



Bill of Materials

TI DESIGNS

TIPD204: Low-cost Digital Programmable Gain Amplifier Reference Design

Item #	Quantity	Designator	Value	Description	Manufacturer	Part Number
1	1	C1	33pF	CAP CER 33PF 50V NP0 0603	MuRata	GRM1885C1H330JA01D
2	9	C2, C5, C7, C9, C17, C19, C24, C100, C130	0.1uF	CAP, CERM, 0.1 μ F, 25 V, +/- 5%, X7R, 0603	Kemet	C0603C104J3RAC
3	7	C3, C4, C6, C8, C18, C20, C23	100pF	CAP, CERM, 100 pF, 25 V, +/- 10%, X7R, 0603	AVX	06033C101KAT2A
4	2	C110, C120	10uF	CAP, TA, 10 μ F, 6.3 V, +/- 10%, 3.4 ohm, SMD	Vishay-Sprague	293D106X96R3A2TE3
5	2	J2, J4		Receptacle, 100mil, 10x1, Tin, TH	Sullins Connector Solutions	PPTC101LFBN-RC
6	1	J3		Header, 2.54 mm, 3x1, Gold, TH	Sullins Connector Solutions	GBC03SAAN
7	2	J5, J6		Header, 2.54 mm, 2x1, Gold, TH	Sullins Connector Solutions	GBC02SAAN
8	1	R1	100k	RES, 100 k, 1%, 0.1 W, 0603	Yageo America	RC0603FR-07100KL
9	1	R2	100	RES, 100, 1%, 0.1 W, 0603	Yageo America	RC0603FR-07100RL
10	2	R3, R5	10.0k	RES, 10.0 k, 1%, 0.1 W, 0603	Vishay-Dale	CRCW060310K0FKEA
11	1	R4	49.9	RES SMD 49.9 OHM 1% 1/10W 0603	Yageo America	RC0603FR-0749R9L
12	2	R10, R11	1.54k	RES, 1.54 k, 1%, 0.1 W, 0603	Vishay-Dale	CRCW06031K54FKEA
13	2	R12, R13	1.02k	RES, 1.02 k, 1%, 0.1 W, 0603	Vishay-Dale	CRCW06031K02FKEA
14	1	R14	200k	RES, 200 k, 1%, 0.1 W, 0603	Vishay-Dale	CRCW0603200KFKEA
15	3	TP1, TP3, TP5		Test Point, Compact, White, TH	Keystone	5007
16	2	TP4, TP9		Test Point, Compact, Yellow, TH	Keystone	5009
17	1	TP6		Test Point, Compact, Black, TH	Keystone	5006
18	2	TP7, TP8		Test Point, Compact, Red, TH	Keystone	5005
19	1	U1		IC DGTL POT 256POS 100K 14TSSOP	Texas Instruments	TPL0102-100PWR
20	1	U2		IC OPAMP GP 10MHZ RRO SOT23-5	Texas Instruments	OPA316IDBVR
22	1	U6		Dual Bi-Directional I2C-Bus and SMBus Voltage Level-Translator, 0 to 5.5 V, -40 to 85 degC, 8-pin	Texas Instruments	PCA9306DCTR

Do Not Install / Order

1	5	C7, C10, C13, C16, C22	0.1uF	CAP, CERM, 0.1 μ F, 25 V, +/- 5%, X7R, 0603	Kemet	C0603C104J3RAC
2	5	C6, C11, C12, C21, C15	100pF	CAP, CERM, 100 pF, 25 V, +/- 10%, X7R, 0603	AVX	06033C101KAT2A
3	1	C14	1000pF	CAP, CERM, 1000 pF, 50 V, +/- 10%, C0G/NP0, 0603	AVX	06035A102KAT2A
4	1	J1		Terminal Block, 3.5 mm, 2x1, Tin, TH	Molex	39357-0002
5	1	Q1		MOSFET, N-CH, 30 V, 3.3 A, SOT-23	Vishay-Siliconix	SI2304DDS-T1-GE3
6	1	R6	15.0k	RES, 15.0 k, 0.1%, 0.1 W, 0603	Susumu Co Ltd	RG1608P-153-B-T5
7	1	R7	200	RES, 200, 0.1%, 0.1 W, 0603	Susumu Co Ltd	RG1608P-201-B-T5
8	1	R8	10.0k	RES, 10.0 k, 0.1%, 0.1 W, 0603	Susumu Co Ltd	RG1608P-103-B-T5
9	1	R9	1.20k	RES, 1.20 k, 0.1%, 0.1 W, 0603	Susumu Co Ltd	RG1608P-122-B-T5
10	1	TP10		Test Point, Compact, Orange, TH	Keystone	5008
11	2	TP11		Test Point, Compact, Black, TH	Keystone	5006
21	1	U3		Precision, 20 MHz, 0.9 pA Ib, RRIO, CMOS Operational Amplifier, 1.8 to 5.5 V, -40 to 125 degC, 5-pin	Texas Instruments	OPA320AIDBVR
12	1	U4		Low-Offset, Rail-to-Rail I/O Operational Amplifier, DBV0005A	Texas Instruments	OPA317IDBVR
13	1	U5		IC DGTL POT 256POS 100K 14TSSOP	Texas Instruments	TPL0102-100PWR