Figure 17: This converter has an output of 5 to 200V. Transistor Q₁ is in cascode with the LT1172 and switches the high voltage. This approach allows a low-voltage regulator to control the output. Diode clamps protect the regulator from transients. Flyback events at L₁ bootstrap Q₁’s gate drive through the 100-kΩ resistor. The diode that connects to the output and the 300V resistor provide short-circuit protection. The ferrite bead and the 100 and 300Ω resistors minimize high-frequency output noise.