DC Power Input Considerations

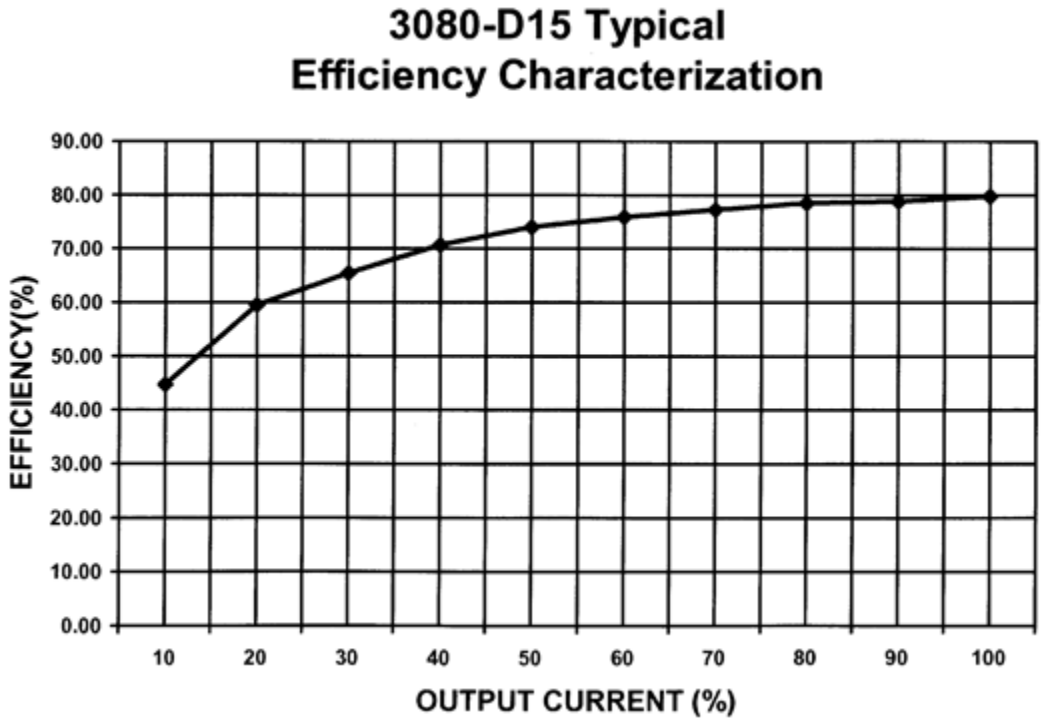
Efficiency Curves

The efficiency of a DC-DC Converter depends on how the losses compare to the power delivered. In general, of the majority of losses, there are fixed losses that vary directly with power output and losses that vary with the square of output power (I squared R losses).

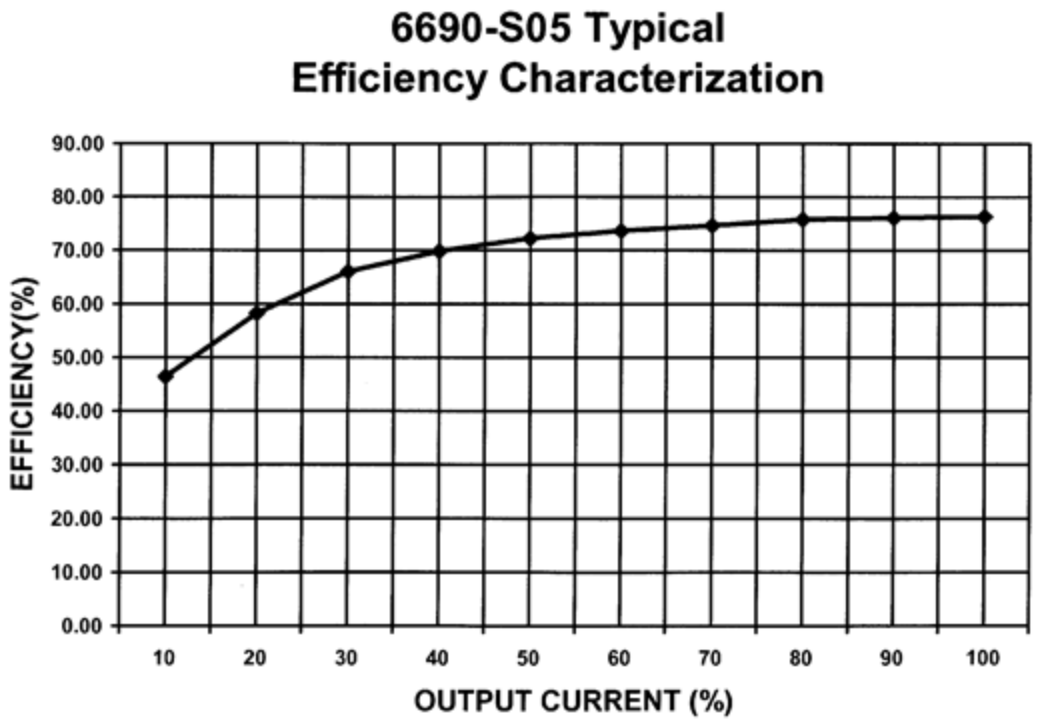
At Zero output power, the efficiency is always zero, due to the fixed losses. At some point in the output curve, the efficiency may be seen to peak. This is usually at the point where the sum of fixed and direct losses are equal to the square losses. As power is increased past this point, efficiency drops.

Some efficiency curves do not exhibit a peak, but constantly increase up to 100% load. In these cases, the peak efficiency point is greater than 100% output rating.

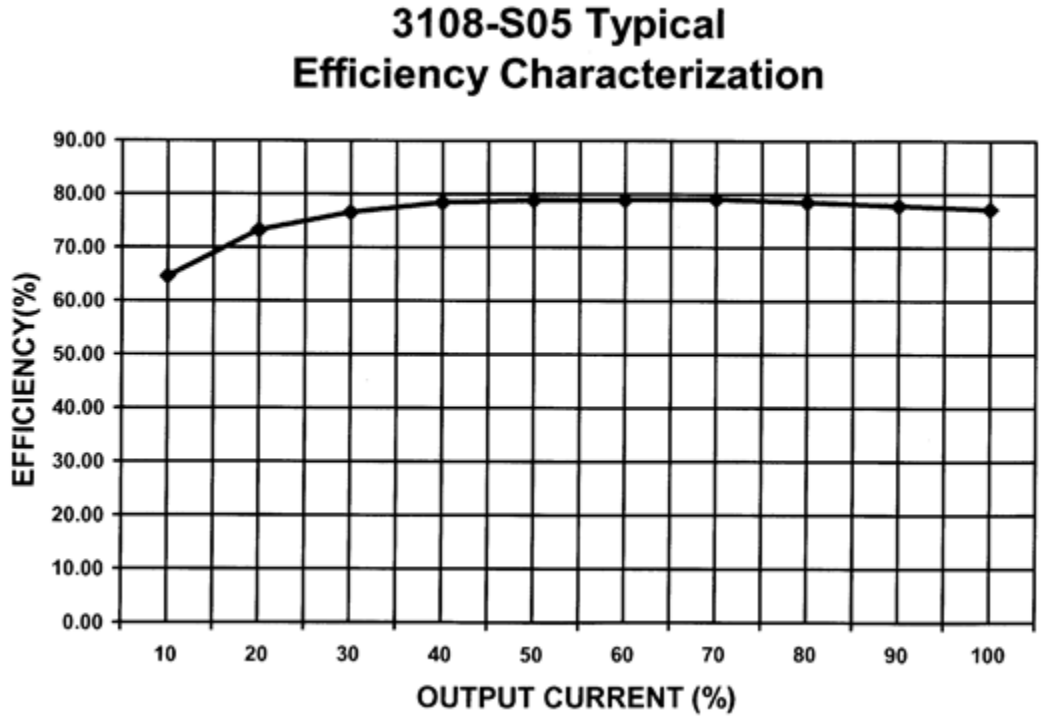
Representative efficiency curves are presented for 28 VDC nominal parts, 6.5 watt nominal, 30 watt nominal and 80 watt nominal. Curves for other inputs voltages and output powers are similar:



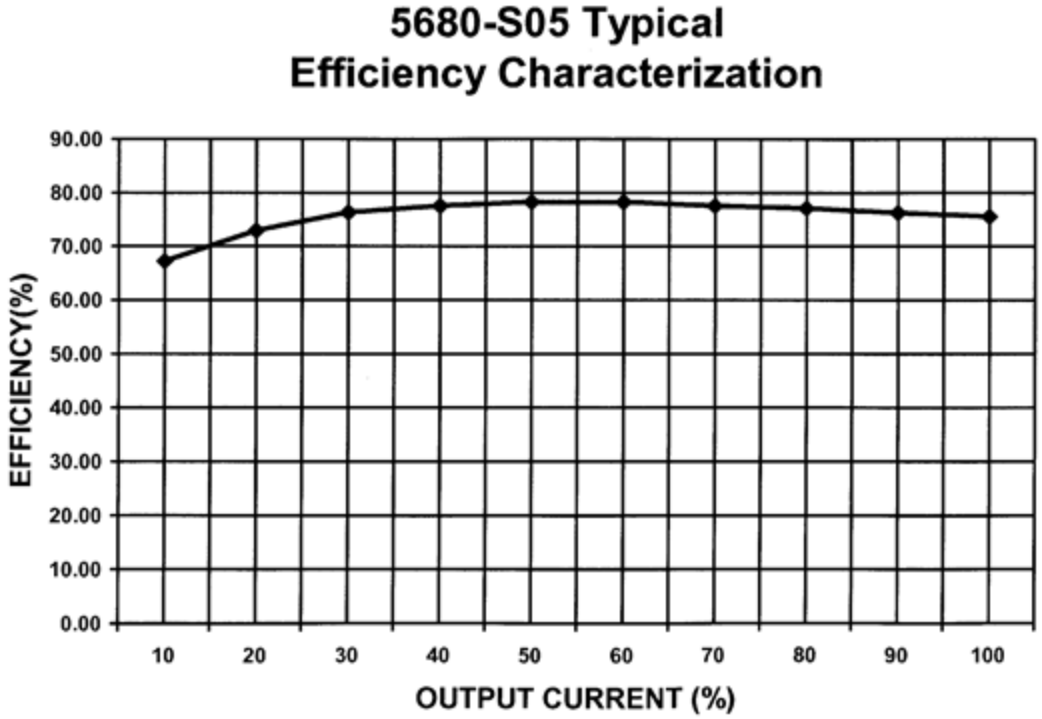
Typical 15 VDC, 5 Watt Efficiency Curve



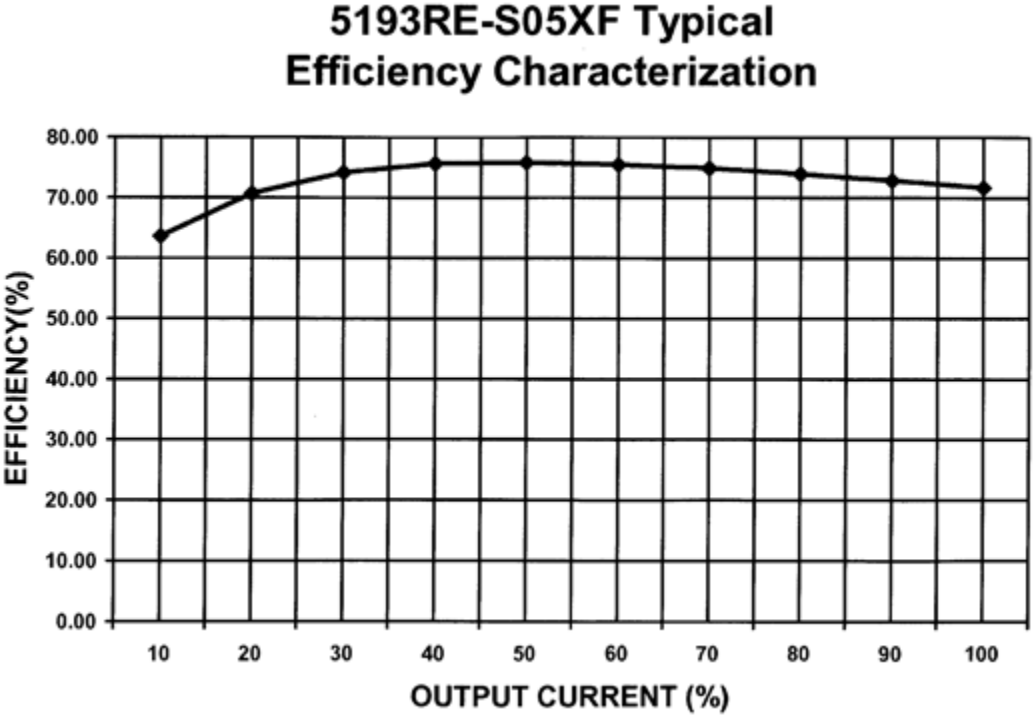
Typical 5 VDC 6.5 Watt Efficiency Curve



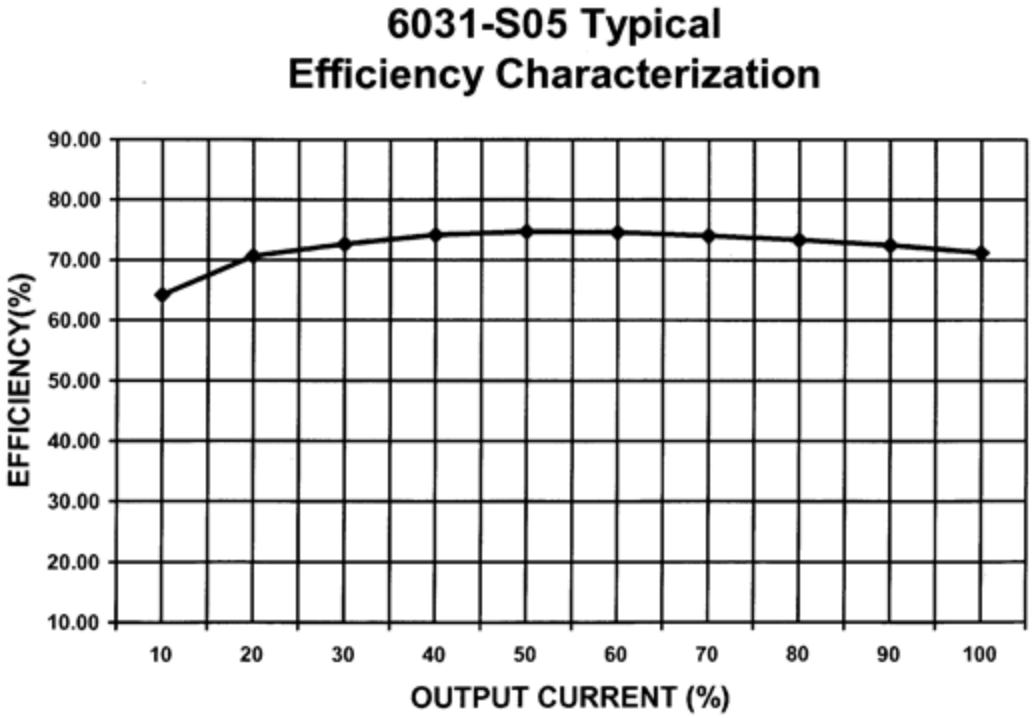
Typical 5 VDC 20 Watt Efficiency Curve



Typical 5 VDC 30 Watt Efficiency Curve



Typical 5 VDC 40 Watt Efficiency Curve



Typical 5 VDC 80 Watt Efficiency Curve