Vehicle Mounted Optical Sight
Compact Vehicle Power Supply

The Customer’s Challenge
The priority for this manufacturer of optical sights was improved image stability, requiring improved system response time. Being vehicle mounted, reduced size was another key focus for this upgrade of an existing optical sight and associated gimbal system. We worked with them to develop a power solution to drive the sensing electronics and the various motors in the system. The supply needed to meet stringent MIL-STD-704F transient input voltage limits for this 28V system.

The Solution
The power supply was based on the MIL-COTS DCM DC-DC Converter Module, which met the wide steady state input voltage range of the nominal 28V input and could drive the various motor loads directly. The lower power, lower voltage rail for the controllers and sensors was derived from the DCM output using a ZVS Buck Regulator.

The Results
The isolation provided by the DCM helped reduce input noise in the system, thus requiring just a small external EMI filter to meet the conducted noise specifications. Conduction cooling was enabled by the unique double-sided cooling capabilities of the DCM’s ChiP packaging. The high efficiency of the modules allowed full power operation at high ambient temperatures. This also helped improve the reliability of the system, which proved to be very robust.