Yes, you can put Dimension Engineering step-down regulators in parallel for more current

Many of our customers have asked if our regulators can be put in parallel for more current. It turns out that they can! The only consequence is a small drop in the output voltage.

Here is the way it works: Initially, only one regulator will turn on, and it will try to handle all the current on its own. It will get overloaded, eventually overheat, and subsequently lower its output voltage. At this point another regulator will kick in, and try raise the output voltage back to what it should be.

SW050 test setup:
Four SW050 in parallel, powering a 6.3V cordless drill (inductive load), for a theoretical current capacity of 4 Amps. The load on the drill was varied, and the following results were recorded:

Load	**Output Voltage**
0A	5.03V
2.5A continuous	4.92V
3.5A continuous	4.90V
6A (30 sec peak) *	4.76V
8A (2 sec peak) *	4.5V

Ripple was on the order of 180mV peak to peak - mostly a result of the drill being a commutated motor. Adding an external 1000uF output capacitor reduced it to 100mVp-p. With lower loads and fewer parallel regulators, you can expect the output voltage to be closer to the ideal value.

*These current values are **much** higher than the rated value for four SW050s, and you probably shouldn't be stressing them as hard as we did in this test!

SWADJ test setup:
Two SWADJ in parallel, set to 7V, powering a purely resistive load, for a theoretical current capacity of 2 Amps.

Load	**Output Voltage**
0A	7.00V
2A	6.98V
2.5A (30sec peak)	6.95V

It should be noted that in this situation, the dropout voltage was increased to 2 volts- meaning at least 9V was needed to maintain the 7V output at 2A.

ParkBEC test setup:
Three ParkBECs in parallel, powering a 6.3V cordless drill (inductive load), for a

theoretical current capacity of 3.75A. The load on the drill was varied, and the following results were recorded:

Load	**Output Voltage**
0A	5.03V
2.5A continuous	4.93V
3.6A continuous	4.88V
5A (20 sec peak)	4.8V
5.5A (5 sec peak) *	4.78V

Ripple was 100mVp-p at 2.5A out - mostly a result of the drill being a commutated motor.
At 3.25A out, the dropout voltage was increased to 2.3V - meaning at least 7.3V was needed on the input.

*This current value is **much** higher than the rated value for three ParkBECs, and you probably shouldn't be stressing them as hard as we did in this test!