

Bill of materials
Table 1. STDES-A2F20M65W3 power board

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
1	4	C1, C5, C6, C10	27uF	CAP FOIL RBOX 27uF 1.3kV PP 5%	KEMET	C4AQBW5270A3NJ
2	6	C2, C7, C8, C11, C22, C27	160nF	CAP CER 160nF 1.5kV 2220 X7R 10%	KEMET	C2220C164KFRLCAUTO
3	4	C3, C4, C9, C12	NA	CAP CER 0603 50V		
4	9	J1, J2, J3, J4, J5, J7, J8, J9, J10	Connector	CONN WP-THRBU, M4, 8p, 10x10mm	Würth Elektronik	74650094R
5	2	P1, P2	MMCX connector	CONN MMCX SMD Female	Amphenol	908-NM22109
6	1	P4	Header 2x2	WE Pin Header WR-MM	Würth Elektronik	690357280476
7	4	R1, R4, R6, R8	NA	RES 0603 100mW 1%		
8	4	R2, R5, R7, R18	10k	RES 0805 10k 250mW 1%		
9	2	R3, R9	SC	SSDN-414 Coaxial Current Viewing Resistor	Billmann Engineering	
10	2	R10, R22	SC	RES 5W 1% FCSL110R		
11	4	R12, R13, R14, R15	18k	RES 2817 18k 4W 1%	TE Connectivity	35408K2FT
12	8	TP2, TP3, TP4, TP5, TP11, TP12, TP13, TP14	Testpoint	TP THR 1mm	Keystone Electronics	5001
13	2	TP8, TP10	Testpoint	2-pin, 5.08mm header	SAMTEC	TSW-202-24-T-S
14	1	U2	A2F20M65W3-FC	ACEPACK2 Full bridge, 650V, 20mOhm, SiC MOSFET Gen3 with NTC and DC link capacitor power module	ST	A2F20M65W3-FC
15	4	U4, U5, U6, U7	Gate driver module	Single channel gate driver module based on STGAP3		

Table 2. STDES-A2F20M65W3 driver module

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
1	2	C1, C8	330p	CAP CER 330p 50V 0603 C0G 10%		
2	4	C2, C5, C6, C7	100n	CAP CER 100nF 35V 0603 X7R 10%		
3	1	C3	330n	CAP CER 330nF 50V 0805 X7R 10%		
4	1	C4	100n	CAP CER 100nF 50V 0805 X7R 10%		
5	2	C9, C10	4u7	CAP CER 1uF 50V 0805 X7R 10%		
6	1	C15	SC	CAP CER 100nF 35V 0603 X7R 10%		
7	1	D1	NA	Zener diode		
8	1	D2	Desat	LED 0603 RED 2mA		
9	1	D3	OK	LED 0603 GREEN 2mA		
10	1	D4	Ready	LED 0603 BLUE 2mA		
11	1	D5	Schottky diode	STPS1L40ZF, SOD123Flat	ST	STPS1L40ZF

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
12	2	FM1, FM2	Fiducidal Mark	Fiducidal Mark		
13	1	J1	Header 1pin	CONN HDR 1pin 1row		
14	1	J2	Header 2x2pin	CONN HDR 2.54mm 4pin 2row	Würth Elektronik	61300421121
15	1	P1	Control	Castellated connector 3pin		
16	1	P2	Power	Castellated connector 2pin		
17	1	P3	DC/DC Prim.	CON SOCK 2.54mm 4pin 1row	Würth Elektronik	61300411121
18	1	P4	Output	Castellated connector 3pin		
19	1	P5	DC/DC Sec.	CON SOCK 2.54mm 3pin 1row	Würth Elektronik	61300311121
20	2	Q1, Q2	BSS138	N-MOS SOT23_6		
21	1	Q3	STL8N6F7	N-MOS PowerFLAT 3.3x3.3	ST	STL8N6F7
22	2	R1, R2	270R	RES 270R 0603 100mW 1%		
23	3	R3, R7, R8	NA	RES 0603 100mW 1%		
24	1	R4	0R	RES 0R 0805 125mW		
25	1	R5	4R7	RES 10R 1210 500mW 1%		
26	1	R6	1R3	RES 10R 1210 500mW 1%		
27	1	R9	3k3	RES 3k3 0603 100mW 1%		
28	1	R10	1k5	RES 1k5 0603 100mW 1%		
29	1	R11	6k8	RES 6k8 0603 100mW 1%		
30	1	R15	270R	RES 270R 0603 100mW 1%		
31	1	U1	STGAP3SXS	Galvanically isolated gate driver for SiC MOSFETs with 10 A Source/Sink current, SO-16W	ST	STGAP3SXS
32	1	U4	L78L33	General-purpose 3-pin LDO with exposed pad, SOT-89	ST	L78L33ABUTR

Table 3. STDES-A2F20M60W3 fly-buck module

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
1	2	C1, C6	CAP CER 0805 1uF 50V X7R 10%	Ceramic capacitor		
2	2	C2, C8	CAP CER 270p 0603 50V C0G 10%	Ceramic capacitor		
3	2	C3, C10	CAP CER 0805 2.2uF 50V X7R 10%	Ceramic capacitor		
4	2	C4, C9	CAP CER 10uF 35V 1206 X7R 10%	Ceramic capacitor		
5	1	C5	CAP CER 100nF 50V 1206 X7R 10%	Ceramic capacitor		
6	1	C7	CAP CER 680pF 50V 0603 C0G 10%	Ceramic capacitor		
7	1	C11	CAP CER 470nF 50V 0603 X7R 10%	Ceramic capacitor		
8	1	C12	CAP CER 68nF 50V 0603 X7R 10%	Ceramic capacitor		
9	1	C13	CAP CER 10pF 50V 0603 C0G 10%	Ceramic capacitor		
10	2	D1, D2	STPS1H100MF	Schottky, STmiteFLAT	ST	STPS1H100MF
11	1	P1	CON SOCK 2.54mm 4pin 1row	Header Receptacle 4 pins 1 row		
12	1	P2	CON SOCK 2.54mm 3pin 1row	Header Receptacle 3 pins 1 row		
13	2	Q1, Q2	BC817-40	NPN Transistor		
14	1	R1	RES 910R 0805 125mW 1%	Resistor		
15	1	R2	RES 15k 0603 100mW 1%	Resistor		
16	1	R3	RES 2.4k 0805 125mW 1%	Resistor		

Item	Q.ty	Ref.	Part/value	Description	Manufacturer	Order code
17	1	R4	RES 1.2k 0805 125mW 1%	Resistor		
18	1	R5	RES 120k 0603 100mW 1%	Resistor		
19	1	R6	RES 2k4 0603 100mW 1%	Resistor		
20	1	R7	RES 6.8k 0603 100mW 1%	Resistor		
21	1	R8	RES 56k 0603 100mW 1%	Resistor		
22	1	R9	RES 12k 0603 100mW 1%	Resistor		
23	1	TR1	WE-AGDT Gate Drive Transformer	Transformer	Würth Elektronik	750317894
24	2	U1, U2	TL431	Shunt voltage reference, SOT23	ST	TL431ACL3T
25	1	U3	L6986I	38 V, 5 W synchronous iso-buck controller, HTSSOP16	ST	L6986ITR

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