

ABSTRACT

POWER SUPPLY APPARATUS

The power supply apparatus includes a first power device, a second power unit, and controlling means. Each of the first power device and the second power unit supplies DC power to a DC supply line. The first power device makes constant voltage control. The second power unit includes a second power device configured to make inclination control of monotonically decreasing its output voltage with an increase of its output current, and of monotonically increasing its output voltage with a decrease of its output current. Upon acknowledging that a measurement (a magnitude of a current flowing through the DC supply line) exceeds an optimal current magnitude (a magnitude of a current supplied to the DC supply line from the first power device operating at maximum conversion efficiency), the controlling means outputs an instruction such that a magnitude of a current supplied to the DC supply line from the second power unit is identical to a difference between the measurement and the optimal current magnitude. The second power device modifies a condition of the inclination control, thereby adjusting its output current to a current corresponding to the instruction without varying its output voltage.

(Figure 1)