

## KGS Fast Dynamic Performance

The BriPower KGS series is a high-performance AC/DC power source/load, using SiC MOSFET PWM technology, which contains multi output power levels from 15kVA to 1080kVA. With an output frequency range from DC to 5kHz, max output 450V L-N.

Figure 1,2 are AC voltage drop/climb waveforms. The AC voltage drops from 450V L-N to 0V and climbs from 0V to 450V L-N in less than 100us.

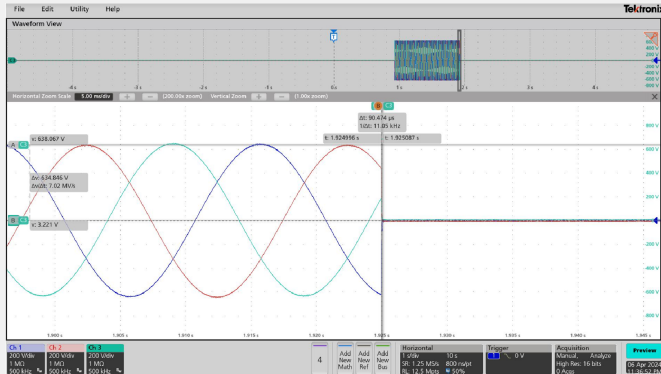


Figure 1 AC Voltage Drop Waveform  
(450-0V L-N, @no-load)

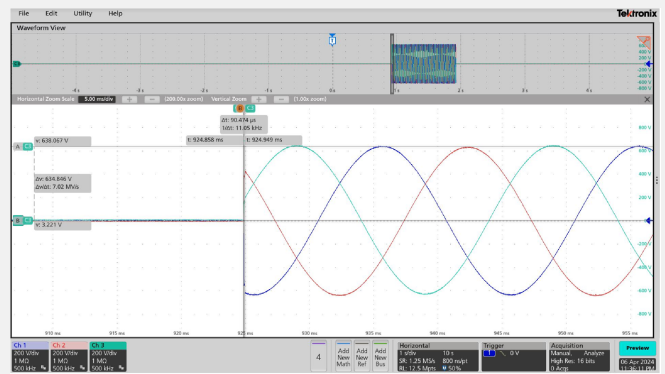


Figure 2 AC Voltage Climb Waveform  
(0-450V L-N, @no-load)

The KGS series has fast dynamic performance: Voltage Slew Rate  $\geq 5\text{V}/\mu\text{s}$ . Current Slew Rate  $\geq 0.5\text{A}/\mu\text{s}$ .

The KGS Series uses true current feedback control when working in Current source mode. It is different from power supplies using voltage feedback with constant current mode, which is called voltage controlled current. The voltage controlled current power supplies maintain setting current value by adjusting output voltage and have relatively long response time to sudden impedance changes, which typically results in dynamic current overshoot or undershoot as the load impedance changes. KGS series working in CC mode does not have such problem and will always maintain the current at the setting value, regardless of transient load conditions.

Figure 3,4 shows the AC current drop/climb waveform when KGS works in CC mode. The AC current drops from 70A to 0A and climbs from 0A to 70A in less than 100us.

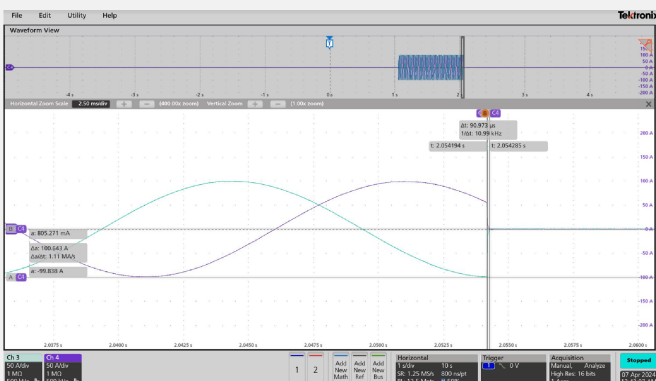


Figure 3 AC Current Drop Waveform  
(70-0A, @resistor load)

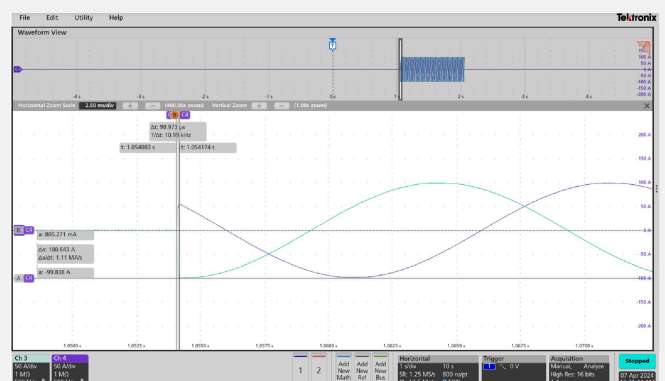


Figure 4 AC Current Climb Waveform  
(0-70A, @resistor load)

## KGS Fast Dynamic Performance

Fast frequency change ability as shown in Figure 5. The frequency change from 50Hz to 5000Hz in less than 10us.

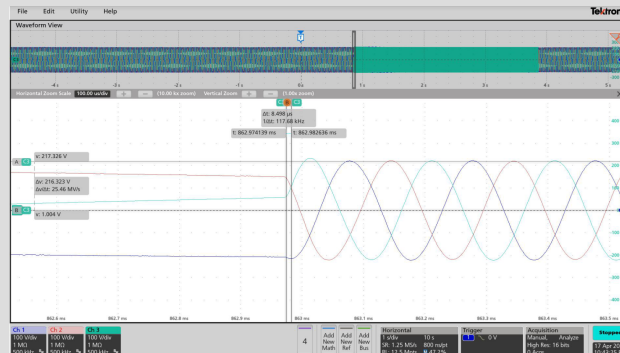


Figure 5 Frequency change waveform (50~5000Hz fastest <10us @no-load)

The KGS series can also output DC in source and sink mode. Output modes include AC, DC, and AC+DC modes, which are easy for measurement of DC components.

Figure 6,7 shows the DC voltage drop/climb waveforms. The DC voltage drops from 600V to 0V in less than 130us and climb from 0V to 600V in less than 115us.

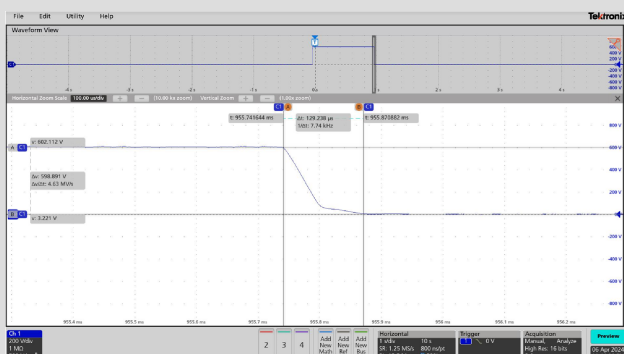


Figure 6 DC Voltage Drop Waveform (600~0V, @no-load)

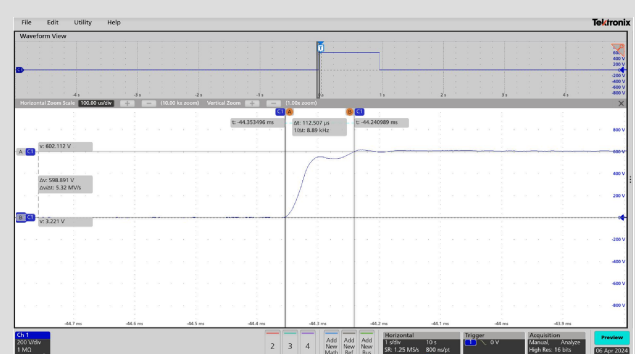


Figure 7 DC Voltage Climb Waveform (0~600V, @no-load)

Figure 8,9 shows the DC current climb waveforms when KGS works in CC mode. The DC current climb from 0A to 70A in less than 90us. The DC current climb from -70A to 70A in less than 170us.

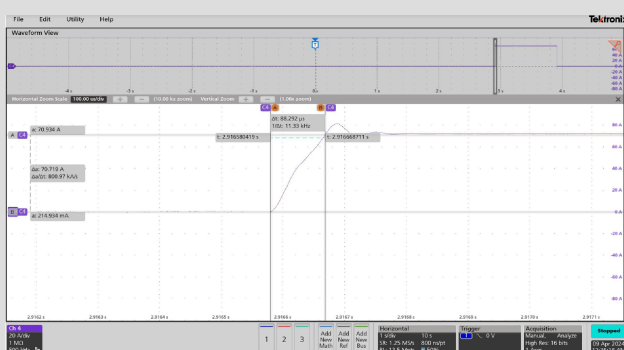


Figure 8 DC Current Climb Waveform (0~70A, @resistor load)

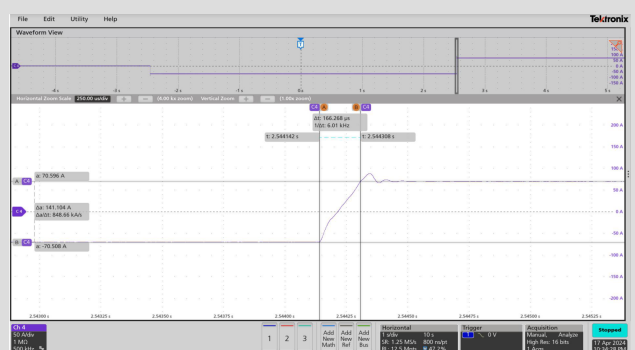


Figure 9 DC Current Climb Waveform (-70~70A, @resistor load)