

MP1584 – buck regulator 12 V → 5 V

MPS · S0IC-8 + EP · step-down switcher · ~\$0.5

WHAT IT IS

A switching regulator that efficiently steps 12 V down to 5 V by rapidly switching + an inductor (vs a linear reg that burns the difference as heat). Powers the 5 V rail every board needs.

KEY SPECS (what matters to us)

Up to 3 A · wide input (4.5–28 V) · ~1.5 MHz switching
Needs an inductor + Schottky catch diode + feedback divider

SIGNALS / PINS WE USE

VIN (12 V) · SW (→ inductor → 5 V) · FB (sets output) · EN · BST

ELECTRICAL · GOTCHAS

Switchers are noisy → keep it away from the video/CR path + filter the output (this is a glitch device – EMI bit us before). FB divider sets 5 V; ours lands ~4.95 V (fine for the LD0 downstream).

WHY IT'S IN OUR SYSTEM

The 5 V rail (LED supply + logic-LD0 input) needs efficiency at up to ~1 A – a linear reg would cook. MP1584 is the cheap, common buck. (We'd have used the quieter MP2315 but it wouldn't fetch a footprint; mitigate the noise by placement + output filtering.)