

ADM2587E – isolated RS-485 (DMX front-end)

Analog Devices · S0IC-20W · iso transceiver + iso supply · ~\$5

WHAT IT IS

An RS-485 transceiver with a GALVANIC ISOLATION barrier built in – the bus side and the logic side share no electrical connection (signals cross via tiny on-chip transformers), AND it generates its own isolated supply. One chip = complete isolated DMX input.

KEY SPECS (what matters to us)

Isolated transceiver + isoPower DC-DC on one die

±15 kV ESD · 500 kbps grade (DMX is 250 kbps)

Two power domains: VCC1 (logic) + VISO (isolated bus side)

SIGNALS / PINS WE USE

Logic: R0→MCU, DI, ~RE, DE, VCC1, GND1

Iso: A/Y, B/Z = DMX pair · VISOOUT→VISOIN · GND2 (ISOGND)

ELECTRICAL · GOTCHAS

ISOGND must stay SEPARATE from logic GND or you defeat the isolation. Each iso rail needs its own decoupling pair. Fail-safe bias keeps an idle DMX bus from chattering. (All review fixes, now applied.)

WHY IT'S IN OUR SYSTEM

DMX runs between gear on different mains circuits → ground loops fry things. Isolation is mandatory for a pro DMX input. ADM2587E does it in ONE chip (transceiver + isolated supply) instead of a transceiver + digital isolator + isolated DC-DC – simpler, smaller, safer.