Introducing the Picoguard XP™ Architecture and The CM1231: First Member of CMD's New XtremeESD™ Protection Family

Dramatic Improvement in ESD Protection for High Speed Data

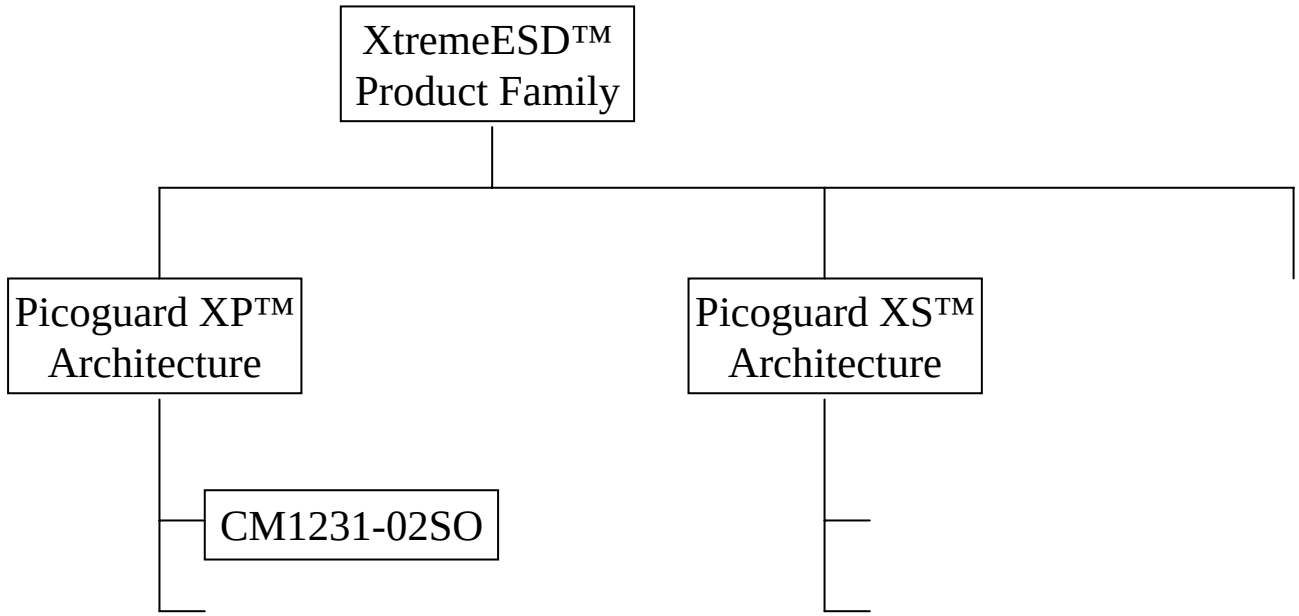
PicoGuard XP™

XTREMEESD

What are we announcing?

- XtremeESD™ Protection Family
  - New approach to ESD protection
  - Fundamental shift in ESD architectures
- Picoguard XP™ architecture
  - First member of the XtremeESD™ Protection Family
  - Unique double clamping architecture dramatically improves ESD protection over traditional approaches
  - CM1231-02SO is first device in this family, targeting USB and other high speed applications
- New website:
  - Resource center for high speed ESD protection
  - www.xtremeesd.com

XtremeESD™ Family



- Picoguard XP™ architecture is first of several new ESD architectures planned for the XtremeESD™ family
- CM1231-02SO is the first device to use the Picoguard XP™ architecture

XtremeESD™ Market Need

- ESD Protection becoming more difficult
  - Smaller geometry semiconductor ASICs are more vulnerable to ESD damage
  - Semiconductor industry is reducing on-chip protection and relying on external devices
  - Application environment is more prone to ESD strikes due to portable and consumer electronics growth
- Maintaining good signal integrity is increasingly challenging
  - Data rates are increasing from hundreds of Mbps to multiple Gbps
- Traditional ESD architecture approaches can't meet the goals of combining adequate ESD protection with good signal integrity

Improving ESD Protection

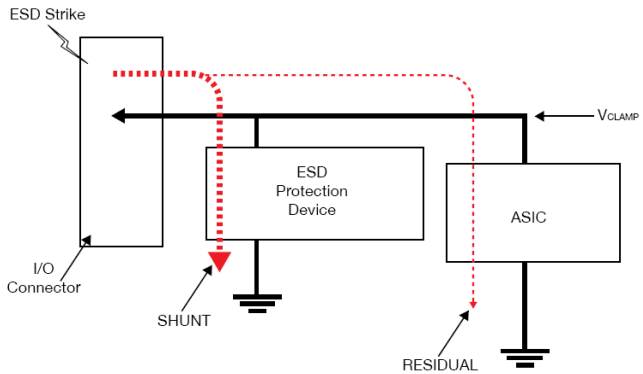


Figure 1. Traditional Single Clamp ESD Architecture Block Diagram

- Improving ESD protection requires:
  - Reducing clamping voltage seen at the ASIC
  - Reducing residual current seen at the ASIC
- The primary factor affecting both goals is the dynamic resistance (Rdyn) of the ESD protection device
  - As Rdyn increases, the clamping voltage increases
  - As Rdyn increases, the residual current increases

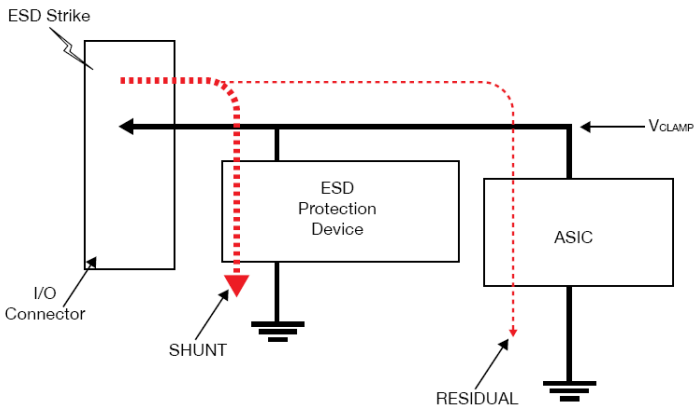
Challenge for Traditional ESD Architectures

- Significantly reducing Rdyn through traditional methods increases capacitance
  - Increased capacitance reduces signal integrity
  - Engineers forced to tradeoff between adequate ESD protection and adequate signal integrity
- A radically new approach is needed to improve ESD protection while preserving good signal integrity

XtremeESD™ Family

- Dramatically improve ESD protection levels
- Assures outstanding signal integrity
- Maintain low cost for high volume applications
  - Consumer
  - Computing
  - Mobile

Introducing the Picoguard XP™ Architecture



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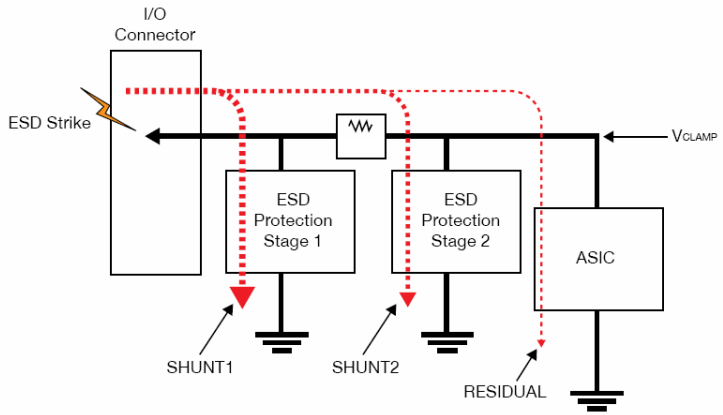

Figure 2. PicoGuard XP Dual Clamp ESD Protection Block Diagram

- Unique double clamping architecture
- First stage acts like traditional ESD device, lowering clamping voltage and residual current
- Second stage further reduces clamping voltage and residual current

CM1231-02SO

- Integrates:
  - Two channels of protection
  - 12 KV contact ESD per IEC61000-4-2
  - Dual stage protection on each channel
  - 3 dB rolloff ~ 3 GHz
- Small SOT23-6 package
  - Pass through routing for easy layout
- Optimized for USB 2.0 and other high speed ports

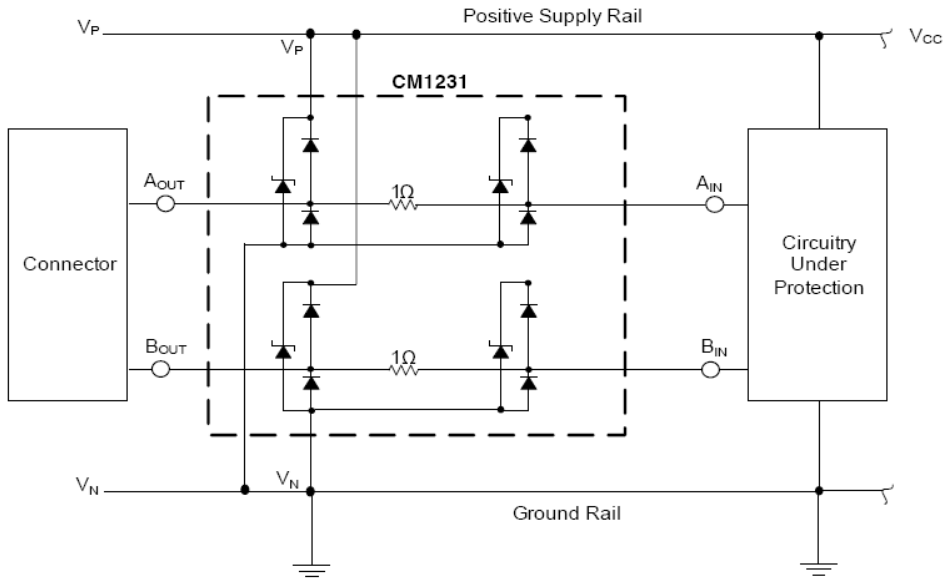

Figure 3. CM1231 Electrical Schematic

Key Advantages

- Dramatically improved ESD protection vs. best in class DRC+Z architecture
  - 40% reduction in peak ESD voltage
  - 40% reduction in peak residual current
  - 65% reduction in peak power
  - 40% reduction in ESD clamping voltage (0-50nS)
  - 25-30% reduction in average residual current
  - > 65% reduction in total power reaching the ASIC
- Excellent signal integrity
- Low Cost

Pricing & Availability

- Production: Now
- Pricing: $0.38 for 1,000 pieces

Summary

- XtremeESD™ family is a fundamental change in approach to ESD protection
  - Dramatically improve ESD protection
  - Assure outstanding signal integrity
- PicoguardXP™ architecture:
  - dramatic improvement over traditional approaches in ESD protection
  - Excellent signal integrity
- Additional innovations coming – see website for more details
  - www.xtremeesd.com