



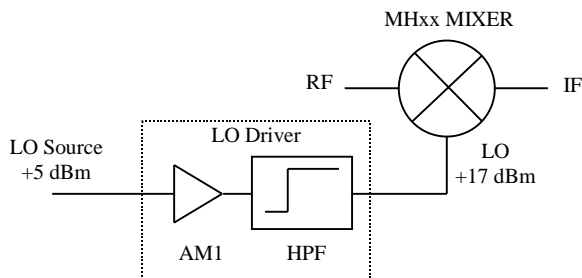
## LO Driver for MH1, MH101, & MH102 Applications

### Summary:

Various times it may be difficult to apply a +17 dBm required LO signal to drive WJ Communications' MHxx series mixers. This application note offers a suggested LO driver circuit so that only +5 dBm of power is required from an external LO source to drive any of WJ's new MMIC mixers: the **MH1**, **MH101**, or **MH102**. (Two LO driver circuits can also be cascaded together if only -8 dBm is available from an LO source.)

The LO driver using WJ's **AM1** amplifier is suitable for any LO signal in the frequency band of 1450 - 2200 MHz. Only a single supply is needed to power the driver with 4.5 V @ 75 mA. In addition, an integrated high pass filter is suggested, but not required, in the application circuit to reject and limit IF noise that might be incident into the LO port of the mixer. The filter provides excellent rejection at IF frequencies up to 450 MHz.

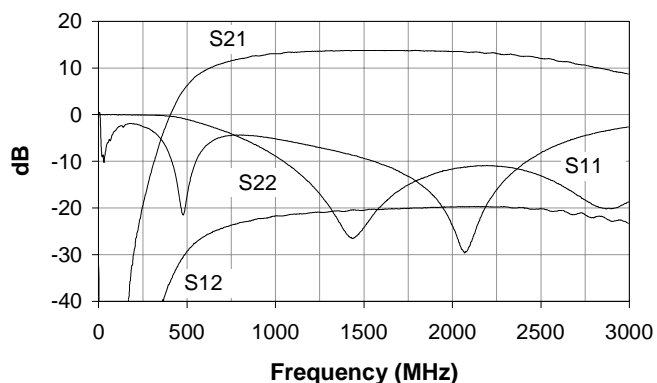
Suggested System Configuration



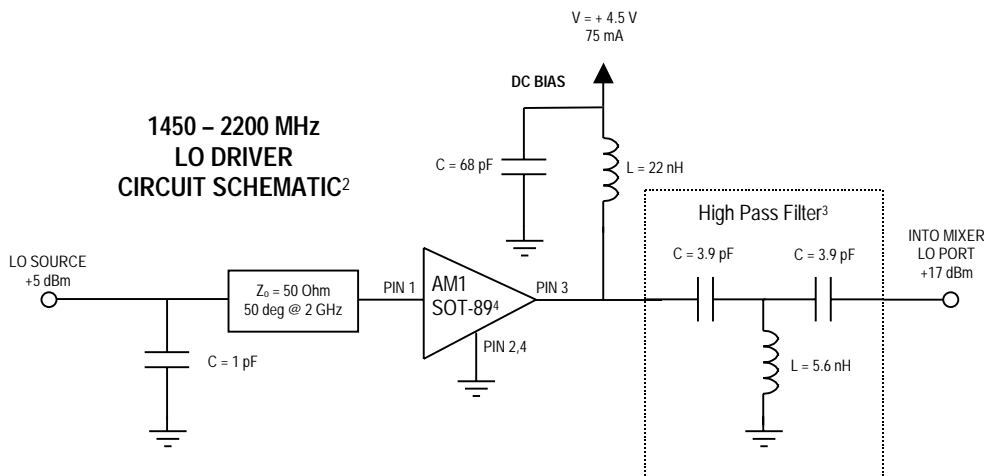
### Typical Specification Parameters<sup>1</sup>

Frequency (MHz)	1450 - 2200
RF Input Power (dBm)	+5
Min RF Output Power (dBm)	+17
S21 - Small Signal Gain (dB)	13
S11 - Input Return Loss (dB)	-12
S22 - Output Return Loss (dB)	-15
Maximum RF Input Power (dBm)	+7
200 MHz rejection (dBc)	40
Bias	+4.5 V @ 75 mA

Small-signal S-parameters vs. Frequency



### 1450 - 2200 MHz LO DRIVER CIRCUIT SCHEMATIC<sup>2</sup>



<sup>1</sup> All specification parameters were tested at 25° C.  
<sup>2</sup> All components are 0603 size. All components are standard 5% tolerance parts. Toko LL1608-FH chip inductors and AVX capacitors were used in the design.  
<sup>3</sup> The optional high pass filter can be substituted with a series 68 pF DC blocking capacitor if not used.  
<sup>4</sup> Please refer to the AM1 datasheet for specifications and mounting information pertaining to the AM1.