Master kartımız

Mikrodenetleyici atmel 328p

CanBus   3.3V   k

Sıcaklık Ölçümü   SPI Hattı

12V-5V converter
                                      12V Girişi
5V-3.3V converter

Acil Durum Korumaları

Akım Bilgisi   Ters Gerilim Koruması

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1. Slave katımız

LTC6802-2
                                   3.3V Girişi
Adum14111 Dijital izalatör SPI Hattı

Gerilim okuma

Dengeleme
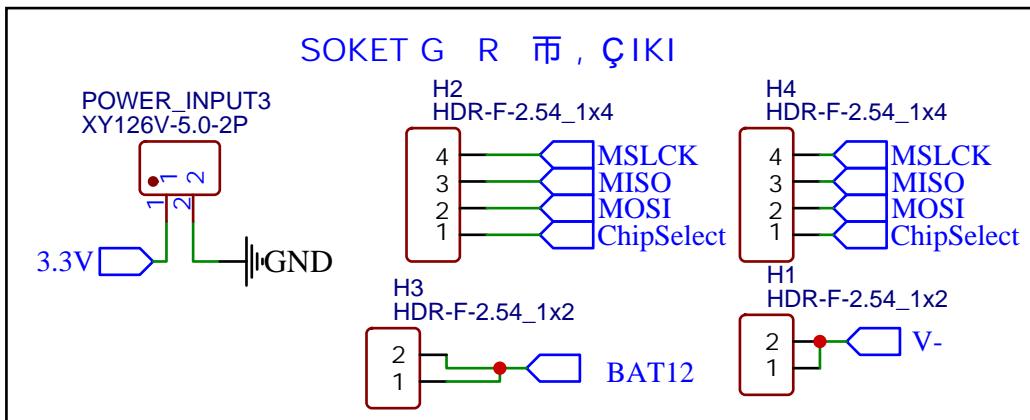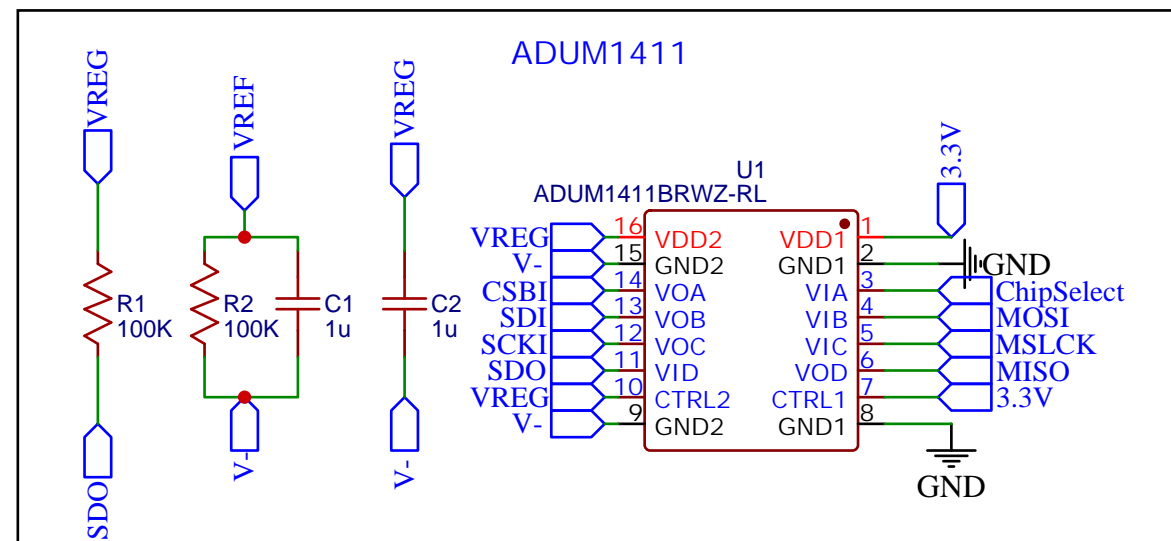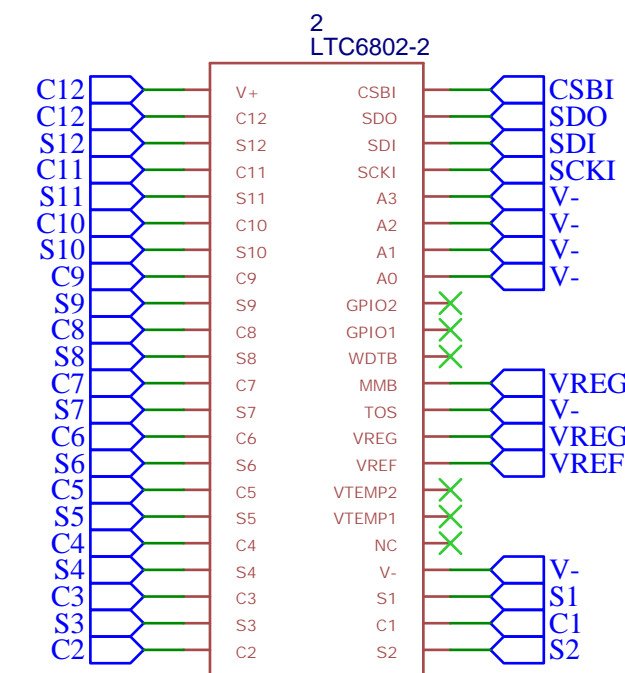
GND-12S batarya Hücresi girişi

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2. Slave katımız

LTC6802-2
                                   3.3V Girişi
Adum14111 Dijital izalatör SPI Hattı
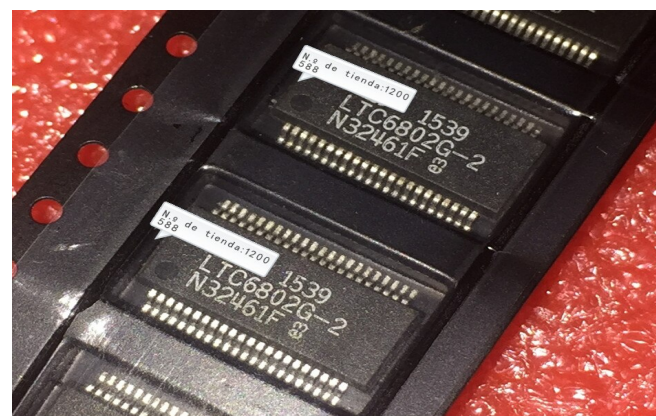
Gerilim okuma

Dengeleme

12S-24S batarya Hücresi girişi

2
LTC6802-2

Left pins: C12, C12, S12, S12, C11, S11, C10, S10, C9, C8, S8, C7, S7, C6, S6, C5, S5, C4, S4, C3, S3, C2

IC pins left: V+, C12, S12, C11, S11, C10, S10, C9, S9, C8, S8, C7, S7, C6, S6, C5, S5, C4, S4, C3, S3, C2

IC pins right: CSBI, SDO, SDI, SCKI, A3, A2, A1, A0, GPIO2, GPIO1, WDTB, MMB, TOS, VREG, VREF, VTEMP2, VTEMP1, NC, V−, S1, C1, S2

Right labels: CSBI, SDO, SDI, SCKI, V−, V−, V−, V−, VREG, V−, VREG, VREF, V−, S1, C1, S2

PIN CONFIGURATION

TOP VIEW

Pin	Name		Pin	Name
1	V+		44	CSBI
2	C12		43	SDO
3	S12		42	SDI
4	C11		41	SCKI
5	S11		40	A3
6	C10		39	A2
7	S10		38	A1
8	C9		37	A0
9	S9		36	GPIO2
10	C8		35	GPIO1
11	S8		34	WDTB
12	C7		33	MMB
13	S7		32	TOS
14	C6		31	V$_{REG}$
15	S6		30	V$_{REF}$
16	C5		29	V$_{TEMP2}$
17	S5		28	V$_{TEMP1}$
18	C4		27	NC
19	S4		26	V$^-$
20	C3		25	S1
21	S3		24	C1
22	C2		23	S2

G PACKAGE
44-LEAD PLASTIC SSOP
T$_{JMAX}$ = 150°C, θ$_{JA}$ = 70°C/W

ADUM1411

VREG, VREF, VREG (labels)

R1 100K
R2 100K
C1 1u
C2 1u
SDO
V−
V−

U1
ADUM1411BRWZ-RL

Left pins: VREG(16), V−(15), CSBI(14), SDI(13), SCKI(12), SDO(11), VREG(10), V−(9)
Labels left: VREG, V−, CSBI, SDI, SCKI, SDO, VREG, V−

Right pins: VDD1(1), GND1(2), VIA(3), VIB(4), VIC(5), VOD(6), CTRL1(7), GND1(8)
Red labels left: VDD2, GND2, VOA, VOB, VOC, VID, CTRL2, GND2
Red labels right: VDD1, GND1, VIA, VIB, VIC, VOD, CTRL1, GND1

3.3V
GND
ChipSelect
MOSI
MSLCK
MISO
3.3V
GND

SOKET GİRİŞ, ÇIKIŞI

POWER_INPUT3
XY126V-5.0-2P
3.3V
GND

H2 HDR-F-2.54_1x4
4, 3, 2, 1 → MSLCK, MISO, MOSI, ChipSelect

H4 HDR-F-2.54_1x4
4, 3, 2, 1 → MSLCK, MISO, MOSI, ChipSelect

H3 HDR-F-2.54_1x2
2, 1 → BAT12

H1 HDR-F-2.54_1x2
2, 1 → V−

Btarya Girişi ve Dip Switch

SW3 DIP_SWITCH_8WAY_SMD
SW2 DIP_SWITCH_4WAY_SMD

X9555WR-2X13-6TV01
CN1

BAT12, BAT11, BAT10, BAT9, BAT8, BAT7, BAT6, BAT5
BAT4, BAT3, BAT2, BAT1
V−

TITLE: Sheet_2

REV: 1.0

Company: TürkMekatronikBMS V2

Sheet: 1/1

Date: 2024-06-18

Drawn By: TürkMekatronik
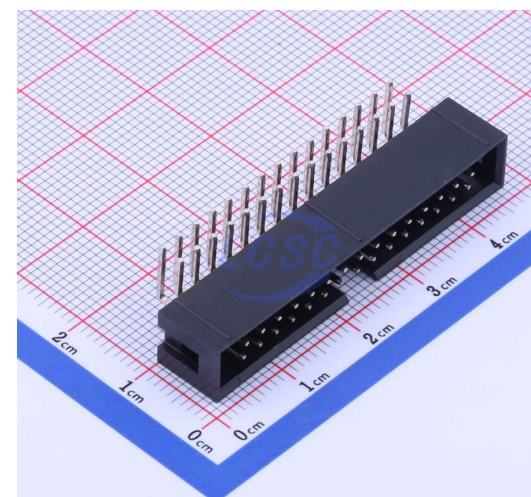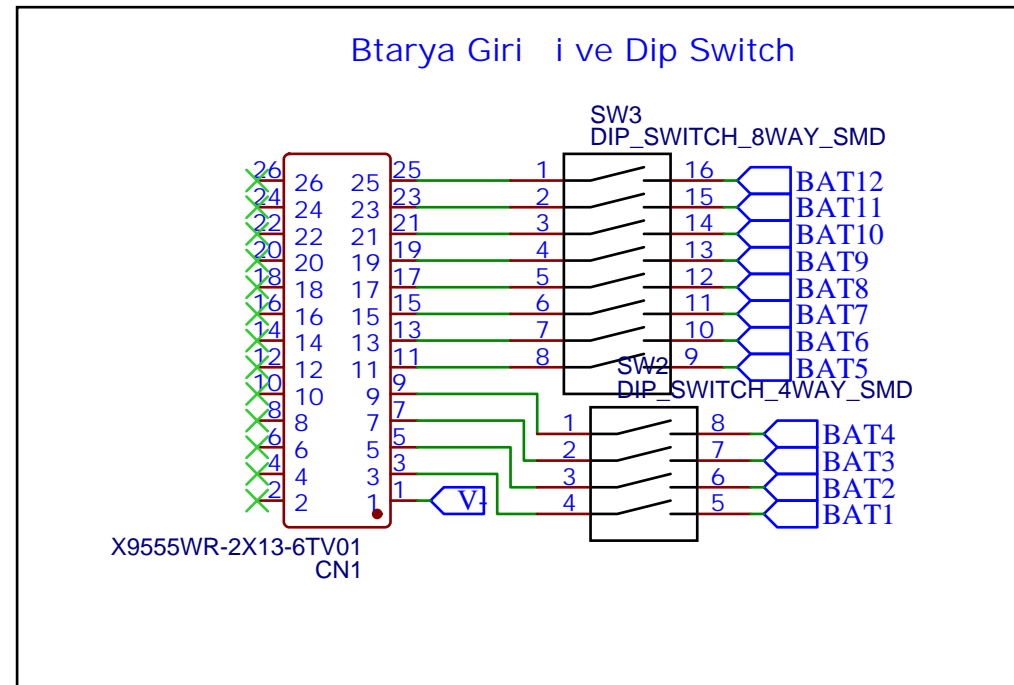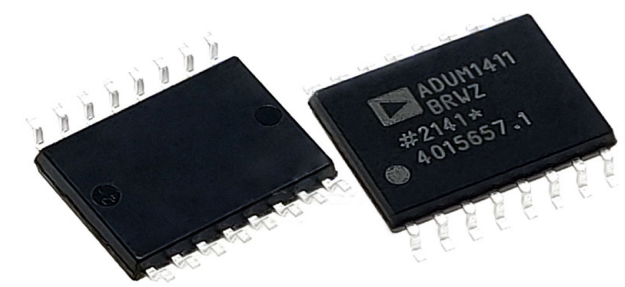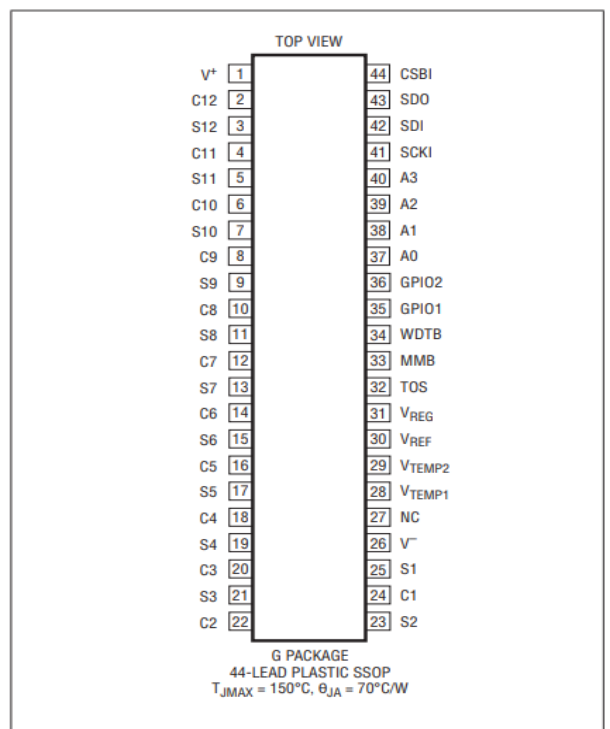
Dengeleme Modulleri 0-12S

Datasheet'den alınan dengeleme devreleri

Cell 5 Balance Module
- S5, R18 3.3k, Q5 SI2305_C4748718
- D10 BZX85B12V, R20 330, R19 15
- C5, D9 BZX55C6V2, R21 100, LED5
- C4, C7 100nF BAT5, BAT4
- V-

Cell 6 Balance Module
- S6, R25 3.3k, Q6 SI2305_C4748718
- D11 BZX85B12V, R23 330, R24 15
- C6, D12 BZX55C6V2, R22 100, LED6
- C5, C8 100nF BAT6, BAT5
- V-

Cell 4 Balance Module
- S4, R14 3.3k, Q3 SI2305_C4748718
- D8 BZX85B12V, R16 330, R15 15
- C4, D7 BZX55C6V2, R17 100, LED4
- C3, C6 100nF BAT4, BAT3
- V-

Cell 7 Balance Module
- S7, R26 3.3k, Q7 SI2305_C4748718
- D14 BZX85B12V, R28 330, R27 15
- C7, D13 BZX55C6V2, R29 100, LED7
- C6, C9 100nF BAT7, BAT6
- V-

Cell 3 Balance Module
- S3, R9 3.3k, Q2 SI2305_C4748718
- D6 BZX85B12V, R12 330, R11 15
- C3, D5 BZX55C6V2, R13 100, LED3
- C2, C5 100nF BAT3, BAT2
- V-

Cell 8 Balance Module
- S8, R33 3.3k, Q8 SI2305_C4748718
- D15 BZX85B12V, R31 330, R32 15
- C8, D16 BZX55C6V2, R30 100, LED8
- C7, C10 100nF BAT8, BAT7
- V-

Cell 2 Balance Module
- S2, R8 3.3k, Q1
- D3 BZX85B12V, R6 330, R7 100
- C2, D4 BZX55C6V2, R5 100, LED2
- C1, C4 100nF BAT2, BAT1
- V-

Cell 9 Balance Module
- S9, R34 3.3k, Q9
- D18 BZX85B12V, R36 330, R35 100
- C9, D17 BZX55C6V2, R37 100, LED9
- C8, C11 100nF BAT9, BAT8
- V-

Cell 12 Balance Module
- S12, R46 3.3k, Q12
- D24 BZX85B12V, R48 330, R47 100
- C12, D23 BZX55C6V2, R50 100, LED12
- C11, C14 100nF BAT12, BAT11
- V-

Cell 1 Balance Module
- S1, R4 3.3k, Q4
- D2 BZX85B12V, R10 330, R3 100
- C1, D1 BZX55C6V2, C3 100nF, R49 100, LED1
- BAT1
- V-

Cell 10 Balance Module
- S10, R41 3.3k, Q10
- D19 BZX85B12V, R39 330, R40 100
- C10, D20 BZX55C6V2, R38 100, LED10
- C9, C12 100nF BAT10, BAT9
- V-

Cell 11 Balance Module
- S11, R42 3.3k, Q11
- D22 BZX85B12V, R44 330, R43 100
- C11, D21 BZX55C6V2, R45 100, LED11
- C10, C13 100nF BAT11, BAT10
- V-

Figure 10. Adding RC Filtering to the Cell Inputs (One Cell Connection Shown)
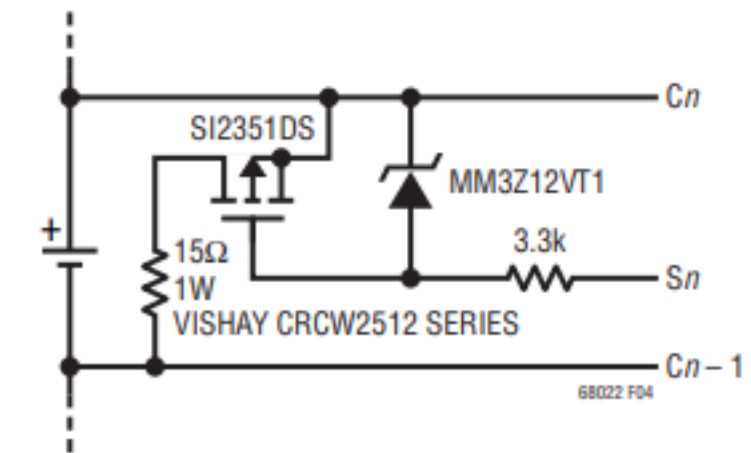
100Ω, 100nF, 6.2V, 100Ω, 100nF, Cn, Sn, Cn−1, 68021 F10

Figure 4. External Discharge FET Connection (One Cell Shown)

SI2351DS, MM3Z12VT1, 15Ω 1W, 3.3k, VISHAY CRCW2512 SERIES, Cn, Sn, Cn−1, 68022 F04