The temperature, energy, SSD, and field size dependence for commercially available p-type QED diode detectors were studied. The sensitivity vs. temperature was measured at 5-cm depth in a water phantom between 10 – 35°C. The response was linear, with the same temperature coefficient (0.30±0.01)%/°C for both low dose rate (cobalt) and high instantaneous dose rate (pulsed) radiation. In comparison, the temperature coefficient is (0.36±0.03)%/°C for the Scanditronix EDP30 and is (0.29±0.08)%/°C for Isorad Red diode. The energy dependence is measured using the same setup. The diode sensitivity variation between Co-60 and 18 MV x-ray is 15 % for QED 15-25 MV diode, 10 % for QED electron diode. In comparison, it is 45 % for Isorad red diode and 8 % for Scanditronix EDP10. The dose rate dependence was measured in a 5-cm thick mini-phantom between 80-200 cm. The ratio of diode sensitivity to an ion chamber was compared. For example, at SSD = 140 cm, the ratio, normalized to 100 cm, was 0.989±0.004. In comparison, the ratio at SSD=140 cm, normalized to 100 cm, was ~1 for Scanditronix EDP30 diode and 0.987 for Isorad Red diode for 6 MV. The ratio of sensitivity of diode to an ion chamber was measured in the same acrylic mini-phantom for field sizes from 5×5 cm^2 to 40×40 cm^2 for pulsed radiation. The QED diode detectors show almost no field size dependence. The ratio, normalized to 10×10 cm^2, ranged from 0.996 to 1.004 for the measured field size.