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**Low current limit circuit for the TPS61088 Boost converter**

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
IPC1	1		Printed Circuit Board		PMP15036	Any	-	-
C1	1	47uF	CAP, TA, 47 $\mu$ F, 25 V, +/- 20%, 0.12 ohm, SMD	7343-31	T495D476M025ATE120	Kemet		
C2, C4, C5, C6, C7, C15, C17, C19	8	10uF	CAP, CERM, 10 $\mu$ F, 25 V, +/- 20%, X5R, 0603	0603	GRM188R61E106MA73D	MuRata		
C3, C12, C14, C23, C29, C34, C35, C36, C37	9	0.1uF	CAP, CERM, 0.1 $\mu$ F, 50 V, +/- 10%, X7R, 0603	0603	GCM188R71H104KA57D	MuRata		
C8, C9, C10, C25	4	22uF	CAP, CERM, 22 $\mu$ F, 25 V, +/- 10%, X5R, 1210	1210	GRM32ER61E226KE15L	MuRata		
C13	1	100pF	CAP, CERM, 100 pF, 50 V, +/- 5%, C0G/NP0, 0402	0402	GRM1555C1H101JA01D	MuRata		
C18	1	1uF	CAP, CERM, 1 $\mu$ F, 10 V, +/- 10%, X5R, 0402	0402	GRM155R61A105KE15D	MuRata		
C20, C32, C39, C44	4	0.68uF	CAP, CERM, 0.68 $\mu$ F, 50 V, +/- 10%, X7R, 1206	1206	GRM31MR71H684KA88L	MuRata		
C21, C33, C40, C45	4	0.01uF	CAP, CERM, 0.01 $\mu$ F, 50 V, +/- 10%, X7R, 0603	0603	GRM188R71H103KA01D	MuRata		
C22, C28	2	220uF	CAP, AL, 220 $\mu$ F, 35 V, +/- 20%, 0.09 ohm, TH	10x12.5mm	EEU-FC1V221	Panasonic		
C24, C30	2	1000pF	CAP, CERM, 1000 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603	GRM1885C1H102JA01D	MuRata		
C26, C27, C31, C38, C41, C42, C43	7	1uF	CAP, CERM, 1 $\mu$ F, 25 V, +/- 10%, X5R, 0603	0603	GRM188R61E105KA12D	MuRata		
C46	1	47pF	CAP, CERM, 47 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603	GRM1885C1H470JA01D	MuRata		
C47, C48, C49, C50	4	330pF	CAP, CERM, 330 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603	GRM1885C1H331JA01D	MuRata		
Cc1	1	6800pF	CAP, CERM, 6800 pF, 25 V, +/- 10%, X7R, 0402	0402	GRM155R71E682KA01D	MuRata		
D1	1	4.3V	Diode, Zener, 4.3 V, 225 mW, SOT-23	SOT-23	BZX84C4V3LT1G	ON Semiconductor		
D2, D3, D4	3	75V	Diode, Switching, 75 V, 0.3 A, SMD, 2-Leads, Body 1.2x0.8mm	SMD, 2-Leads, Body 1.2x0.8mm	1N4148WT	Fairchild Semiconductor		
H1, H2, H3, H4	4		Machine Screw, Round, #4-40 x 1/4, Nylon, Philips panhead	Screw	NY PMS 440 0025 PH	B&F Fastener Supply		
J1, J2, J3, J4, J15	5	Double	Terminal, Turret, TH, Double	Keystone1502-2	1502-2	Keystone		
J5, J16, Js1	3		Header, 100mil, 3x1, Gold, TH	3x1 Header	TSW-103-07-G-S	Samtec		
J6, J7, JP1, JP2	4		Header, 100mil, 2x1, Gold, TH	2x1 Header	TSW-102-07-G-S	Samtec		
J8	1		Header, 100mil, 3x1, Gold, TH	PBC03SAAN	PBC03SAAN	Sullins Connector Solutions		
J9	1		RCA Jack, Red, R/A, TH	PC Mount Phono Jack Red, TH	971	Keystone		
J10	1		RCA Jack, White, R/A, TH	PC Mount Phono Jack White, TH	970	Keystone		
J11, J13	2		Binding Post, RED, TH	11.4x27.2mm	7006	Keystone		
J12, J14	2		Binding Post, BLACK, TH	11.4x27.2mm	7007	Keystone		

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
L1	1	3.3uH	Inductor, Shielded Drum Core, Powdered Iron, 3.3 µH, 8 A, 0.0108 ohm, SMD	10x3.8x10mm	74437368033	Wurth Elektronik		
L11, L12, L21, L22	4	10uH	Inductor, Shielded, Ferrite, 10 µH, 4.2 A, 0.037 ohm, AEC-Q200 Grade 1, SMD	8x8.4mm	SRT8045-103MEB	Coilcraft		
Q1	1	-20V	MOSFET, P-CH, -20 V, -60 A, DQG0008A	DQG0008A	CSD25404Q3	Texas Instruments		None
Q2, Q4	2	45 V	Transistor, NPN, 45 V, 0.1 A, SOT-23	SOT-23	BC850CLT1G	ON Semiconductor		
Q3	1	50V	MOSFET, N-CH, 50 V, 0.22 A, SOT-23	SOT-23	BSS138	Fairchild Semiconductor		None
R1	1	348k	RES, 348 k, 1%, 0.063 W, 0402	0402	CRCW0402348KFKED	Vishay-Dale		
R2	1	150k	RES, 150 k, 1%, 0.063 W, 0402	0402	CRCW0402150KFKED	Vishay-Dale		
R3	1	422k	RES, 422 k, 1%, 0.063 W, 0402	0402	CRCW0402422KFKED	Vishay-Dale		
R4, R5	2	57.6k	RES, 57.6 k, 1%, 0.063 W, 0402	0402	CRCW040257K6FKED	Vishay-Dale		
R6	1	3.01k	RES, 3.01 k, 1%, 0.063 W, 0402	0402	CRCW04023K01FKED	Vishay-Dale		
R7	1	10.5k	RES, 10.5 k, 1%, 0.1 W, 0603	0603	CRCW060310K5FKEA	Vishay-Dale		
R8, R9, R17, R18	4	10.2k	RES, 10.2 k, 1%, 0.063 W, 0402	0402	CRCW040210K2FKED	Vishay-Dale		
R10, R14, R19	3	0	RES, 0, 5%, 0.063 W, 0402	0402	CRCW04020000Z0ED	Vishay-Dale		
R11, R12, R20	3	100k	RES, 100 k, 0.5%, 0.063 W, 0402	0402	CRCW0402100KDHED P	Vishay-Dale		
R13	1	12.1	RES, 12.1, 1%, 0.063 W, 0402	0402	CRCW040212R1FKED	Vishay-Dale		
R15	1	1.00Meg	RES, 1.00 M, 1%, 0.1 W, 0402	0402	ERJ-2RKF1004X	Panasonic		
R16	1	42.2k	RES, 42.2 k, 1%, 0.1 W, 0603	0603	CRCW060342K2FKEA	Vishay-Dale		
R21, R22, R24, R31	4	3.3	RES, 3.3, 5%, 0.1 W, 0603	0603	CRCW06033R30JNEA	Vishay-Dale		
R23	1	499k	RES, 499 k, 1%, 0.1 W, 0603	0603	RC0603FR-07499KL	Yageo America		
R25	1	0	RES, 0, 5%, 0.063 W, 0402	0402	ERJ-2GE0R00X	Panasonic		
R26, R30, R32, R37, R38	5	100k	RES, 100k ohm, 1%, 0.1W, 0603	0603	RC0603FR-07100KL	Yageo America		
R28	1	39k	RES, 39 k, 5%, 0.063 W, 0402	0402	CRCW040239K0JNED	Vishay-Dale		
R29	1	4.70k	RES, 4.70 k, 0.1%, 0.1 W, 0603	0603	RG1608P-472-B-T5	Susumu Co Ltd		
R33, R34, R35, R36	4	10	RES, 10, 5%, 0.125 W, 0805	0805	CRCW080510R0JNEA	Vishay-Dale		
Rc1	1	75.0k	RES, 75.0 k, 1%, 0.063 W, 0402	0402	CRCW040275K0FKED	Vishay-Dale		
SH-JP1	1	1x2	Shunt, 100mil, Gold plated, Black	Shunt	969102-0000-DA	3M	SNT-100-BK-G	Samtec
TP1, TP2, TP3, TP5, TP6, TP7	6	Orange	Test Point, Miniature, Orange, TH	Orange Miniature Testpoint	5003	Keystone		
U1	1		20 Vout Fully Integration Synchronous Boost Converter with 8 A Switch Current, RNW0013A	RNW0013A	TPS61178RNWR	Texas Instruments	TPS61178RNWT	Texas Instruments
U2	1		Low-Cost, Low Noise, 5.5 MHz CMOS Operational Amplifier, 2.2 to 5.5 V, -40 to 125 degC, 14-pin SOP (PW0014A), Green (RoHS & no Sb/Br)	PW0014A	OPA4377AIPW	Texas Instruments	Equivalent	None
U3	1		2x30-W Class-D Amplifier With Low Idle Power Dissipation, DAP0032A (TSSOP-32)	DAP0032A	TPA3128D2DAPR	Texas Instruments	TPA3128D2DAP	Texas Instruments
C11	0	22uF	CAP, CERM, 22 µF, 25 V, +/- 10%, X5R, 1210	1210	GRM32ER61E226KE15 L	MuRata		
C16	0	1000pF	CAP, CERM, 1000 pF, 50 V, +/- 20%, X7R, 0402	0402	C1005X7R1H102M	TDK		
R27	0	20.5k	RES, 20.5 k, 1%, 0.063 W, 0402	0402	CRCW040220K5FKED	Vishay-Dale		

Notes:

Unless otherwise noted in the Alternate PartNumber and/or Alternate Manufacturer columns, all parts may be substituted with equivalents.

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