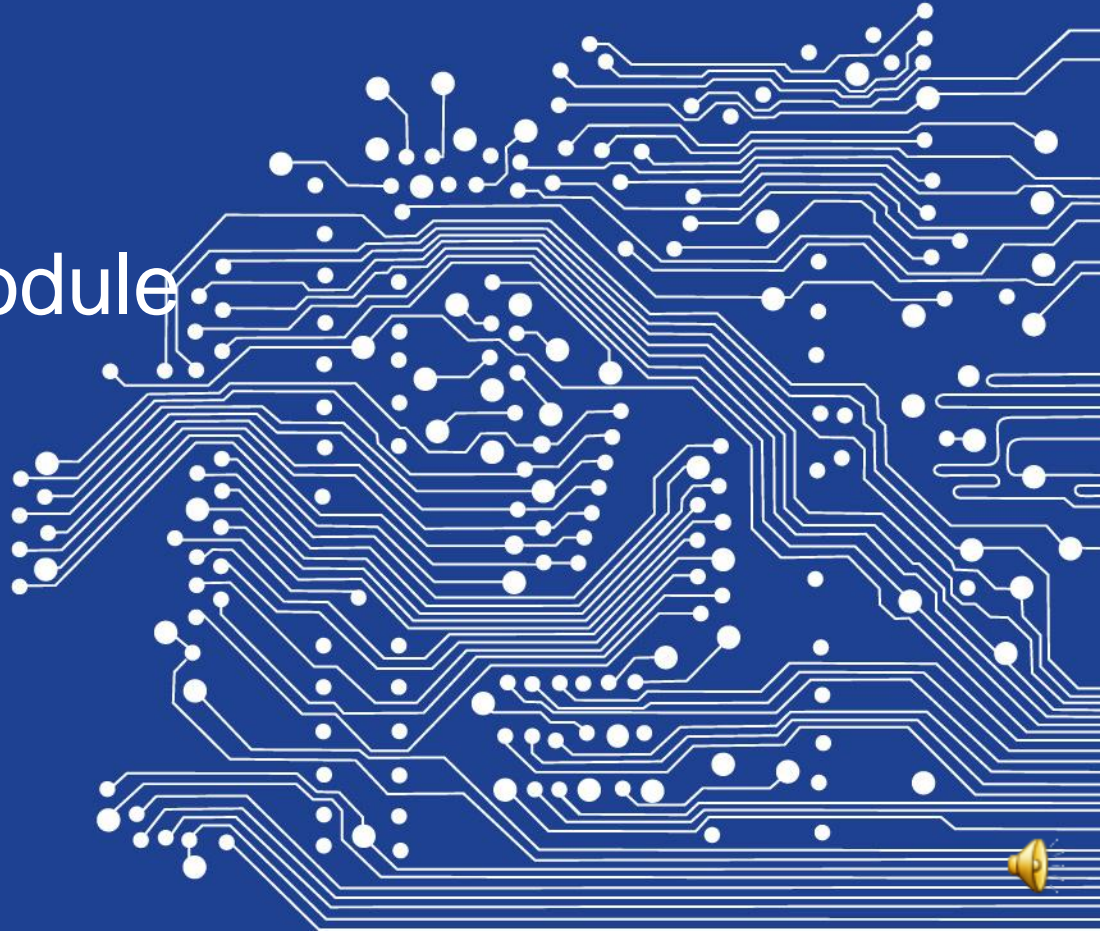


GE Energy

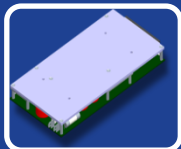
January, 2012
Product Training Module
CLP0212



imagination at work



AC-DC OEM Embedded Platform Solutions



0.5U Platform

Target Markets SAN / NAS, networking , broadcasting equipment

Value Proposition Fan-less power / no audible noise, compact form factor



1U Platform

Target Markets SAN / NAS, networking , servers, video switching equipment

Value Proposition Full range (500-2700W), Max system efficiency via 380 Vdc platforms (AC- 380Vdc + 380-



2U Platform

Target Markets SAN / NAS, networking , broadcasting equipment

Value Proposition Fan-less power / no audible noise, compact form factor

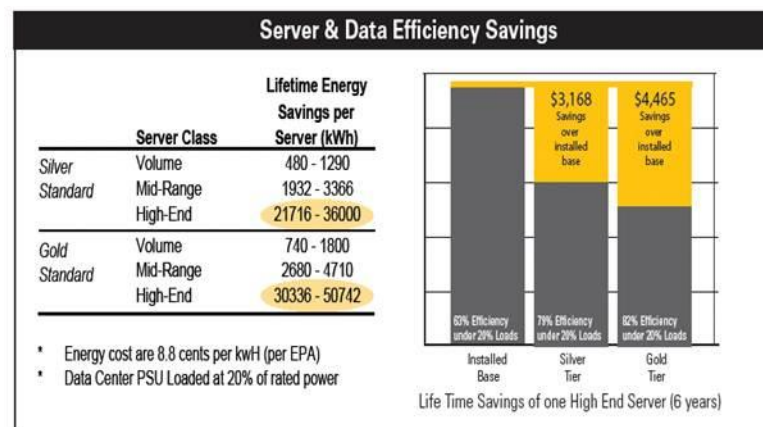
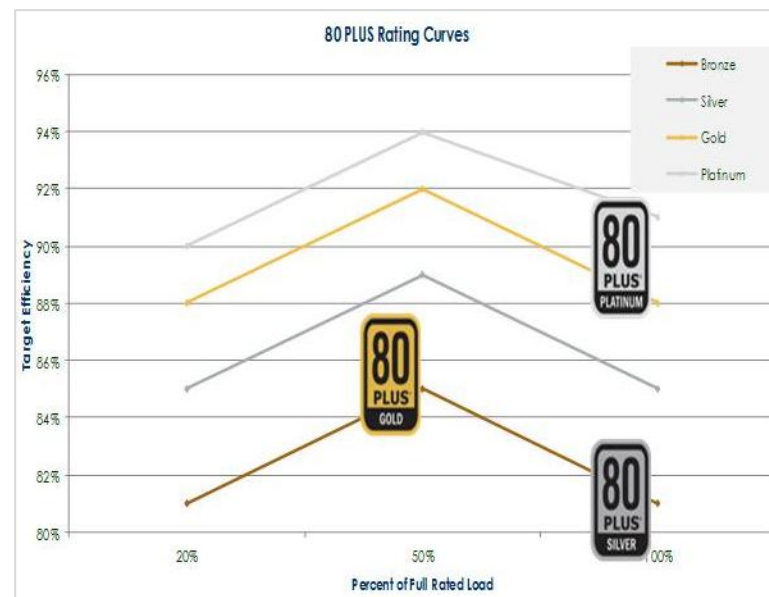


2x4 (Low Power)

Target Markets Low end SAN / NAS, networking , industrial applications

80 PLUS Gold

Value Proposition Compact form factor, Fan-less with high-power density



CLP0212FP Open Frame Features

- High power density (200W) ~ 18W/in³
- Vin = @ 90 to 264Vac
- Vout = 12Vdc @ 16.7 A (200W)
- Pout = 200W convection cooling
 - 200W (200LFM/7CFM)
 - 100W (0 LFM)
- Bias Voltage
 - 5Vsb @ 0.25A (standard – CLP0212FPXX5Z01A)
 - 3.3Vsb @ 0.25A (optional – CLP0212FPXX3Z01A)
- High efficiency ~ 92% (80 Plus Gold)
- Active current sharing (single wire)
- Redundant N+1 support
- Remote ON/OFF – power saving
- Full Protection OCP, OVP, UVP, and OTP
- Safety
 - UL and cUL approved to UL/CSA60950-1 standard
 - TUV (EN60950-1), CE Mark (for LVD) & CB

Dimensions (D x W x H)

- 200W, 2" x 4" x 1.4" (50.8 x 101.6 x 35.6 mm)



CLP0212FP



iPhone®

CLP0212FP Technical Approach

- Combined feedback for both PFC & ZVS via the LLC topology

1% efficiency Gain

- Optimized packaging for high power delivery @ 18W/inch³

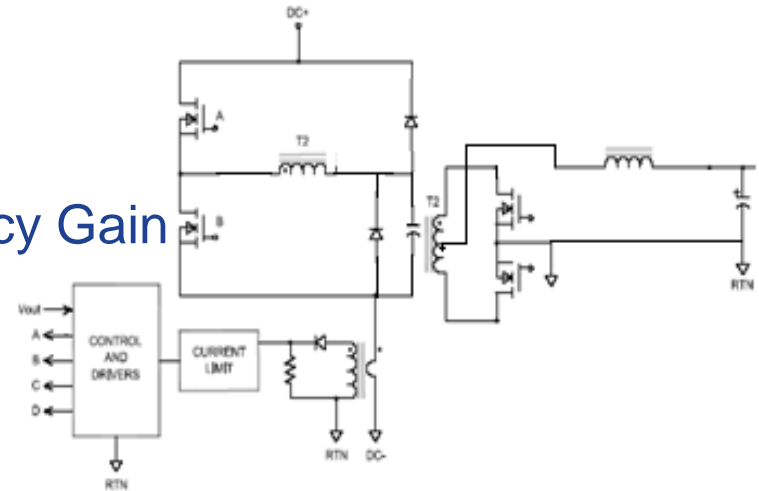
1% efficiency Gain

- Transformer geometry optimization

- Narrow switching frequency band resulting in lower losses (+/- 15Khz)

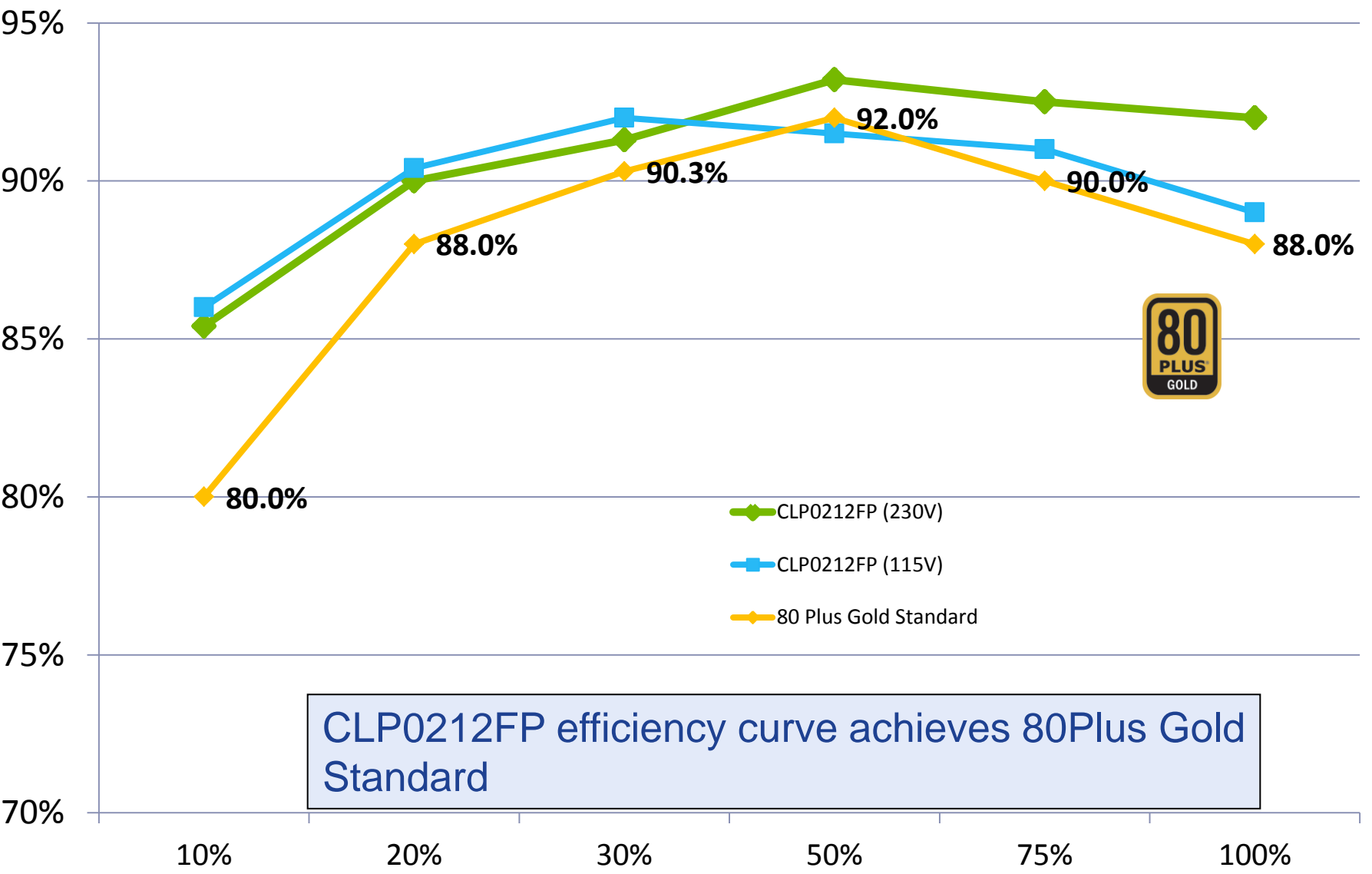
1% efficiency Gain

93% efficiency at 230V Input
90% efficiency at 115V Input



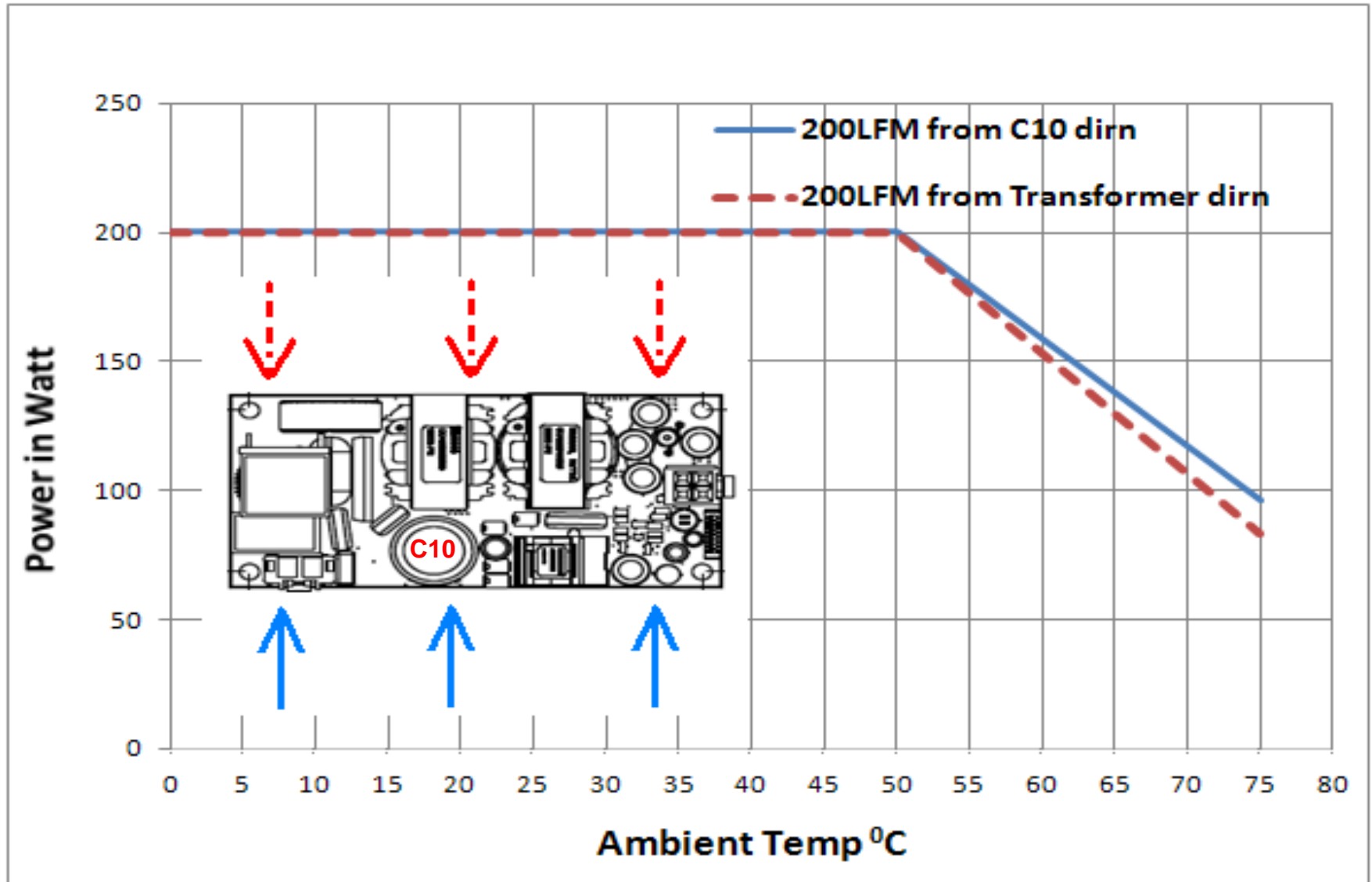
- Half Bridge with ZVS through LLC to lower the losses
- Higher grade MOSFETs
- Quasi resonant PFC circuit
- Switching frequency ~ 100Khz

CLP0212FP Efficiency Curve

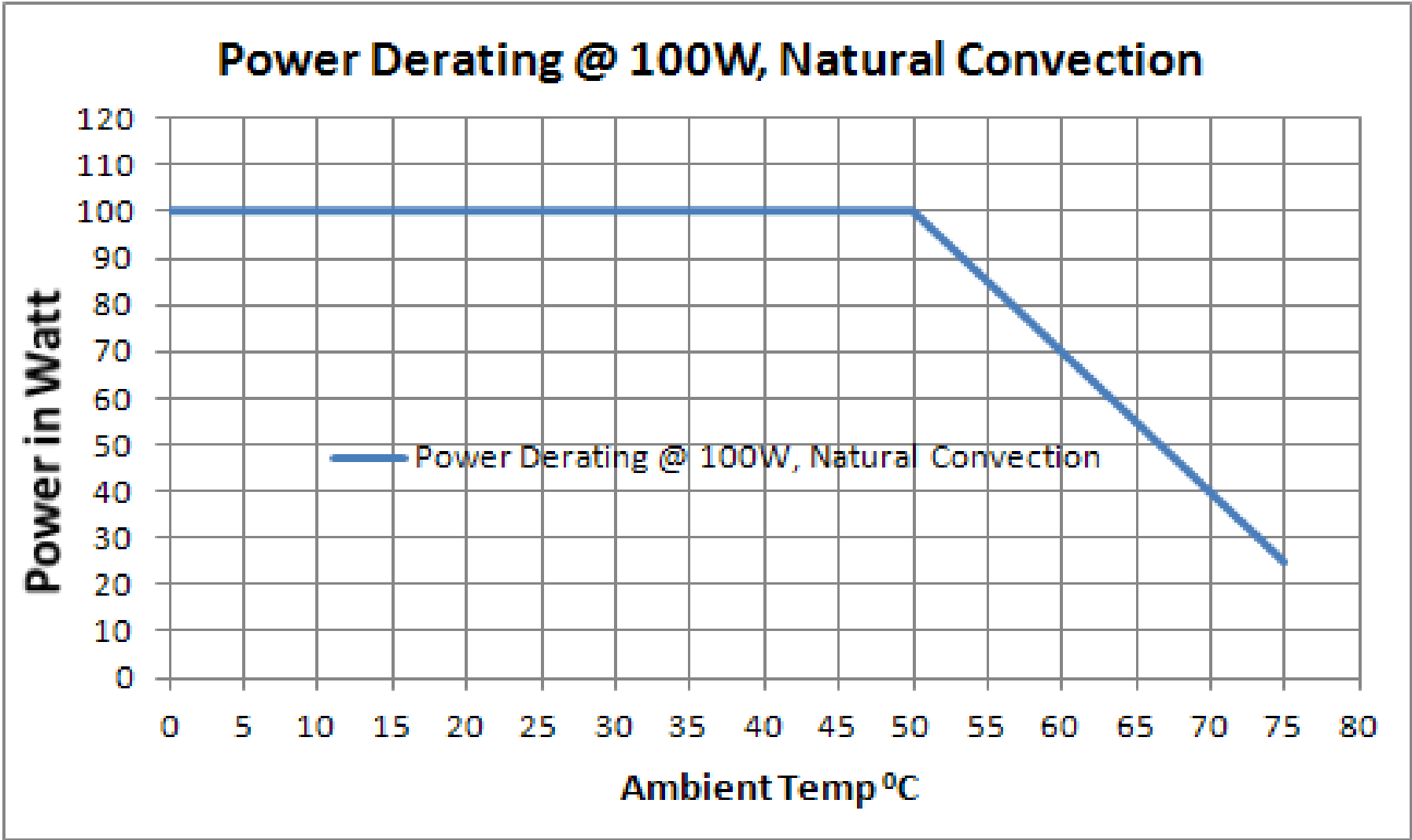


CLP0212FP efficiency curve achieves 80Plus Gold Standard

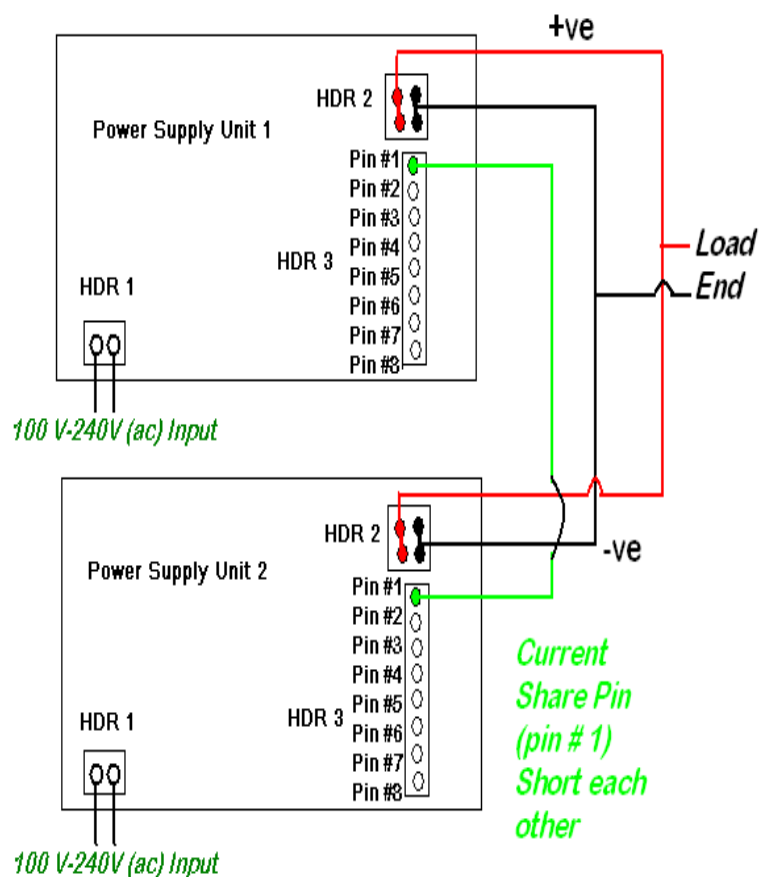
CLP0212FP THERMAL DERATING – with Airflow



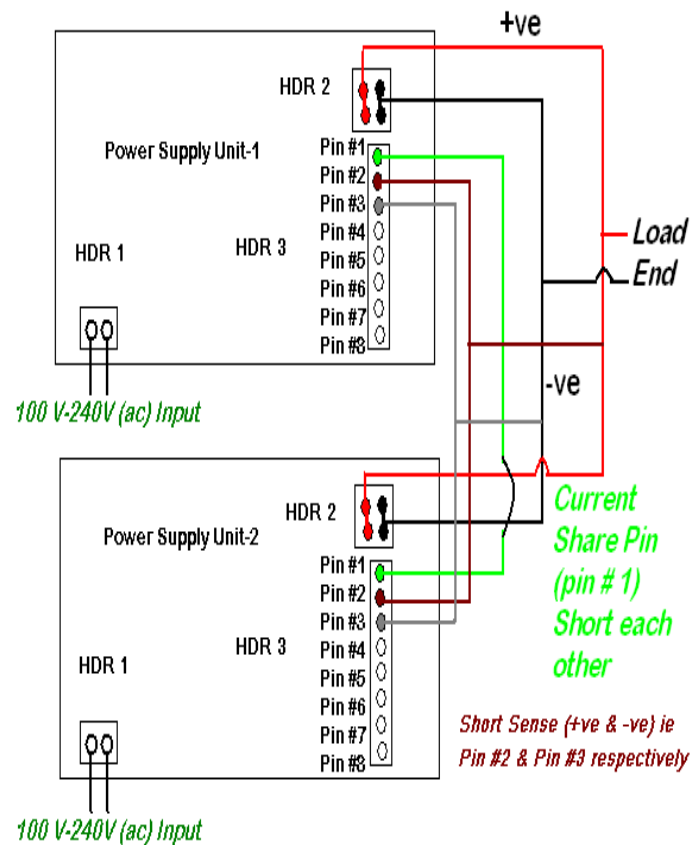
CLP0212FP DERATING CURVE – Natural Convection



CLP0212FP Load Sharing Configuration



Setup #1 – no cable drop compensation



Setup #2 - Cable drop compensation

Summary

- Applications for CLP0212FP include
 - Test and measurement equipment
 - Embedded designs
 - Printers, noninvasive medical devices, small LED display signage,
 - Networking devices
 - Wireless Telecom and Datacom equipment
- Schedule
 - Sampling – Jan 2012
 - Production – Jan 2012
- More information available at:
 - <http://www.ge.com/powerelectronics>

**High Power Density
80 Plus Gold
Efficiency**

Small Footprint 2 x 4



imagination at work

