

ABSTRACT

CONTACT CHARGE SUPPLY DEVICE

A contact charge supply device for externally controlling the charges, which are supplied to a member to be charged by bringing a contact member (101) applied with an external voltage into contact with the member to be charged, which at least includes an underlayer (102), and holds the following inequality

$$\log (R) \geq \log \{R_p \times (V_a - V_t) / V_t\} + (\alpha - \beta) \times \log (S / s) + \gamma \times \log (i / I)$$

where $|V_a| > |V_t|$

V_a (V): voltage applied to a contact member in contact with the member to be charged; I (μ A): current flowing from the contact member to the member to be charged; S (cm^2): contact area of the member to be charged and the contact member; R (Ω): resistance of the contact member when current I (μ A) is fed to an area corresponding to the contact area S (cm^2) of the contact member; γ : current dependency of the resistance of the contact member; $1 - \beta$: area dependency of the resistance of the contact member; s (cm^2): area of a defective part of the member to be charged; V_t (V): breakdown voltage of the underlayer; i (μ A): current flowing into an area of the underlayer corresponding to the contact area S (cm^2) when a voltage, slightly lower than the breakdown voltage V_t (V), is applied to that area; R_p (Ω): resistance of the underlayer when the current i (μ A) flows into the area of the underlayer corresponding to the contact area S (cm^2) when a voltage, slightly lower than the breakdown voltage V_t (V), is applied to that area; $1 - \alpha$: area dependency of the resistance of the underlayer.

Fig. 2

This Sheet Has Been Replaced

