

METHOD AND CIRCUIT TO SENSE THE T_j OF
MOS-GATED POWER SEMICONDUCTOR DEVICES

ABSTRACT OF THE DISCLOSURE

A polysilicon resistor is integrated into an MOS-gated power semiconductor device, and an integrated circuit is employed to sense the junction temperature of the power semiconductor device. To compensate for process variations in the manufacture of the polysilicon resistor, the integrated circuit is self-trimming to adapt to the resistor. The circuit determines the optimum current to match the respective room temperature resistance of the polysilicon resistor, and stores a related value. The temperature of the power semiconductor device is measured by generating a constant current through the resistor that has a magnitude proportional to the stored value. Overtemperature protection may also be provided.

Fig. 2