

Sin Function Test

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Clear Workspace

```
close all; clearvars; clc;
```

Vars

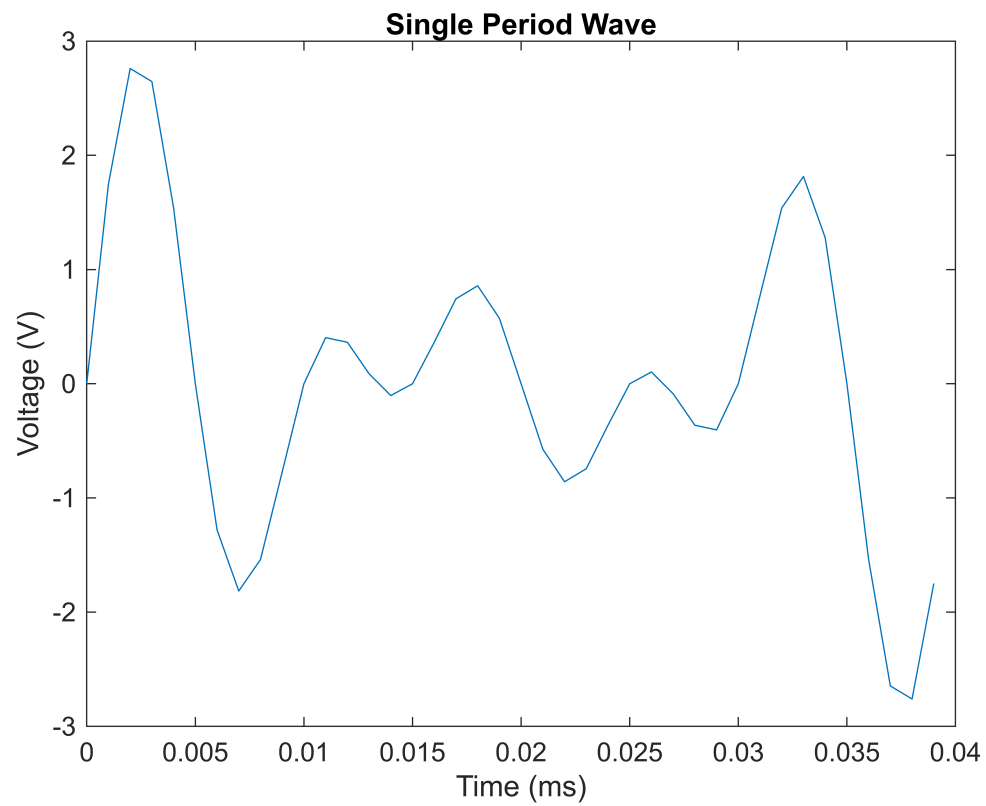
```
bufferForPreLoad = 500e3; % sets the length of buffer for preloading
sample_HZ = 1e6; % frequency HZ
timeStep = 1/sample_HZ; % period of the sampling frequency
A = 1; % amplitude p-pk V
f1 = 75e3; % lowest frequency component Hz
T1 = 1/f1; % lowest period 1/s
f2 = 100e3; % mid frequency component Hz
f3 = 125e3; % highest frequency component Hz
periods = 1/eval(gcd(sym([f1 f2 f3]))); % calculates the length of the period for a
periodic
t = (0:timeStep:periods-timeStep)'; % calculates the time vector from the period
```

Wave Gen Function

```
y = A*sin(2*pi*f1*t) + A*sin(2*pi*f2*t) + A*sin(2*pi*f3*t); % calculates the signal
along the time vector
numCycles = ceil(bufferForPreLoad/(periods/timeStep)); % calculate the number of
cycles to make a full buffer for preloading
sine = repmat(y, numCycles, 1); % extends the data vector to match or exceed the
buffer length
```

Plot Waves

```
figure
plot(t*1e3, y)
ylabel('Voltage (V)')
xlabel('Time (ms)')
title('Single Period Wave')
```



```
t1 = (0:timeStep:periods*2-timeStep)';  
points = int32((periods/timeStep)*2);  
figure  
plot(t1*1e3, sine(1:points))  
ylabel('Voltage (V)')  
xlabel('Time (ms)')  
title('Multi-Period Wave')
```

