DC/DC Converters Feature Independent Control Loops

DATEL's new BWR-5/3.3, 30 W Series, Dual-Output, 5 V and 3.3 V DC/DC Converters offer affordable, total control over two independently regulated outputs. There is a single pair of input pins (&#177 Input) and a pair of outputs (+5V_{OUT}@ up to 3 Amps and +3.3 V_{OUT}@ up to 4.25 Amps), but there are also two of everything else:
Two Output Return Paths means no intermingling of ground currents and no ground-loop problems. It also means, since both outputs are fully isolated and &quotfloating,&quot that the 5 V output can be used as a -5 V or -5.2 V supply.
Two On/Off Control Pins means total control for power-sequencing requirements. Additionally, in power-conscious, &quotgreen&quot applications, you can shut down the 5 V electronics (perhaps an analog circuit partition) when only the 3.3 V partition (perhaps a DSP) is processing.
Two Output Trim Pins means you can adjust one or both of your power sources to be extremely accurate (beyond the initial &#1771.5% spec). It also means, in system-test applications, you can independently &quotmargin&quot your power supplies &#177 5% as necessary.
Two Sets of Output-Protection Circuitry (including assorted shut-down mechanisms) means other portions of systems will continue to operate even if one suffers a catastrophic fault.
By having two independent control loops and sharing a single package, a single pc board, common input circuitry, and a common ferrite core (for the main transformer), DATEL's BWR 30 Watters deliver all the desired performance and control features of two independent converters at slightly more than the price of one.
The BWR-5/3.3, 30 W schematic reveals the complete implementation of two converters-each using the synchronous-rectifier topology. Observe the two feedback/control loops with their two pulse-width modulators (synchronized to eliminate beat frequencies) and their two opto isolators. Independent regulation enables each output to guarantee &#177 0.5%/&#177 1% line/load regulation. For virtually all other dual-output devices (with single control loops), the regulation on one of the outputs is compromised.
Synchronous rectification delivers an industry-leading 88% overall efficiency. High efficiency packs the full 30 Watts of deliverable power into the standard, 2&#215 2&#215 0.5 plastic case traditionally reserved for 20 Watt units. 30 W BWR's operate at full rated power from -40 to +65&#176C ambient and require no supplemental air flow. Lastly, synchronous rectification facilitates stable no-load operation.
BWR-5/3.3, 30 W duals incorporate all the I/O features designers have come to expect from DATEL DC/DC converters: input pi filters, input overvoltage and undervoltage shutdown, output overvoltage protection, output current limiting and continuous short-circuit protection (independent circuits for each output), as well as thermal shutdown.

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