117.6V Max
100.8V Nominal
70V Min

HV

GLV

HV+
J1
Conn_01x02
HV IN
Mini-Fit_Jr_02A
HV−

K1
SDC_IN
NO
COIL2
COM
COIL1
Precharge
D1
1N5819

R20
10K
PreCh_Int
R25
33K
R26
22K
GLV−
Q2
2N7002
R21
100K
GLV−
PreCh_Complt

C1
0.1 uF
R5
15K
R7
1.5K
HV−
TP3
TestPoint
R1
270K
TP1
TestPoint
97.4% V_Cap
U1A
LM393
R2
12K
Use 1% resistors
HV−
HV−
V_Cap > 97.5% V_Accu

R9
3.3K
R11
3.3K
R13
3.3K
3.3K
U2
4N35
SDC_IN
R15
6.8K
Precharge
HV−
R16
4.7K
GLV−
1W resistors

HV+
R10
3.3K
R12
3.3K
R14
3.3K
3.3K
U3
4N35
SDC_IN
R27
1.8K
D5
P_C LED

R19
1.8K
D3
P_F LED

D4
1N5819
Timed safety shutdown
2.42s
SDC_IN
10K
R23
U4
NE555D
SDC_IN
R24
220K
C4
10uF
R22
1M
C2
0.1uF
C3
0.01uF
C5
0.1uF
SDC_IN
GLV−

Precharge Resistor
25W
R8
120

D2
1N5819
SDC_IN
AIR1_Con
TP5
TestPoint P_C
K2
G5V−2
R17
10
Q1
2N7002
R18
100K
GLV−
PreCh_Complt
AIR1_Int

AIR1_Con is the "negative" lead of the AIR.
12V when SDC is present.
Short to GND to activate AIR.

TP2
TestPoint
V_Cap
R6
270K
R3
12K
R4
330
HV−
J2
Conn_01x02
TS+
DC LINK CAPACITOR
TS−

Mounting Holes

H1
MountingHole
H2
MountingHole

LV Supply and Signals

INPUT
SDC_IN
AIR1_Con
AIR1
J4
AIR2
GLV−
GLV−
Molex MicroFit

To TSAL
J3
Conn_02x03_Counter_Clockwise
AIR1_Int
AIR1
GLV−
Precharge
PreCh_Int
AIR2

Mounting Holes

H3
MountingHole
H4
MountingHole

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Formula Barton Racing

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File: Precharge.kicad_sch

Title: Precharge Circuit

Size: A3 | Date: 2024-09-20 | **Rev: 1.4**
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