optimized for switching frequencies in the mega hertz region, and were set at 0.5– $4.5\,\mu\text{H}$. **Figure 3** shows the frequency dependence of inductance. The constant L value is maintained at frequencies from $0.1\,\text{MHz}$ to $10\,\text{MHz}$. **Figure 4** shows the superimposed DC current characteristics at a frequency of $2\,\text{MHz}$. The L value gradually decreases as the superimposed DC current increases. The superimposed DC current characteristics were measured until the temperature rise of the products exceeded 40°C . **Figure 5** shows the temperature rise characteristics of the products with DC bias current. The slope of the temperature rise is smaller in products with lower DC resistance. **Table 2** shows the reliability test

results of the 32R1560 product. In each conditions, the change in the

4. Power Loss Simulation

The main component parts of a power supply are semiconductor devices, inductors, and capacitors. In increasing power conversion effciency, it is necessary to reduce the power loss of each of these components. In the case of a step-down type DC/DC converter, the power loss of ne!ss yyy ss ofs e n

% erter2 _ f nerter2 _ 0 q c nng t f a