

Bill of Materials

TI DESIGNS

TIDM-DC-DC-BUCK

Item	Qty	Reference	Value	Part Description	Manufacturer	Manufacturer Part Number	Alternate Part	PCB Footprint	Note
1	1	C1	330u	CAP ALUM 330UF 20% 25V RADIAL	Panasonic Electronic Components	ECA-1EM331	P5154-ND		
2	1	C2	22u	CAP CER 22UF 16V 20% X5R 1206	Murata Electronics North America	GRM31CR61C226ME15L	490-4739-1-ND		
3	1	C3	22u	CAP CER 22UF 16V 20% X5R 1206	Murata Electronics North America	GRM31CR61C226ME15L	490-4739-1-ND		
4	1	C4	22u	CAP CER 22UF 16V 20% X5R 1206	Murata Electronics North America	GRM31CR61C226ME15L	490-4739-1-ND		
5	1	C5	22u	CAP CER 22UF 16V 20% X5R 1206	Murata Electronics North America	GRM31CR61C226ME15L	490-4739-1-ND		
6	1	C6	22u	CAP CER 22UF 16V 20% X5R 1206	Murata Electronics North America	GRM31CR61C226ME15L	490-4739-1-ND		
7	1	C7	330u	CAP ALUM 330UF 20% 25V RADIAL	Panasonic Electronic Components	ECA-1EM331	P5154-ND		
8	1	C8	330u	CAP ALUM 330UF 20% 25V RADIAL	Panasonic Electronic Components	ECA-1EM331	P5154-ND		
9	1	C9	10n	CAP CER 10000PF 25V 5% COG 0805	TDK Corporation	C2012C0G1E103J060AA	445-2672-1-ND		
10	1	C10	220p	Standard	Standard	Standard			
11	1	C11	220p	Standard	Standard	Standard			
12	1	C12	1n	CAP CER 1000PF 50V 5% NPO 0805	Murata Electronics North America	GRM2165C1H102JA01D	490-1622-1-ND		
13	1	C13	10p	Standard	Standard	Standard			
14	1	C14	10p	Standard	Standard	Standard			
15	1	C15	100n	CAP CER 0.1UF 25V 10% X7R 0805	TDK Corporation	C2012X7R1E104K/1.25	445-1351-1-ND		
16	1	C16	2u2	CAP CER 2.2UF 16V 10% X7R 0805	TDK Corporation	C2012X7R1C225K125AB	445-1420-1-ND		
17	1	C17	1u	CAP CER 1UF 16V 10% X7R 1206	TDK Corporation	C3216X7R1C105K/0.85	445-1591-1-ND		
18	1	C18	1u	CAP CER 1UF 16V 10% X7R 1206	TDK Corporation	C3216X7R1C105K/0.85	445-1591-1-ND		
19	1	C19	3n3	Standard	Standard	Standard			
20	1	C20	3n3	Standard	Standard	Standard			
21	1	C21	220p	Standard	Standard	Standard			
22	1	C22	3n3	Standard	Standard	Standard			
23	1	C23	1u	CAP CER 1UF 16V Y5V 0805	TDK Corporation	C2012Y5V1C105Z/0.85	445-1589-1-ND		
24	1	D1	MURA110T3/CRH01	DIODE GEN PURP 100V 2A SMA	ON Semiconductor	MURA110T3G	MURA110T3GOSTR-ND / CRH01QTR-ND		
25	1	D2	SS34-E3	DIODE SCHOTTKY 40V 3A DO214AB	Vishay Semiconductor Diodes Division	SS34-E3/57T	SS34-E3/57TGICT-ND		
26	1	F1	Fuse	POLYSWITCH RGE SERIES 3.0A HOLD	TE Connectivity Raychem Circuit Protection	RGEF300	RGEF300-ND		
27	1	H1	Hdr 1x10	Std MALE 0.1" SIL headers	Standard	Standard	Std MALE 0.1" SIL headers		
28	1	H2	Hdr 1x10	Std MALE 0.1" SIL headers	Standard	Standard	Std MALE 0.1" SIL headers		
29	1	H3	Hdr 1x10	Std MALE 0.1" SIL headers	Standard	Standard	Std MALE 0.1" SIL headers		
30	1	H4	Hdr 1x10	Std MALE 0.1" SIL headers	Standard	Standard	Std MALE 0.1" SIL headers		
31	1	H5	HDR-1x3	Std MALE 0.1" SIL headers	Standard	Standard	Std MALE 0.1" SIL headers		
32	1	J1	HDR-1x3	Std MALE 0.1" SIL headers	Standard	Standard	Std MALE 0.1" SIL headers		
33	1	J2	JMP-1	Std MALE 0.1" SIL headers	Standard	Standard	Std MALE 0.1" SIL headers		
34	1	JP1	9V in	TERM BLOCK 5.08MM VERT 2POS PCB	On Shore Technology Inc.	OSTTA024163	ED2580-ND		
35	1	L1	4.8 uH	FIXED IND 4.8UH 11A 10.5 MOHM	Würth Electronics Inc	7443550480	732-1119-1-ND / 732-1119-2-ND / 732-1119-1-ND		
36	1	LD1	LED GREEN 0805 Diffused	Standard	Standard	Standard			
37	1	LD2	LED GREEN 0805 Diffused	Standard	Standard	Standard			
38	1	LD3	LED GREEN 0805 Diffused	Standard	Standard	Standard			
39	1	N1	CSD87588N	MOSFET 2N-CH 30V 25A SPTAB	Texas Instruments	CSD87588N	296-35792-2-ND		
40	1	PR1	7R5	RES 7.5 OHM 20W 1% TO220	Bourns Inc.	PWR220T-20-7R50F	PWR220T-20-7R50F-ND		
41	1	PR2	2R	RES 2 OHM 35W 1% TO220	Riedon	PF2203-2RF1	PF2203-2.000-ND		
42	1	Q1	IRFZ14PBF	MOSFET N-CH 60V 10A TO-220AB	Vishay Siliconix	IRFZ14PBF	IRFZ14PBF-ND		
43	1	R1	1K	RES SMD 1K OHM 1% 1/8W 0805	Rohm Semiconductor	MCR10EZPF1001	RHM1.00KCRCT-ND		
44	1	R2	330R	Standard	Standard	Standard			
45	1	R3	1K5	Standard	Standard	Standard			
46	1	R4	OR03	RES SMD 0.03 OHM 1% 1W 2010	Vishay Dale	WSL2010R0300FEA18	WSLF-.03DKR-ND		
47	1	R5	680R	Standard 1%	Standard 1%	Standard 1%	Standard 1%		
48	1	R6	330R	Standard 1%	Standard 1%	Standard 1%	Standard 1%		
49	1	R7	680R	Standard 1%	Standard 1%	Standard 1%	Standard 1%		
50	1	R8	82R	Standard 1%	Standard 1%	Standard 1%	Standard 1%		
51	1	R9	82R	Standard 1%	Standard 1%	Standard 1%	Standard 1%		
52	1	R10	1K2	Standard 1%	Standard 1%	Standard 1%	Standard 1%		
53	1	R11	1K2	Standard 1%	Standard 1%	Standard 1%	Standard 1%		
54	1	R12	Standard	Standard	Standard	Standard	Standard		
55	1	R13	10K	Standard	Standard	Standard	Standard		
56	1	R14	OR	RES SMD 0.0 OHM JUMPER 1/8W 0805	Rohm Semiconductor	MCR10EZPJ000	RHMO.0ARCT-ND		
57	1	R15	OR	RES SMD 0.0 OHM JUMPER 1/8W 0805	Rohm Semiconductor	MCR10EZPJ000	RHMO.0ARCT-ND		
58	1	R16	10K	Standard	Standard	Standard	Standard		
59	1	R17	10K	Standard	Standard	Standard	Standard		
60	1	R18	4R7	RES SMD 4.7 OHM 1% 0.4W 0805	Rohm Semiconductor	ESR10EZPFAR70	RHM4.70AECT-ND		
61	1	R19	4R7	RES SMD 4.7 OHM 1% 0.4W 0805	Rohm Semiconductor	ESR10EZPFAR70	RHM4.70AECT-ND		
62	1	R20	1K	Standard	Standard	Standard	Standard		
63	1	R21	150R	Standard	Standard	Standard	Standard		

Item	Qty	Reference	Value	Part Description	Manufacturer	Manufacturer Part Number	Alternate Part	PCB Footprint	Note
64	1	R22	1K	Standard	Standard	Standard			
65	1	R23	1K	Standard	Standard	Standard			
66	1	R24	10K	Standard	Standard	Standard			
67	1	R25	10K	Standard	Standard	Standard			
68	1	R26	1K5	Standard	Standard	Standard			
69	1	R27	1K5	Standard	Standard	Standard			
70	1	R28	10R	Standard	Standard	Standard			
71	1	R29	10R	Standard	Standard	Standard			
72	1	SW1	SPDT	SWITCH TOGGLE SPDT 3A 120V	E-Switch	200AWMSP1T1A1M2QE	200AWMSP1T1A1M2QE-ND/108-2AS1T3233-EVX (Msr)		
73	1	U1	LM5109B	IC DVR HALF-BRIDGE 90V 1A 8-SOIC	Texas Instruments	LM5109BMAX/NOPB	LM5109BMAX/NOPBTR-ND		
74	1	U2	OPA353	IC OPAMP GP 44MHZ RRO SOT23-5	Texas Instruments	OPA353NA/250	OPA353NATR-ND		
75	1	U3	UCC27424	IC MOSFET DRVR DUAL HS 4A 8SOIC	Texas Instruments	UCC27424DR	296-15867-5		
76	1	HS1	HEATSINK TO-220 VERT MT BLK 2	HEATSINK TO-220 VRT MT BLK 1.5"	Wakefield-Vette	637-15ABPE	345-1112-ND		
77	1	HS2	HEATSINK TO-220 VERT MT BLK 2	HEATSINK TO-220 VRT MT BLK 1.5"	Wakefield-Vette	637-15ABPE	345-1112-ND		
78	1	HS assembly	Thermal Interface Products THERMASIL INSULATOR	Thermal Interface Products THERMASIL INSULATOR	Aavid Thermalloy	53-77-4G	532-53-77-4G		Goes between MOSFET/Resistor and Heatsink
79	1	HS assembly	Mounting Hardware SHOULDER WASHER	WASHER SHOULDER #4 POLY SULFIDE	Bivar Inc.	SW-032-135	749-SW-032-135		Goes between MOSFET/Resistor and Screw/Nut
80	1	HS assembly	Heatsink Spacers; Washer Flat #4, 0.12" .275" Nylon	WASHER FLAT #4 NYLON	Keystone Electronics	3118	3118K-ND		Goes between PCB and Heatsink
81	1	HS assembly	SCREW PHILLIPS PAN R4-40X3/8	MACHINE SCREW PAN PHILLIPS 4-40	APM Hexseal	R4-40X3/8 2701	335-1084-ND		MOSFET/Resistor and heatsink mounting
82	1	HS assembly	NUT HEX 4-40 STAINLESS STEEL	HEX NUT 1/4" STN STEEL 4-40	B&F Fastener Supply	HNSS440	H724-ND		MOSFET/Resistor and heatsink mounting
82	1		Rubber Feet	Standard	Standard	Standard	BUMPON HEMISPHERE .44X.20 CLEAR		

IMPORTANT NOTICE FOR TI REFERENCE DESIGNS

Texas Instruments Incorporated ("TI") reference designs are solely intended to assist designers ("Buyers") who are developing systems that incorporate TI semiconductor products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products.

TI reference designs have been created using standard laboratory conditions and engineering practices. **TI has not conducted any testing other than that specifically described in the published documentation for a particular reference design.** TI may make corrections, enhancements, improvements and other changes to its reference designs.

Buyers are authorized to use TI reference designs with the TI component(s) identified in each particular reference design and to modify the reference design in the development of their end products. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER TI INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN, including but not limited to any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services, or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

TI REFERENCE DESIGNS ARE PROVIDED "AS IS". TI MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE REFERENCE DESIGNS OR USE OF THE REFERENCE DESIGNS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. TI DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO TI REFERENCE DESIGNS OR USE THEREOF. TI SHALL NOT BE LIABLE FOR AND SHALL NOT DEFEND OR INDEMNIFY BUYERS AGAINST ANY THIRD PARTY INFRINGEMENT CLAIM THAT RELATES TO OR IS BASED ON A COMBINATION OF COMPONENTS PROVIDED IN A TI REFERENCE DESIGN. IN NO EVENT SHALL TI BE LIABLE FOR ANY ACTUAL, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES, HOWEVER CAUSED, ON ANY THEORY OF LIABILITY AND WHETHER OR NOT TI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, ARISING IN ANY WAY OUT OF TI REFERENCE DESIGNS OR BUYER'S USE OF TI REFERENCE DESIGNS.

TI reserves the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques for TI components are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

Reproduction of significant portions of TI information in TI data books, data sheets or reference designs is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards that anticipate dangerous failures, monitor failures and their consequences, lessen the likelihood of dangerous failures and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in Buyer's safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed an agreement specifically governing such use.

Only those TI components that TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components that have **not** been so designated is solely at Buyer's risk, and Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.