# P1202-4 / P1302-4 set
## 电快速瞬变脉冲群场耦合

### Short description

电快速瞬变脉冲群场耦合探头组中包含的场源产生电场的和磁场的电快速瞬变脉冲群场。这些场可以确定地、可复现地加载在集成电路上，从而确定集成电路对电快速瞬变脉冲群场的抗干扰性。
其背景是扁平元件组和电子设备的电快速瞬变脉冲群抗干扰性。这些设备要经受电快速瞬变脉冲群测试（IEC 61000-4-4）。测试时与扁平元件组耦合的电快速瞬变脉冲群干扰会产生电场和磁场。产生的场作用于扁平元件组的表面，并且能穿过集成电路的外壳。若这些场穿过集成电路，则在集成电路中产生干扰过程。
因此除了在集成电路引脚上的与电路耦合的电快速瞬变脉冲群干扰之外，磁场和电场对集成电路的影响也是一个很主要的干扰途径。

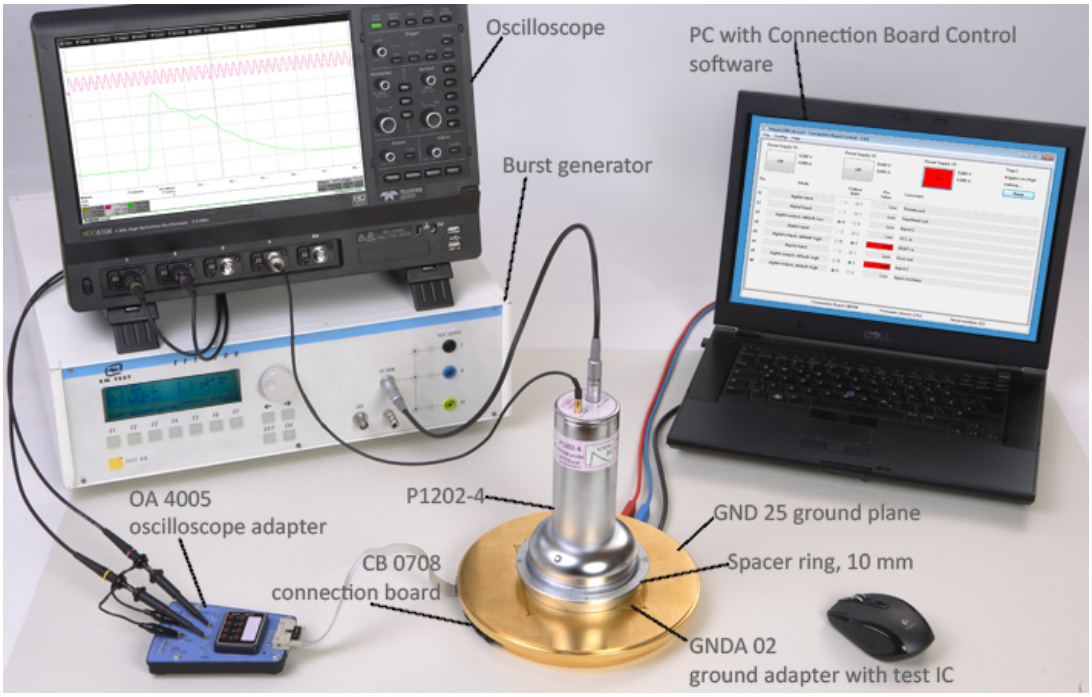
From the probe set, knowledge will be gained of the IC EMC behaviour and this can be streamlined into the development of the PC board. Expensive redesigns are avoided and development costs are reduced.
Furthermore, the use of the test methods for the determination of IC EMC parameters enables the IC producer to develop ICs more efficiently.
The test set-up needs the ICE1 test system and external devices. The field sources are powered by an EFT/Burst generator (IEC 61000-4-4). The delivery includes the HV FI-FI 1m RF cable (Fischer connector-Fischer connector). On request, the RF cable with the connections Fischer socket-SHV socket (HV FI-SHV 1m) can be ordered.

### Delivery content

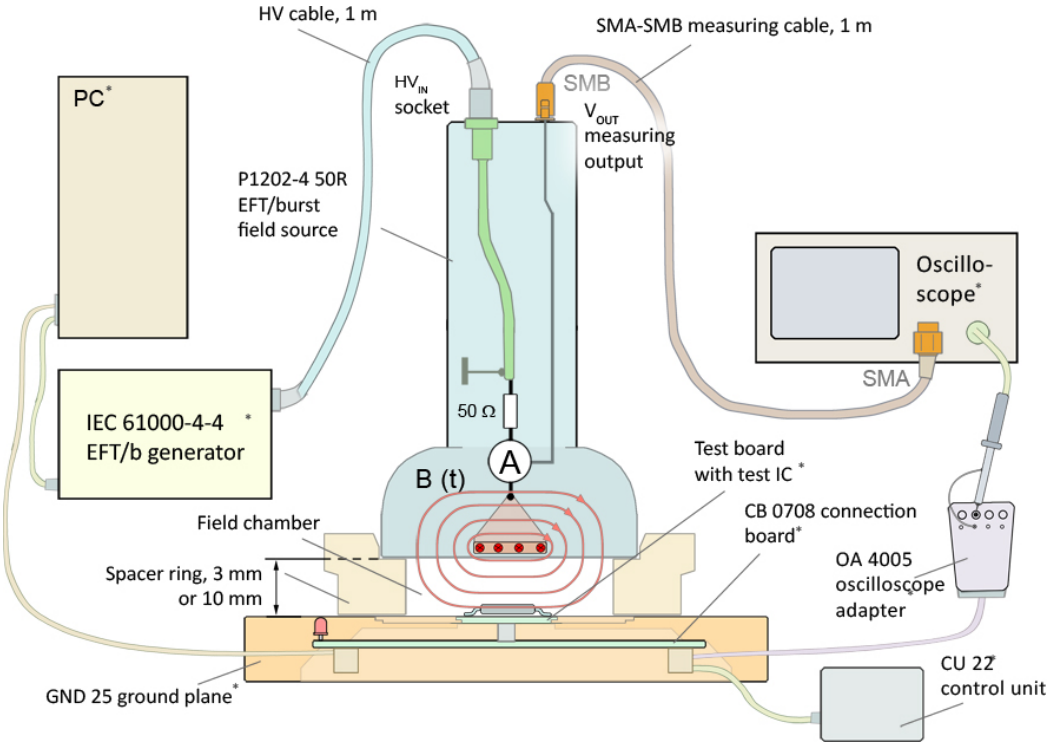
1x P1202-4, EFT/猝发磁场源
1x P1202-4 50R, EFT/猝发磁场源
1x P1302-4, EFT/猝发电场源
1x P1302-4 50R, EFT/猝发电场源
1x D70 h03
1x D70 h10
2x SMA-SMB 1 m, SMA-SMB 测量电缆
1x HV FI-SHV 1 m
1x P1202-4 / P1302-4 case, System case
1x P1202-4 / P1302-4 m

In a test IC burst E-field is coupled in with the E-field source P1302-4.

Test set-up with P1202-4 / P1302-4 set; EFT / Burst field coupling and ICE1 IC Test Environment. (ICE1 is not included in delivery)

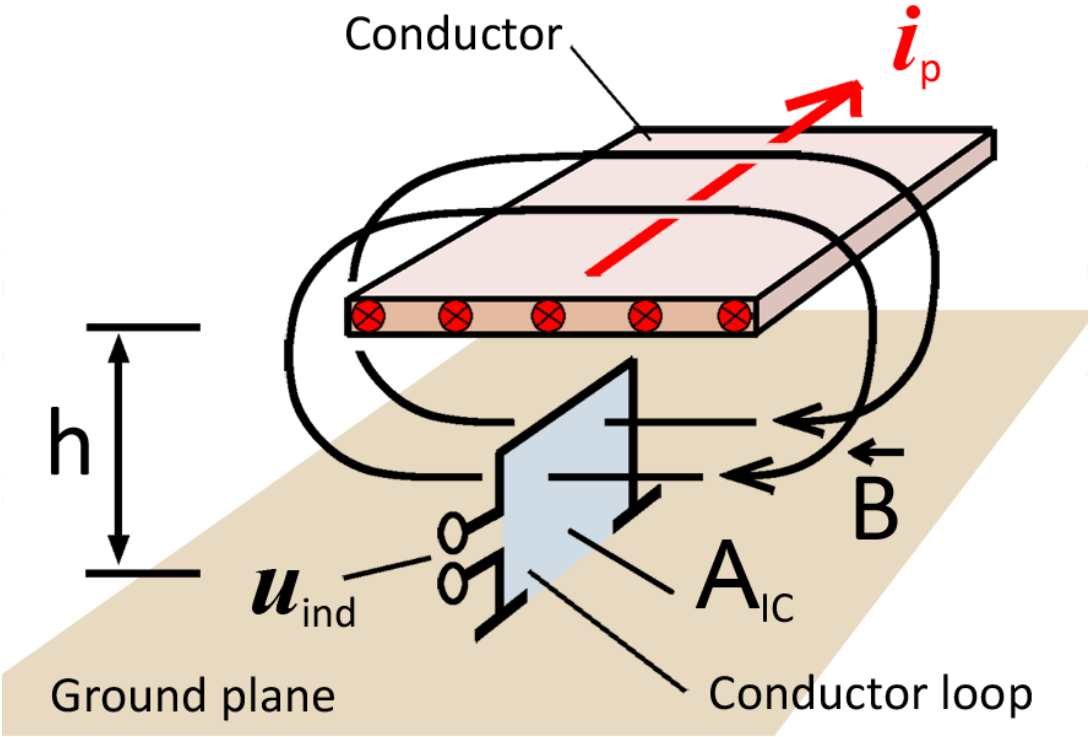


Layout and function of the measurement set-up for EFT / Burst field coupling into ICs (example, magnetic field source P1202-4)

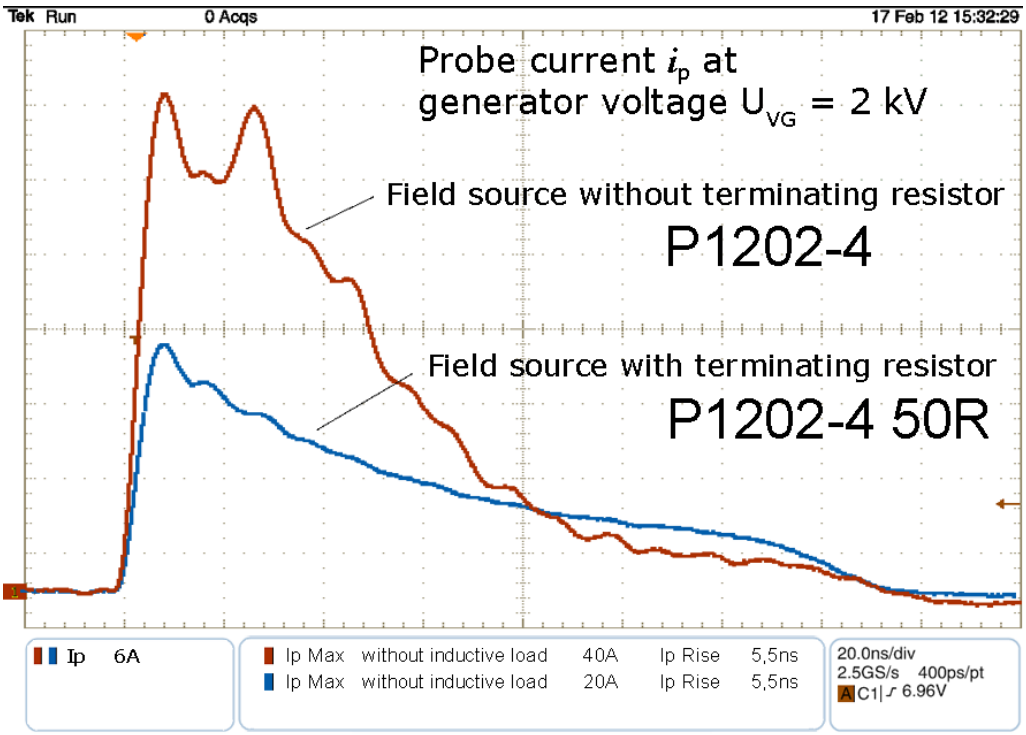



EFT/Burst Field Coupling P1202-4 / P1302-4 set Scope of delivery includes a case and user manual fot the set (not pictured).

Principles of field coupling into conductor loop of a test IC. The P1202-4 field source's conductor generates the test magnetic field B from the EFT/Burst generator's current Ip.

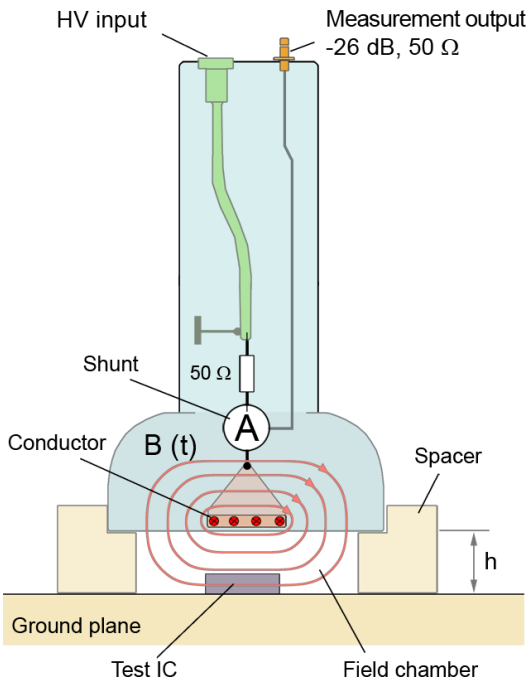


Current characteristic of the field source with terminating resistor (P1202-4 50R) and without a terminating resistor (P1202-4). The field source without a terminating resistor (P1202-4) generates twice as much test current.



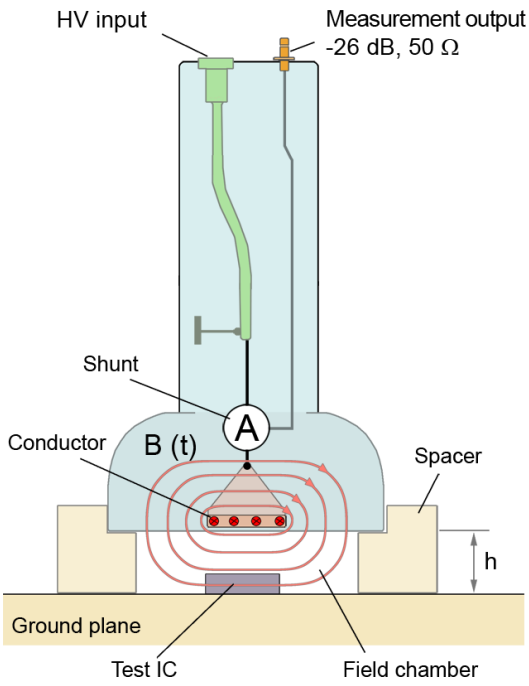
Layout and function of the magnetic field source P1202-4 with an internal terminating resistor of 50 Ω. The fields orientation B(t) to the IC mimics the field orientation during intended use.

P1202-4 50R EFT/burst H-field source

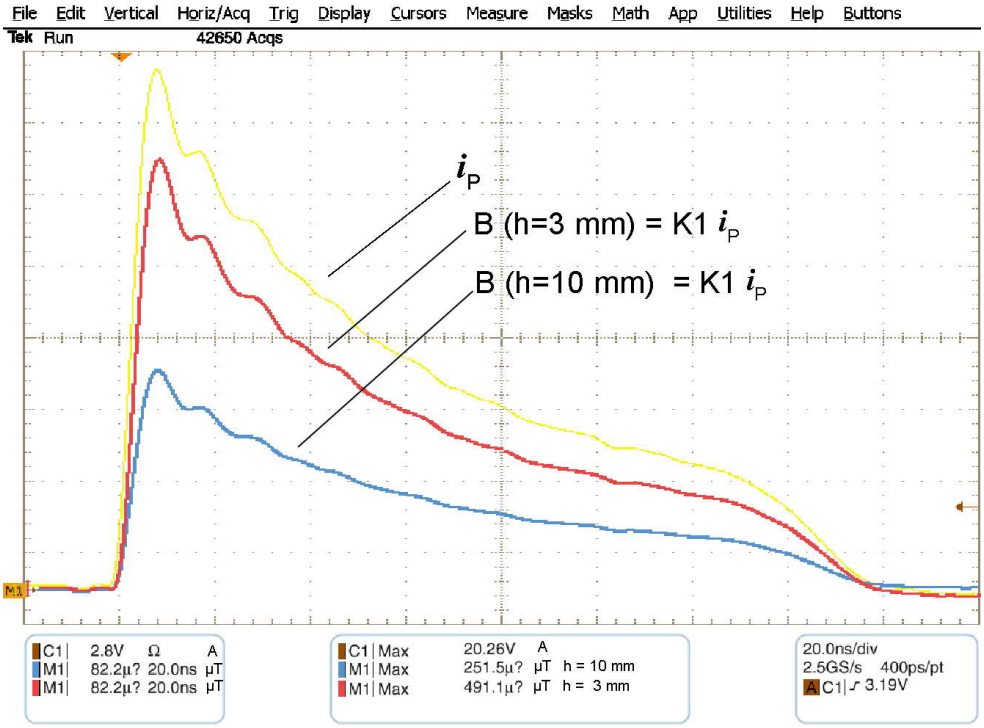


Layout and function of the magnetic field source P1202-4 without an internal terminating resistor of 50 Ω. The fields orientation B(t) to the IC mimics the field orientation during intended use.

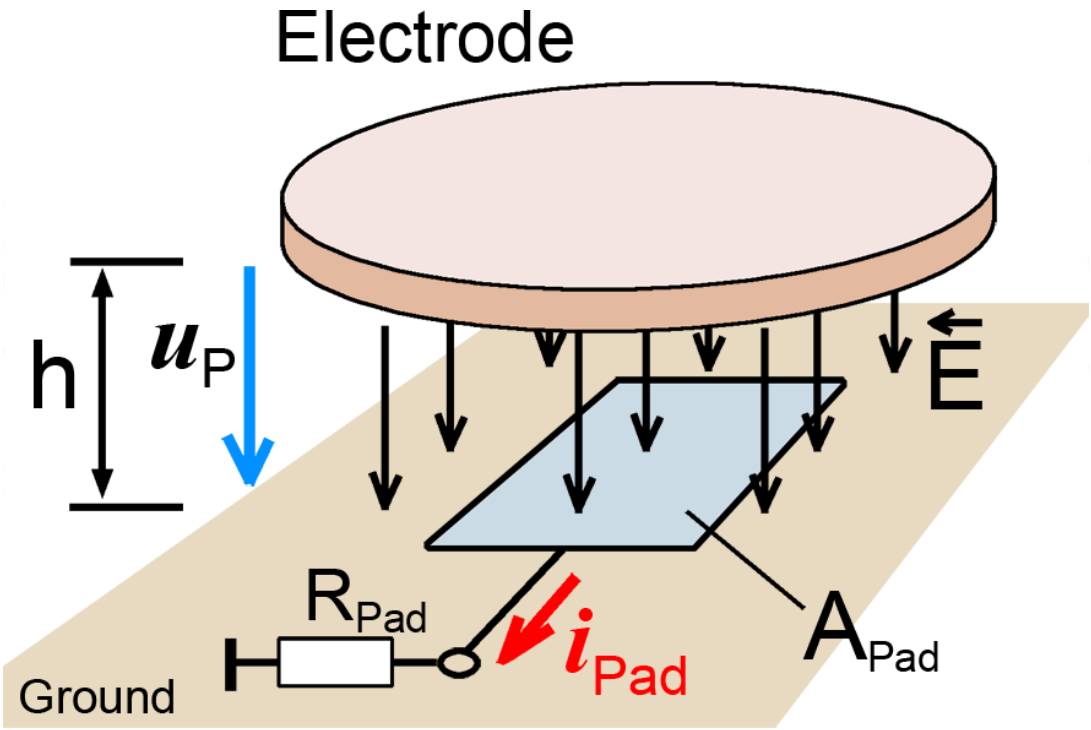
P1202-4 EFT/burst H-field source



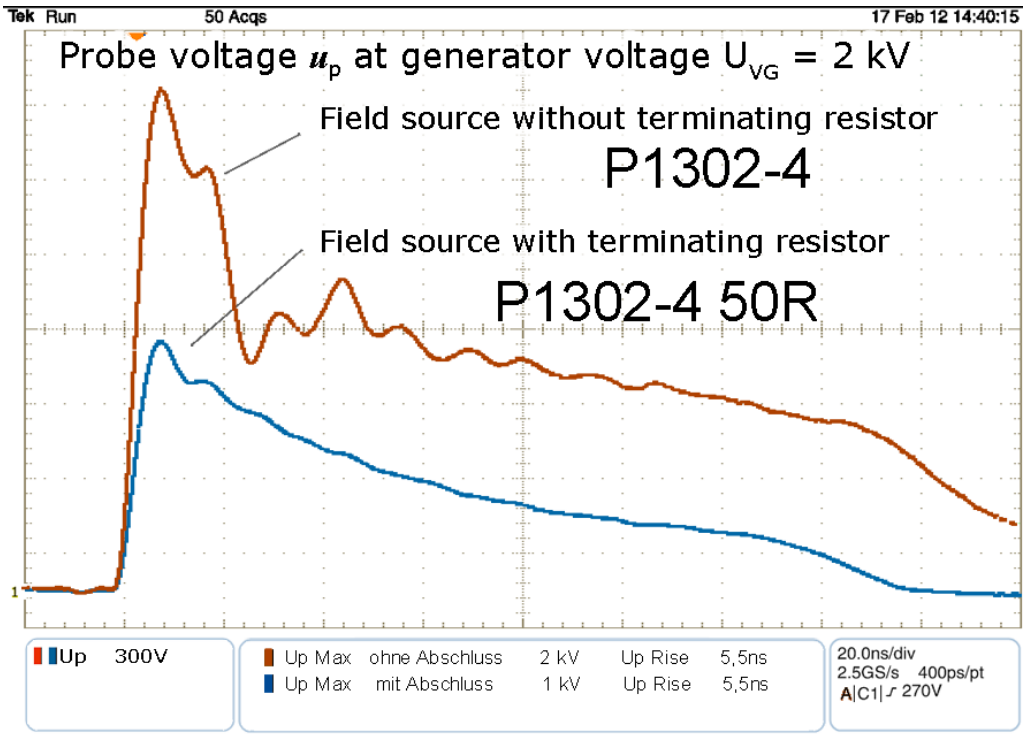
The characteristics of the magnetic field generated by the P1202-4 field source inthe field chamber in the location of the test IC with a 3 mm and 10 mm spacer.The field source is powered by the EFT generator with a current of 20 A (Ip)and a voltage of 1000 V.



Principles of E-field coupling into conductor of a test IC.The P1302-4 field source's electrodegenerates the electric test field E from the EFT-generator voltage Up. The test field must be orthogonallyoriented to the ground plane.

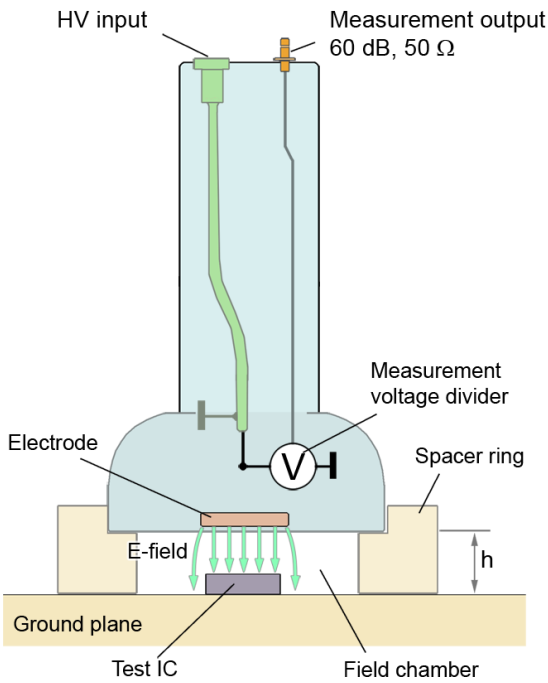


Voltage characteristic of the E-field source with a terminating resistor (P1302-4 50R) and without a terminating resistor (P1302-4) can supply the test IC with twice the current.



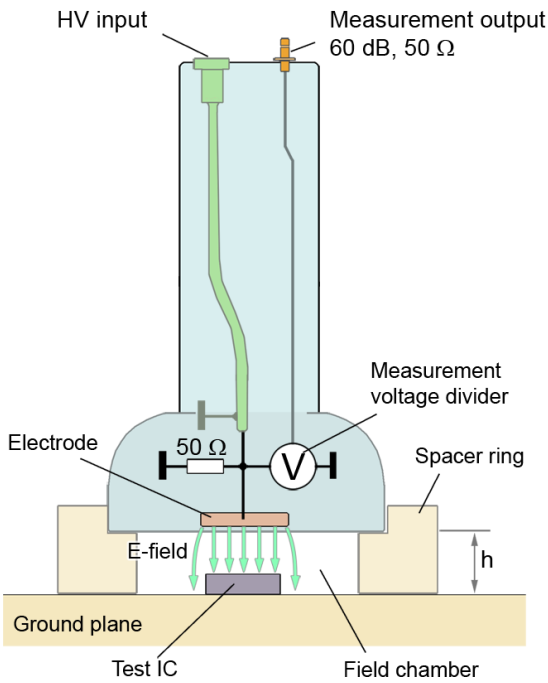
Layout and function of the E-field source P1302-4 without an internal terminating resistor of 50 Ω. The fields orientation E(t) to the IC mimics the field orientation during intended use.

P1302-4 EFT/burst E-field source



Layout and function of the E-field source P1302-4 with an internal terminating resistor of 50 Ω. The fields orientation E(t) to the IC mimics the field orientation during intended use.

P1302-4 50R EFT/burst E-field source




| Probe type | P1202-4 50R | | P1202-4 | | P1302-4 50R | P1302-4 |
|---|---|---|---|---|---|---|
| $U_{VG}$ | $I_{pmax}$ | $B_{max}$ h = 3 mm | $I_{pmax}$ | $B_{max}$ h = 3 mm | $E_{max}$ h = 3 mm | |
| 4000 V | 40 A | 0.9 mT | 80 A | 1.9 mT | 650 kV/m | 1300 kV/m |
| 8000 V | 80 A | 1.9 mT | 160 A | 3.9 mT | 1300 kV/m | 2600 kv/m |