EE 240B – Spring 2018

Advanced Analog Integrated Circuits

Lecture 17: Comparators II

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CML Comparator Power Revisited

- **Gain spec driven by smallest signal you need to resolve**
  - But real inputs will often be larger than this
- **For larger inputs, diff. output will clip at +/- $I_{bias}*R_L$**
  - I.e., dissipating I_{bias} just to produce a constant voltage
  - Can we modify the comparator to spend power only when it is actually providing (regenerative) gain?

CMOS Comparator

StrongArm Comparator (Latch)

StrongArm Analysis (1)

StrongArm Analysis (2)

StrongArm Analysis (3)

Hysteresis

Kickback

Kickback cont'd

Kickback cont'd

Overdrive Recovery