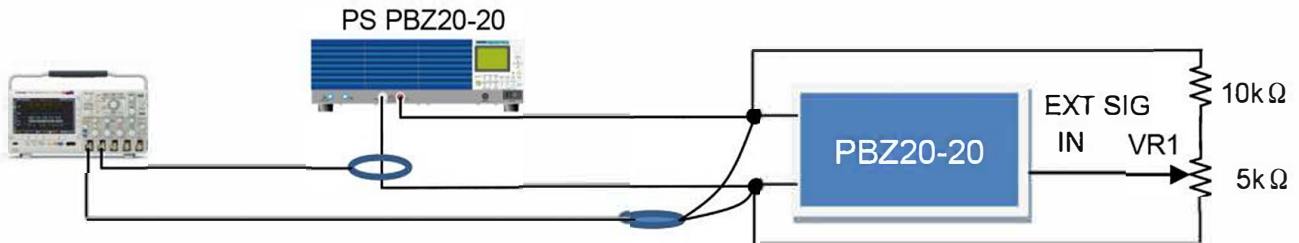


Using the PBZ as an AC Electronic Load

As seen in Figure 1, the PBZ20-20 can be used as a CR load by applying voltage divided by the input voltage to the PBZ EXT SIG IN (BNC) and operating in CC mode. The PBZ is bipolar, so it can be used as a CR load even with AC input voltage. The resistance values change with VR1.

Here we can observe the topologic relationship between the voltage and current when using the PBZ as an AC electronic load.



Test Results

In figures 2-6 we can observe the AC input voltage waveform as well as the current waveform flowing at the same time. The voltage is dark blue; current is light blue.

Conditions: PS PBZ20-20 Output Voltage: 20VP-P, PBZ20-20 with VR1 setting @ 40AP-P

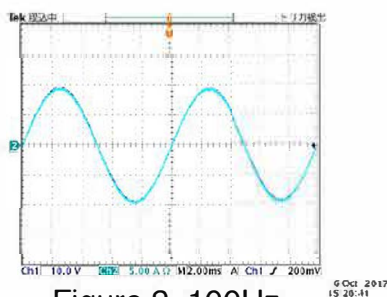


Figure 2. 100Hz

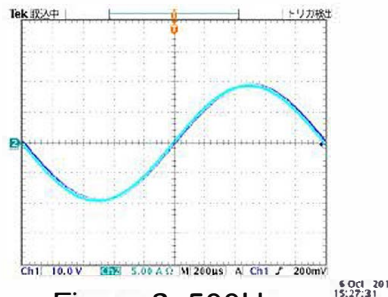


Figure 3. 500Hz

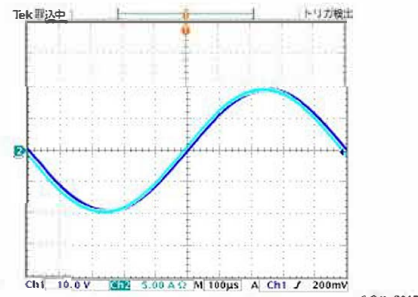


Figure 4. 1kHz

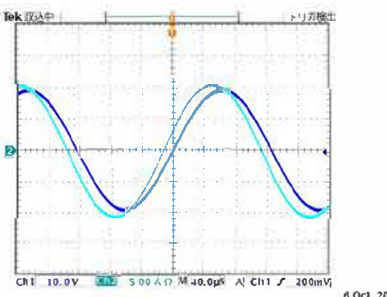


Figure 5. 4kHz

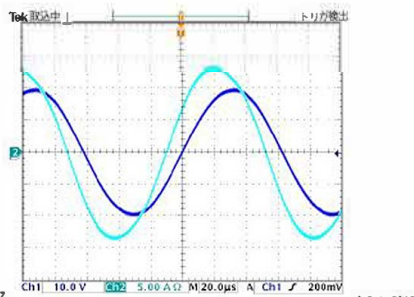


Figure 6. 8kHz

Conclusion

As you can see, as the frequency increases, the current operates like a C load in contrast to the voltage. The phase difference at 8kHz is about 28° , which corresponds to a power factor of 0.88. The PBZ series has models that reach up to 80V input ratings, but can be increased up to 160V with a simple BTL connection, meaning that it can operate like a load up to AC110V.

For more information, please contact your local Kikusui Electronics representative.