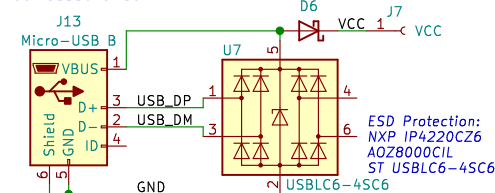


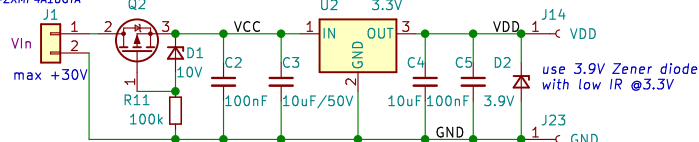
Socket Micro-USB B:
Amphenol 10103594-0001LF
Molex 105017-0001
GCT USB3076-30-A



High-voltage (>30V) SOT-223-3 LDO:
-MIC5239-3.3YS
-MIC5233-3.3YS (36V)
-LT1129CST-3.3
-LT1121CST-3.3
-SPX2954M3-1-3-3
-NCV4274AST33T3G (40V)
-NCV4264-2CST33T3G (45V)
-MCP1790-3302E
-MCP1799-3302H (45V)
U2 3.3V

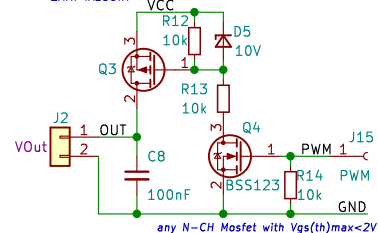
reverse current protection

any P-CH SOT-223-3 Mosfet with $V_{gs(th)max} < 2V$,
 $V_{ds} > 30V$, $I_d > 5A$, low $R_{ds(on)}$
-ZXMP4A16GTA



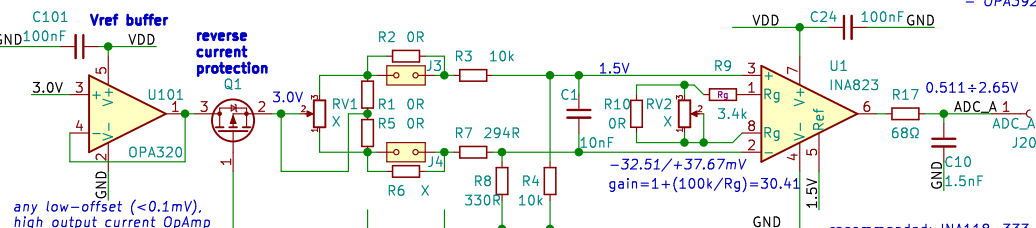
fixed terminal blocks:
CUI TB002-500-02BE
TE 1776244-2, 1776266-2, 1776504-2, 1776269-2
Degson DG301-5.0

any P-CH SOT-223-3 Mosfet with $V_{gs(th)max} < 2V$,
 $V_{ds} > 30V$, $I_d > 5A$, low $R_{ds(on)}$
-ZXMP4A16GTA



Vref buffer

reverse current protection



any low-offset (<0.1mV),
high output current OpAmp

any P-CH Mosfet with $V_{gs(th)max} < 2V$, low $R_{ds(on)}$
-PMV100EPAR
-NXV90EPR
-Si2343CDS-T1-GE3
-Si2307CDS-T1-E3
-CPH3351-TL-W

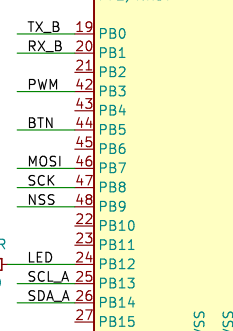
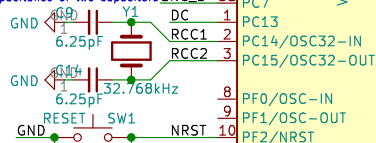
22-53Q (21-450°C)

for WSP80 use socket Amphenol T 3437 000

alternative, pin-compatible MPUs, min 64k flash, 44-10:

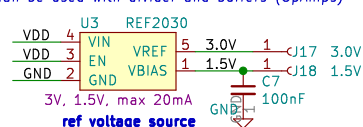
STM32G031C8T×/Ux
STM32G041C8T×/Ux
STM32G051C8T×/Ux
STM32G061C8T×/Ux
STM32G071C8T×/Ux
STM32G071C8T×/Ux (128k)
STM32G081C8T×/Ux (128k)
STM32G081C8T×/Ux (128k)
STM32G081C8T×/Ux (128k)
STM32G081CCT×/Ux (256k)
STM32G081CET×/Ux (512k)

Note: the required crystal capacitance
is combined capacitance of two capacitors



Package_DFN_QFN:QFN-48-1EP_7x7mm_P0.5mm_EP5.6x5.6mm
Package_QFP:LQFP-48-7x7mm_P0.5mm

Instead of REF2030 internal MPU 2.5V VREFBUF
can be used with divider and buffers (OpAmps)

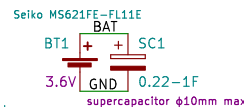


ref voltage source

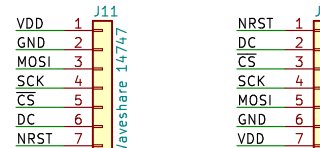
low-offset (<0.1mV) OpAmp with low output swing headroom to negative supply (<10mV):

- OPA387 (SOT23-5, VSSOP-8 double, TSOP-14 quad)
- OPA378 (SOT23-5, SC70-5, SOT23-8 double)
- OPA391, 396 (SC70-5 only)
- OPA320
- OPA392 (SOT23-5, SC70-5, higher swing headroom to negative supply (-20mV))

recommended: INA118, 333, *823* (best option)
optional: INA122, 126 (two op-amp architecture,
limited common-mode voltage range)

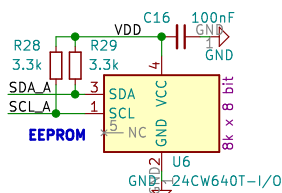


13992 - mono 128x128 1.5"
same dimensions as 14747 but 8-pin :/
13892 - 1.8" color LCD



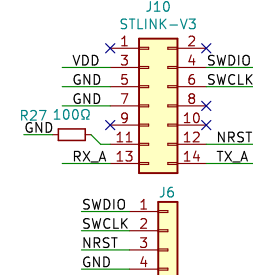
<https://www.waveshare.com>
SKU: 14747*

<https://www.waveshare.com>
SKU: 18179*



Note: 24Cxx EEPROM comes with
preconfigured lower 3 bit address,
'0' in p/n indicates address 1010_000X (0xA0)

for Segger J-Link mini
use pins 3-12



SWDIO 1 J6

SWCLK 2

NRST 3

GND 4

VDD 5

DC 6

CS 7

SCK 8

MOSI 9

NRST 10

GND 11

VDD 12

DC 13

CS 14

SCK 15

MOSI 16

NRST 17

GND 18

VDD 19

DC 20

CS 21

SCK 22

MOSI 23

NRST 24

GND 25

VDD 26

DC 27

CS 28

SCK 29

MOSI 30

NRST 31

GND 32

VDD 33

DC 34

CS 35

SCK 36

MOSI 37

NRST 38

GND 39

VDD 40

DC 41

CS 42

SCK 43

MOSI 44

NRST 45

GND 46

VDD 47

DC 48

CS 49

SCK 50

MOSI 51

NRST 52

GND 53

VDD 54

DC 55

CS 56

SCK 57

MOSI 58

NRST 59

GND 60

VDD 61

DC 62

CS 63

SCK 64

MOSI 65

NRST 66

GND 67

VDD 68

DC 69

CS 70

SCK 71

MOSI 72

NRST 73

GND 74

VDD 75

DC 76

CS 77

SCK 78

MOSI 79

NRST 80

GND 81

VDD 82

DC 83

CS 84

SCK 85

MOSI 86

NRST 87

GND 88

VDD 89

DC 90

CS 91

SCK 92

MOSI 93

NRST 94

GND 95

VDD 96

DC 97

CS 98

SCK 99

MOSI 100

NRST 101

GND 102

VDD 103

DC 104

CS 105

SCK 106

MOSI 107

NRST 108

GND 109

VDD 110

DC 111

CS 112

SCK 113

MOSI 114

NRST 115

GND 116

VDD 117

DC 118

CS 119

SCK 120

MOSI 121

NRST 122

GND 123

VDD 124

DC 125

CS 126

SCK 127

MOSI 128

NRST 129

GND 130

VDD 131

DC 132

CS 133

SCK 134

MOSI 135

NRST 136

GND 137

VDD 138

DC 139

CS 140

SCK 141

MOSI 142

NRST 143

GND 144

VDD 145

DC 146

CS 147

SCK 148

MOSI 149

NRST 150

GND 151

VDD 152

DC 153

CS 154

SCK 155

MOSI 156

NRST 157

GND 158

VDD 159

DC 160

CS 161

SCK 162

MOSI 163

NRST 164

GND 165

VDD 166

DC 167

CS 168

SCK 169

MOSI 170

NRST 171

GND 172

VDD 173

DC 174

CS 175

SCK 176

MOSI 177

NRST 178

GND 179

VDD 180

DC 181

CS 182

SCK 183

MOSI 184

NRST 185

GND 186

VDD 187

DC 188

CS 189

SCK 190

MOSI 191

NRST 192

GND 193

VDD 194

DC 195

CS 196

SCK 197

MOSI 198

NRST 199

GND 200

VDD 201

DC 202

CS 203

SCK 204

MOSI 205

NRST 206

GND 207

VDD 208

DC 209

CS 210

SCK 211

MOSI 212

NRST 213

GND 214