Paschen Curve for Air (1 atm)

Legend:
— Theoretical Paschen Curve
● Paschen Minimum
-- Linear Ref. (3 kV/mm)

Approx. 3 kV/mm

Note: Left of the minimum, dielectric strength rises sharply.

Min: 305 V @ 11.0 μm

Breakdown Voltage [V] (vertical axis)

Plate Distance [μm] (at 1 atm) (horizontal axis)

$$E_d = \frac{E_a}{\varepsilon_r}$$

d_d

$d_a = D - d_d$

$$E_a = \frac{V}{d_a + \dfrac{d_d}{\varepsilon_r}}$$

$$V_{inc} = V_{pasch}\left(d_a\right)\left[1 + \frac{d_d}{\varepsilon_r d_a}\right]$$

$V(t)$

$E(x)$

x