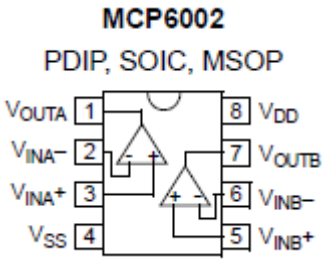
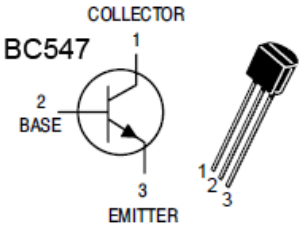
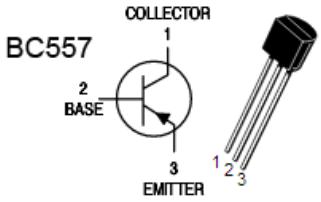
SLab F303 Zero Cheat Sheet v1.2

6/5/2019

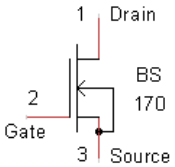


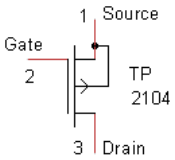




Resistor Color Codes

Color	Digit	Multiplier	Tol. (%)
Black	0	1	
Brown	1	10	1
Red	2	100	2
Orange	3	1000	
Yellow	4	10000	
Green	5	10^5	0.5
Blue	6	10^6	0.25
Violet	7	10^7	0.1
Grey	8	10^8	
White	9	10^9	
Gold		0.1	5
Silver		0.01	10
(none)			20





SLab Zero F303 Pinout

Left Male Connector		Row	Right Male Connector	
DIO10*	DIO11*	1	DIO9*	DIO8*
DIO12*		2		DIO6*
	E5V	3		DIO5
	GND	4		
		5		
		6	DAC2 Δ	
		7		
	3V3	8	ADC5	
	5V	9		ADC3
	GND	10	DIO7*	
		11		
		12		
		13		ADC8 ϕ
	ADC4 ϕ	14		ADC6
	ADC1	15		ADC7
	DAC1	16		
	ADC2	17		DIO4
DIO2	DIO1	18		
DIO3	DIO0	19		
CN7			CN10	

ϕ Ubuffered ADCs
* 5V Tolerant DIOs

Δ User LED

Main Module

import slab

System Commands
- help([topic])
- setVerbose(level)
- wait(time)
- pause(message)
- save(filename,data)
- load(filename)
- setFilePrefix([prefix])
- setCalPrefix([prefix])

Generic Plot Commands
- plot11(x,y [,title,xt,yt,ºlogx,ºlogy])
- plot1n(x,ylist [,title,xt,yt,labels ,location,ºlogx,ºlogy])
- plotnn(xlist,ylist [,title,xt,yt,labels ,location,ºlogx,ºlogy])
- plot3D(Xmesh,Ymesh,Zmesh [,title ,Xlabel,Ylabel,Zlabel])
- plotFunc3D(f,xrange,yrange [,title ,Xlabel,Ylabel,Zlabel,naxis ,clip,fpost])
- interactivePlots([ºvalue])

Vector Utility Commands
- interpolate(value,iv,ov,[ºextrapolate])
- highPeak(vector)
- lowPeak(vector)
- peak2peak(vector)
- halfRange(vector)
- mean(vector)
- rms(vector)
- std(vector)

Global Commands
- connect([portName])
- disconnect()
- softReset()
- printBoardInfo()
- setPlotReturnData([ºvalue])
- getVariable(name)

Basic DC Commands
- setVoltage(channel,value)
- readVoltage(ch1 [,ch2])
- rCurrent(rvalue,ch1 [,ch2])
- dcPrint()
- dcLive(n [,wt,ºsingle])

Ratiometric Commands
- writeDAC(channel,value)
- readADC(channel)

Global DC Commands
- setDCreadings(number)
- zero()

Sweep DC Commands
- dcSweep(ndac,v1,v2 [,vi,wt])
- dcSweepPlot(ndac,v1,v2 [,vi,na,wt,ºRD])
- realtimePlot([nadc,wt,n,ºRD])

Transient Commads
- setSampleTime(time)
- setTransientStorage(samples [,na])
  - *Alias* tranStore(samples [,na])
- transientAsync()
- transientTriggered(level [,mode ,timeout])
- stepResponse(v1,v2 [,tinit])

Transient Plot Commands
- tranAsyncPlot([ºRD])
- tranTriggeredPlot(level [,mode ,timeout,ºRD])
- stepPlot(v1,v2 [,tinit,ºRD])

Wave Commands
- waveSquare(v1,v2,np *)
- waveTriangle(v1,v2,np *)
- waveSawtooth(v1,v2,np *)
- waveSine(v1,v2,np *)
- waveCosine(v1,v2 *)
- wavePulse(v1,v2,np,n1 *)
- waveNoise(vm,vstd,n *)
- waveRandom(v1,v2,n *)
  - * : [,ºreturnList,ºsecond]
- loadWavetable(list [,ºsecond])
- loadDigitalWavetable(list,[mask])
- setWaveFrequency(freq)
- waveResponse([npre,tinit,ºdual])
- wavePlot([npre,tinit,ºdual,ºRD])
- singleWaveResponse([ch,npre,tinit])
- singleWavePlot([channel,npre,tinit,ºRD])
- wavePlay([n,tinit,ºdual])

Digital I/O Commands

dioMode(line [,mode])
modes: 'input','pullUp','pullDown'
,'output','openDrain'
dioWrite(line,ºvalue)
dioRead(line)
dioWriteAll(value)
dioReadAll()

Calibration Commands

setVdd(value [,ºpersistent])
setVref(value [,ºpersistent])
newCalibrate1([na])
newCalibrate2()
checkCalibration([ºpause,na,nm])

DC Module

import slab.dc as dc

Two terminal I-V plots

curveVI(v1,v2 [,vi,r,wt,ºRD])
curveVIref(v1,v2 [,vi,r,wt,ºRD])
curveVIbridge(v1m,v2m, [,vi,r,wt,ºRD])

Voltage I/O plots

curveVV(v1,v2 [,vi,wt,ºadc2,ºRD])
curveVVref(v1,v2 [,vi,wt,ºadc3,ºRD])
curveVVbridge(vp,vn [,vi,vmin,wt,ºRD])
hystVVcurve(v1,v2 [vi,wt,ºRD])

Current Output Transfer plots

transferCurveVI(v1,v2 [,vi,wt,ro,ºRD])
transferCurveII(v1,v2 [,vi,r1,r2,wt,ºRD])

Device curves

vDeviceCurve(vi1,vi2,vii,vo1,vo2
[,voi,ro,wt])
iDeviceCurve(vi1,vi2,vii,vo1,vo2
[,voi,ri,ro,wt])

AC Module

import slab.ac as ac

Frequency Response Commands

sineGain(v1,v2,freq [,channel,
npre,maxfs])
sineGainAll(v1,v2,freq [,npre,maxfs])
freqResponse(v1,v2,fvector [,channel
,npre,maxfs])
freqResponseAll(v1,v2,fvector
[,npre,maxfs])

Frequency Plot Commands

plotBode(fvector,gvector
[,labels,ºlinear])
bodeResponse(v1,v2,fmin,fmax [,ppd,
channel,npre,maxfs,ºRD])

Utility Functions

logRange(start [,end,ndec,ppd])
f2w(value)
w2f(value)
dB(value)
magPhase(value)
mag(value)
phase(value)

Meas Module

import slab.meas as meas

Time Analysis Commands

period(vector [,time,ts,mode])
tcross(vector,value [,mode,time,ts])

Global Analysis Commands

analyze(data)

FFT Module

import slab.fft as fft

ftransform(signal [,time,ts])
distortion(v1,v2,freq [,ºshow])

Legend:

[ ] : Optional parameters
º : Digital value (True or False)
ºRD : ºreturnData