



MICROCHIP

MIC28514 and MIC28515

**75V/5A High Efficiency Switching
Regulators**

Key Features

- Input voltage range: **4.5V to 75V**
- Adjustable output from **0.6V to 32V** (Limited by duty cycle)
- High Current capability **of 5A**
- Adaptive Constant On Time Control
- 0.6V Internal reference
- **270 KHZ to 800KHZ** switching Frequency
- High Voltage Internal LDO for single supply operation
- Operation with both internal and external VDD
- Supports **start up to pre-bias** output
- Internal compensator for tight output regulation
- Enable function for low stand-by current
- **External programmable soft start** to reduce inrush (MIC28514 Only)
- **External MODE pin** to select DCM/CCM operation (MIC28515 Only)
- Programmable current limit and hiccup short circuit protection
- Thermal shut down with hysteresis
- **CCM only operation** for reduced noise at low output current
- Compact size – **6 X 6 mm** VQFN
- **-40°C to +125°C** junction temperature range

Key Benefits

- **Increased System Robustness**
 - 75V Voltage Rating Adds Additional Safety Margin Protecting Against Input Transients and Spikes
- **Reduced External Component Count**
 - Complete High Power Switching Regulator in a Thermally Enhanced, Small 6 X 6 mm VQFN Package
- **Added Flexibility**
 - MIC28514 And MIC28515 Are Pin To Pin Compatible
 - MIC28514 - Allows Continuous Mode Of Operation With Externally Programmable Soft Start
 - MIC28515 – Allows Light Load Mode Of Operation With Internal Soft Start
 - Full Suite Of Features To Protect During Fault Conditions

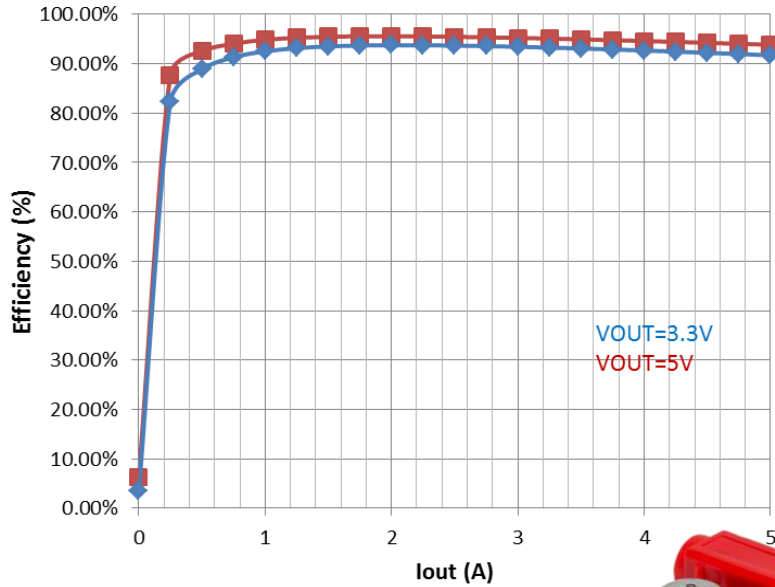
Target Applications

- **Datacomm & Telecom 48V Distribution**
- **Automotive (Non AECQ) – USB, Infotainment**
- **E-Mobility – E-Bikes, E-Scooters**
- **PLC/Industrial**
- **PoE – Surveillance Camera, Home Automation, Lighting**
- **48V BLDC Motors**
- **Battery Operated Systems with 12V, 24V, 36V, 48V**
- **24VAC Input System Loosely Rectified**

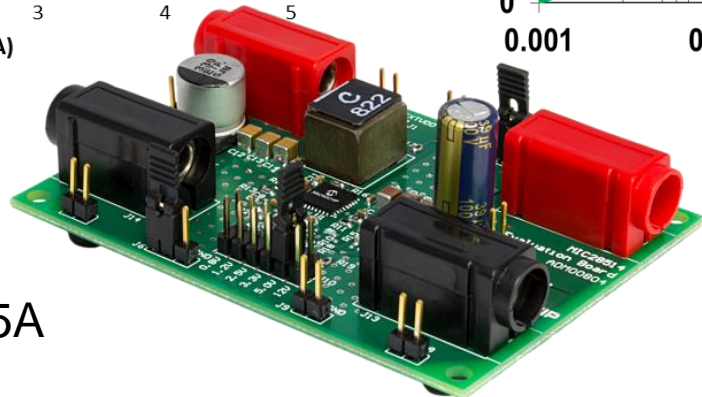
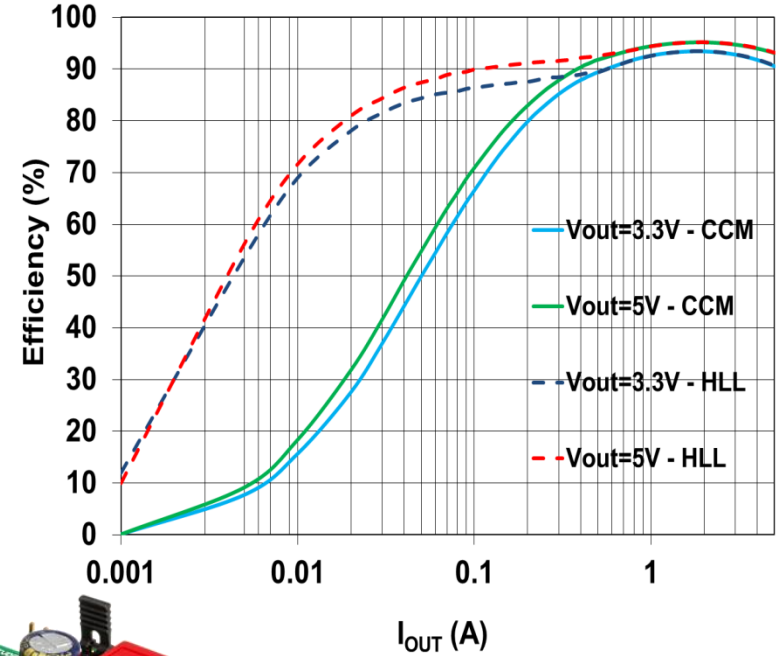


MIC28514/5 EV Kit Efficiency Performance

Efficiency (VIN=12V, CCM Mode)



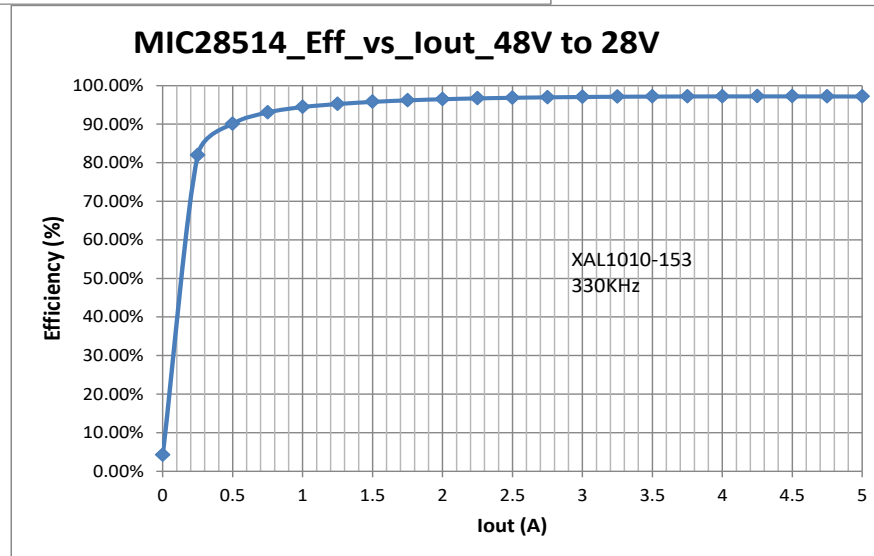
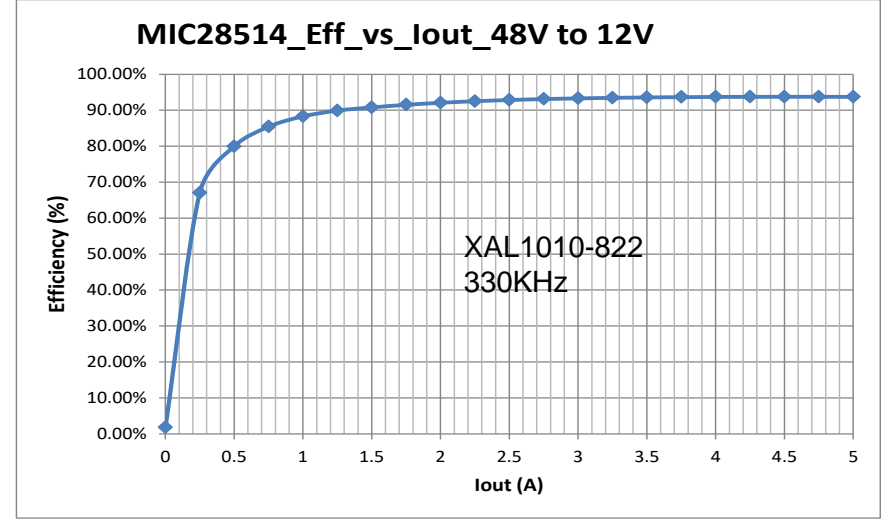
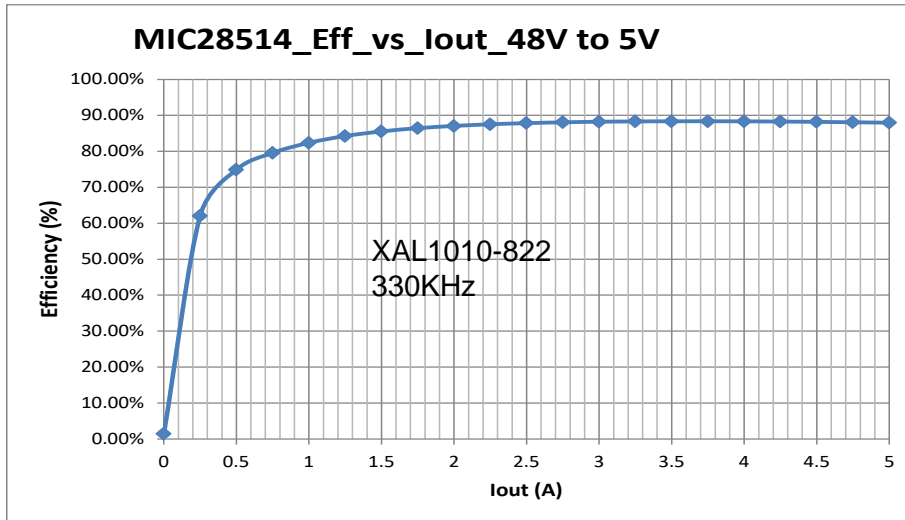
Efficiency (VIN=12V, DCM Mode)



94% for 12V to 5V,5A

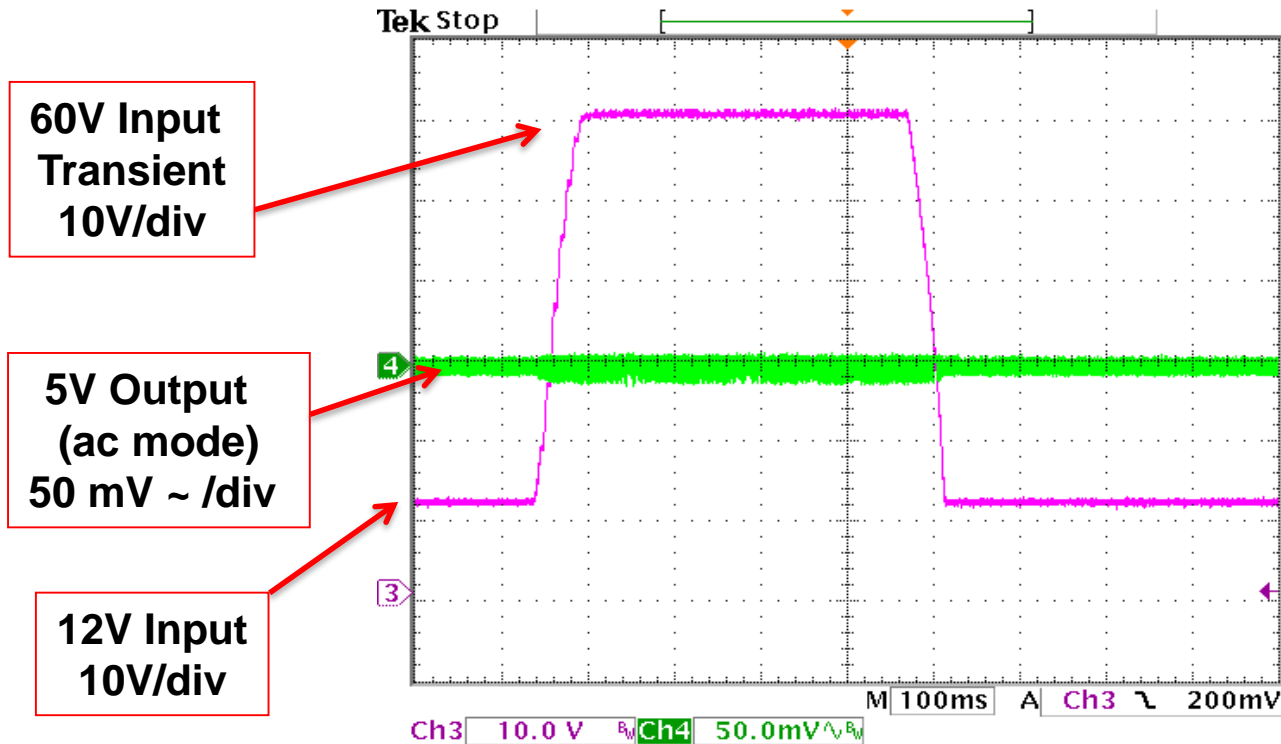
90% for 12V to 5V,0.1A

MIC28514 Efficiency Performance



What Problem Does The MIC28514/15 Solve?

- 75V Voltage Rating Adds Additional Safety Margin To Any 12V And 48V Input System



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Superior CCM/DCM Performance – Measured



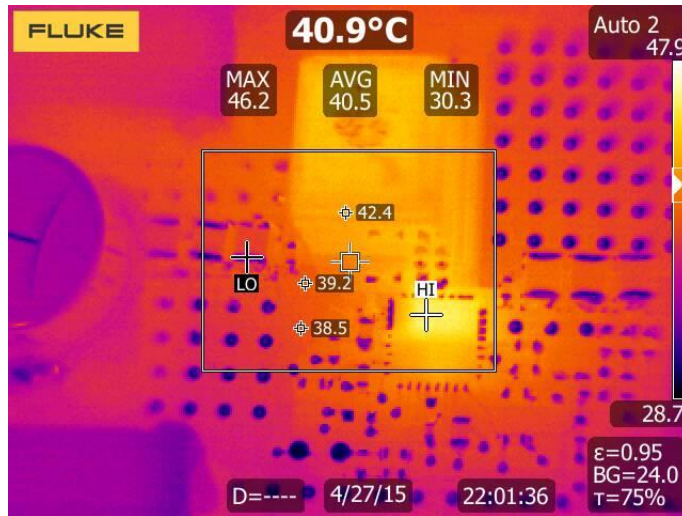
**Inductor
Current**

**Output
Current**

**Output
Voltage**

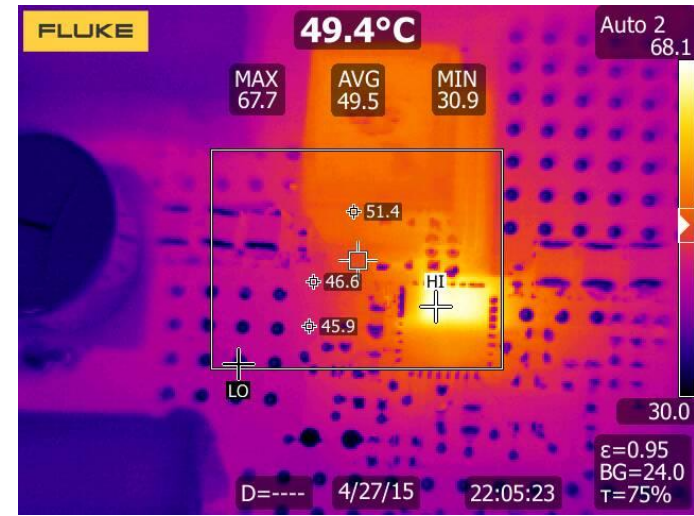
**Switching
Node**

Superior Thermal Performance – Measured



12V to 5V @ 2.5A (50% Loading)

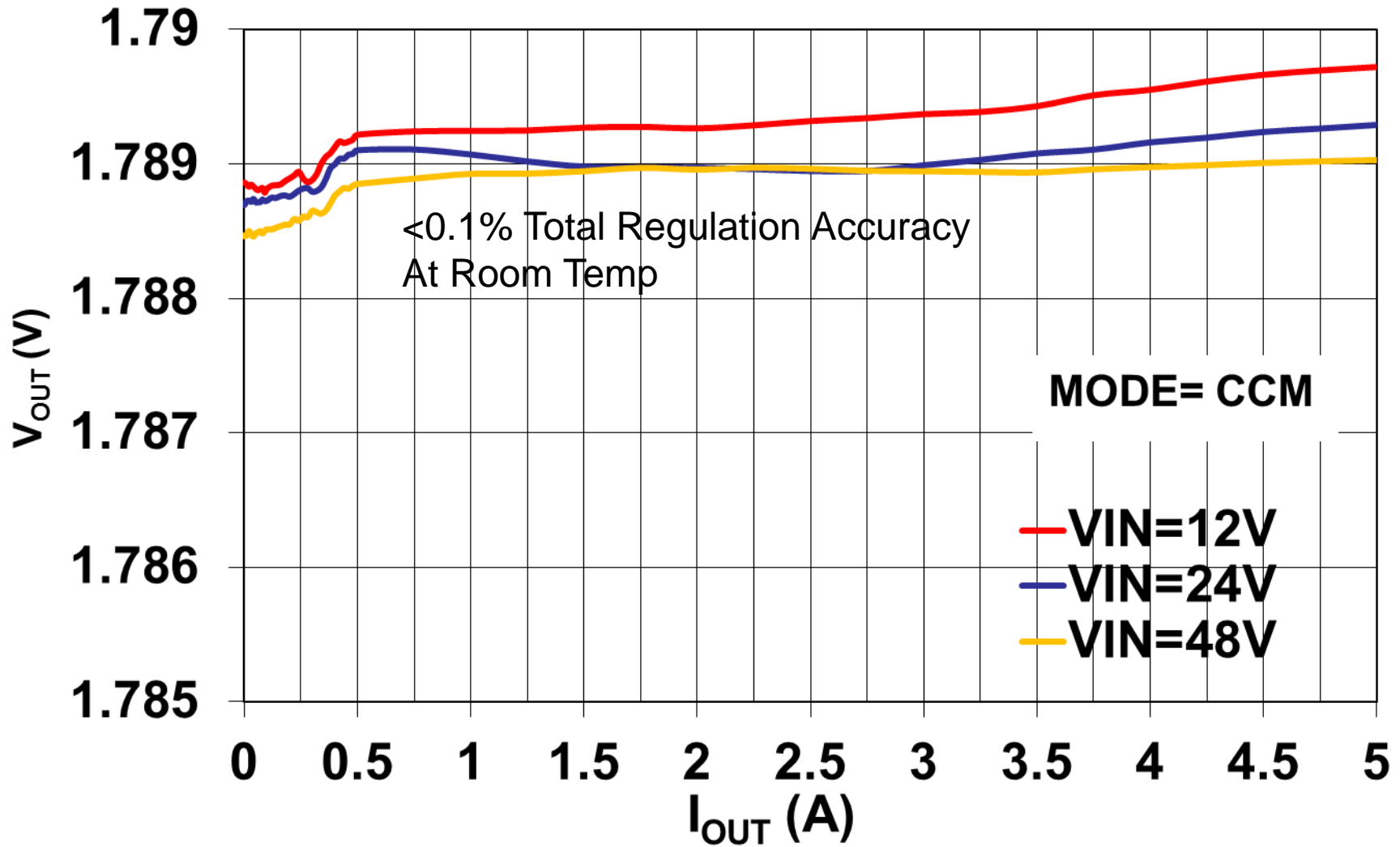
16°C Temperature rise for 50% Loading



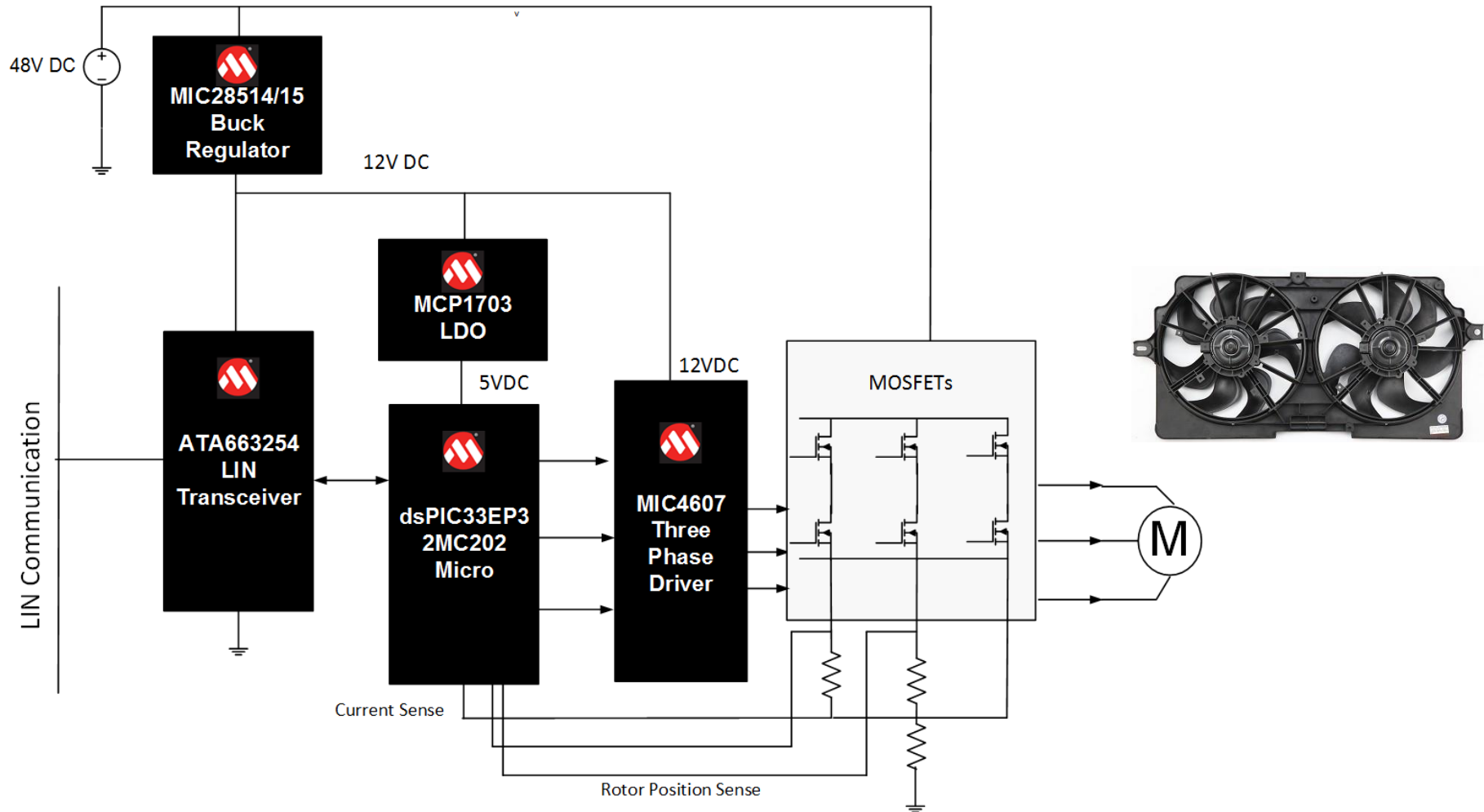
12V to 5V @ 5A (100% Loading)

25°C Temperature rise for 100% Loading

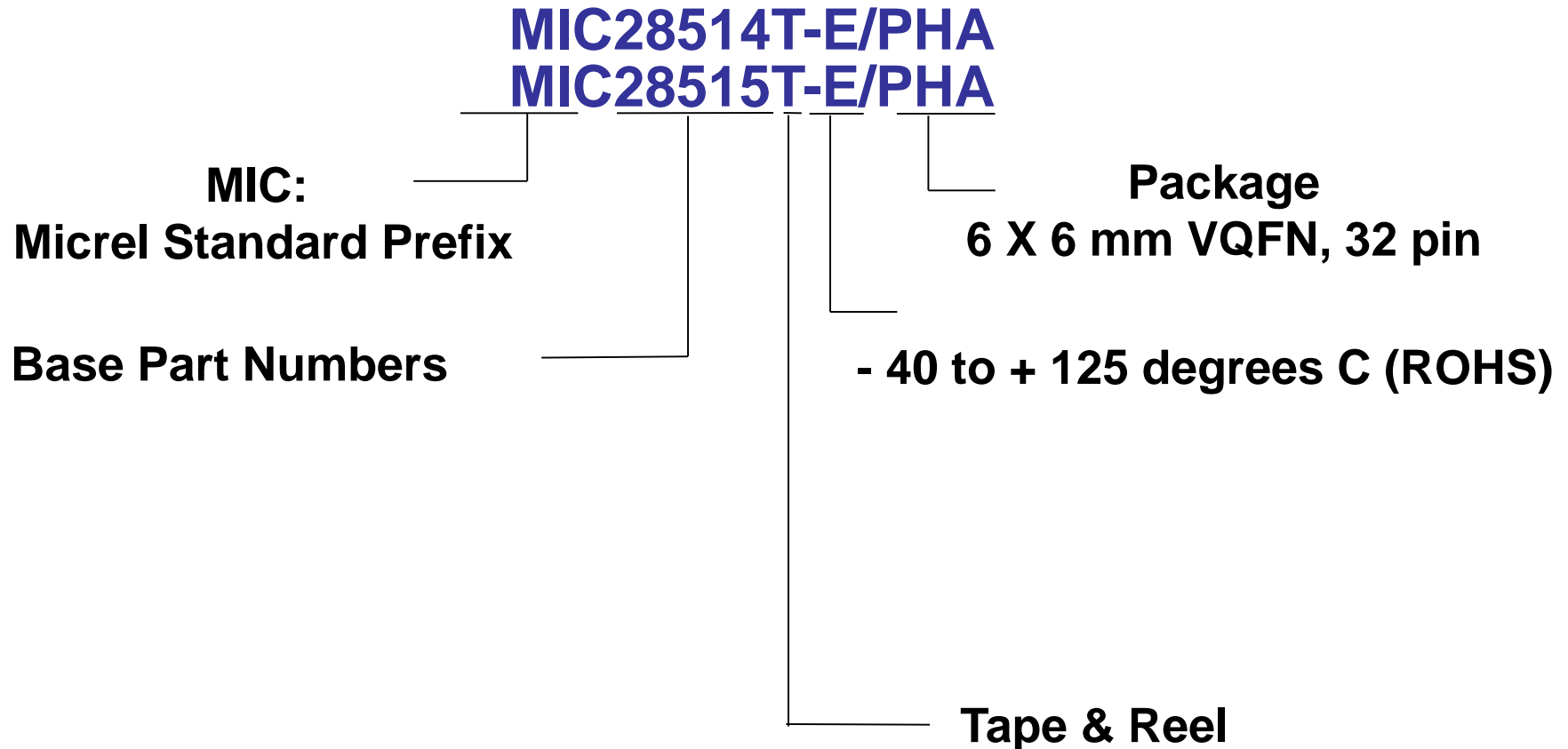
Line/Load Regulation Performance – Measured



48V BLDC Radiator Fan Application



Part Numbering



Whole Product

- **Samples**

- [MIC28514 Samples](#)

- [MIC28515 Samples](#)

- **Webpage and Documentation**

- [MIC28514 Product Page](#)

- [MIC28515 Product Page](#)

- [EV KIT](#)

* For The MIC28515 EV kit please contact factory

