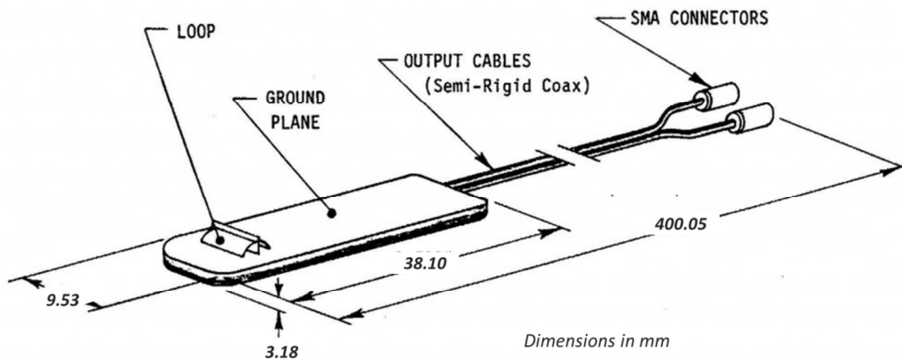


B-S25 surface current magnetic field sensor

PRODYN ground plane/surface current type magnetic field sensors can be used as a B-DOT sensor or to measure the time rate-of-change of surface current density. The sensor consists of a half-cylinder loop on a base plate that when mounted to a conducting surface produces a voltage output in response to a time variant B-field. Each sensor has a parallel-series wiring configuration that cancels the electric field induced signals and makes the sensor's output signal the result of only the magnetic field.



The PRODYN model BS25 is a half loop high frequency sensor. The loop area is encapsulated to provide breakdown resistance and protection from the environment.

SPECIFICATION

| | B-S25 |
|-----------------------|----------------------------------|
| Equivalent Area (Aeq) | $4.5 \times 10^{-6} \text{ m}^2$ |
| Freq. Resp.(3 db pt.) | 11GHz |
| Maximum output (peak) | + 500V rms |
| Risetime (tr 10-90) | <0.32ns |
| Output connector(s) | SMA (male) |

EQUATION

$$V_0 = A_{eq} \mu_0 \frac{dJ_s}{dt} \sin \theta$$

Where V_0 = sensor output (volts), A_{eq} = sensor equivalent area (m^2), μ_0 = permeability of free space ($4\pi \times 10^{-7}$ H/m), $\sin \theta$ = angle between axis and J_s vector

