

DS160PT801X16EVM

Gen1, Gen2, Gen3, and Gen4 Power Measurements

Gen 1 x16 Power Measurements

- **Raw Measurements**

- P2_A_CS_0 = 401mV P2_A_CS_1 = 394mV
- P2_D_CS_0 = 465mV P2_D_CS_1 = 471mV
- 1P8V_CS_0 = 2.862V 1P8V_CS_1 = 2.772V

- **Calculation**

- INA253A3 (400mV/A Gain)
$$I_{P2} = \frac{(P2_{A0} + P2_{A1} + P2_{D0} + P2_{D1})}{400 \frac{mV}{A}} = 4.3275A$$

- INA210 (50mV/A Gain)
$$I_{1P8V} = \frac{(1P8V_0 + 1P8V_1)}{20 \frac{V}{A}} = 0.2817A$$

- **Results:** $I_{P2}V_{p2} + I_{1P8V}V_{1P8V} = 4.3275A \times 1.1V + 0.2817A \times 1.8V = 5.26W$

Gen 2 x16 Power Measurements

- **Raw Measurements**

- P2_A_CS_0 = 483mV P2_A_CS_1 = 480mV
- P2_D_CS_0 = 561mV P2_D_CS_1 = 579mV
- 1P8V_CS_0 = 2.869V 1P8V_CS_1 = 2.775V

- **Calculation**

- INA253A3 (400mV/A Gain)
$$I_{P2} = \frac{(P2_{A0} + P2_{A1} + P2_{D0} + P2_{D1})}{400 \frac{mV}{A}} = 5.2575A$$

- INA210 (50mV/A Gain)
$$I_{1P8V} = \frac{(1P8V_0 + 1P8V_1)}{20 \frac{V}{A}} = 0.2822A$$

- **Results:** $I_{P2}V_{p2} + I_{1P8V}V_{1P8V} = 5.2575A \times 1.1V + 0.2822A \times 1.8V = 6.29W$

Gen 3 x16 Power Measurements

- **Raw Measurements**

- P2_A_CS_0 = 635mV P2_A_CS_1 = 641mV
- P2_D_CS_0 = 613mV P2_D_CS_1 = 637mV
- 1P8V_CS_0 = 3.037V 1P8V_CS_1 = 3.041V

- **Calculation**

- INA253A3 (400mV/A Gain)
$$I_{P2} = \frac{(P2_{A0} + P2_{A1} + P2_{D0} + P2_{D1})}{400 \frac{mV}{A}} = 6.315A$$

- INA210 (50mV/A Gain)
$$I_{1P8V} = \frac{(1P8V_0 + 1P8V_1)}{20 \frac{V}{A}} = 0.3039A$$

- **Results:** $I_{P2}V_{p2} + I_{1P8V}V_{1P8V} = 6.315A \times 1.1V + 0.3039A \times 1.8V = 7.49W$

Gen 4 x16 Power Measurements

- **Raw Measurements**

- P2_A_CS_0 = 864mV P2_A_CS_1 = 872mV
- P2_D_CS_0 = 899mV P2_D_CS_1 = 928mV
- 1P8V_CS_0 = 3.106V 1P8V_CS_1 = 3.013V

- **Calculation**

- INA253A3 (400mV/A Gain)
$$I_{P2} = \frac{(P2_{A0} + P2_{A1} + P2_{D0} + P2_{D1})}{400 \frac{mV}{A}} = 8.9075A$$

- INA210 (50mV/A Gain)
$$I_{1P8V} = \frac{(1P8V_0 + 1P8V_1)}{20 \frac{V}{A}} = 0.306A$$

- **Results:** $I_{P2}V_{p2} + I_{1P8V}V_{1P8V} = 8.9075A \times 1.1V + 0.306A \times 1.8V = \mathbf{10.349W}$

Gen 3 x4 Power Measurements

- **Raw Measurements**

- P2_A_CS_0 = 393mV
- P2_D_CS_0 = 340mV
- 1P8V_CS_0 = 1.05V

- **Calculation**

- INA253A3 (400mV/A Gain)
$$I_{P2} = \frac{(P2_{A0} + P2_{D0})}{400 \frac{mV}{A}} = 1.8325A$$

- INA210 (50mV/A Gain)
$$I_{1P8V} = \frac{(1P8V_0)}{20 \frac{V}{A}} = 0.0525A$$

- **Results:** $I_{P2}V_{p2} + I_{1P8V}V_{1P8V} = 1.8325A \times 1.1V + 0.0525A \times 1.8V = 2.11W$

Gen 4 x4 Power Measurements

- **Raw Measurements**

- P2_A_CS_0 = 520mV
- P2_D_CS_0 = 500mV
- 1P8V_CS_0 = 1.05V

- **Calculation**

- INA253A3 (400mV/A Gain)

$$I_{P2} = \frac{(P2_{A0} + P2_{D0})}{400 \frac{mV}{A}} = 2.55A$$

- INA210 (50mV/A Gain)

$$I_{1P8V} = \frac{(1P8V_0)}{20 \frac{V}{A}} = 0.0525A$$

- **Results:** $I_{P2}V_{p2} + I_{1P8V}V_{1P8V} = 2.55A \times 1.1V + 0.0525A \times 1.8V = 2.9W$

Gen 3 x1 Power Measurements

- **Raw Measurements**

- P2_A_CS_0 = 198mV
- P2_D_CS_0 = 130mV
- 1P8V_CS_0 = 1.05V

- **Calculation**

- INA253A3 (400mV/A Gain)

$$I_{P2} = \frac{(P2_{A0} + P2_{D0})}{400 \frac{mV}{A}} = 0.82A$$

- INA210 (50mV/A Gain)

$$I_{1P8V} = \frac{(1P8V_0)}{20 \frac{V}{A}} = 0.0525A$$

- **Results:** $I_{P2}V_{p2} + I_{1P8V}V_{1P8V} = 0.82A \times 1.1V + 0.0525A \times 1.8V = \mathbf{0.997W}$

Gen 4 x1 Power Measurements

- **Raw Measurements**

- P2_A_CS_0 = 240mV
- P2_D_CS_0 = 180mV
- 1P8V_CS_0 = 1.05V

- **Calculation**

- INA253A3 (400mV/A Gain)

$$I_{P2} = \frac{(P2_{A0} + P2_{D0})}{400 \frac{mV}{A}} = 1.05A$$

- INA210 (50mV/A Gain)

$$I_{1P8V} = \frac{(1P8V_0)}{20 \frac{V}{A}} = 0.0525A$$

- **Results:** $I_{P2}V_{p2} + I_{1P8V}V_{1P8V} = 1.05A \times 1.1V + 0.0525A \times 1.8V = 1.25W$