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**IEEE
Standard Dictionary
of
Electrical and
Electronics
Terms**

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**Frank Jay
Editor in Chief**

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current. The transient recovery voltage rate may be a circuit transient recovery voltage rate or a modified circuit transient recovery voltage rate, or an actual transient recovery voltage rate according to the type of transient from which it is obtained. When giving actual transient recovery voltage rates, the points between which the rate is measured should be definitely stated. 103, 202

transient response (1) (pulse techniques). The time response of a system or device under test to a stated input stimulus. *Note:* Step functions, impulse functions, and ramps are the commonly used stimuli. *See also:* pulse. 185

(2) (relaying). The manner in which a relay, relay unit or relay system responds to a sudden change in the input(s). 79

(oscilloscopes). Time-domain reactions to abruptly varying inputs. 106

transient speed deviation (gas turbines). (1) Load decrease. The maximum instantaneous speed above the steady-state speed occurring after the sudden decrease from one specified steady-state electric load to another specified steady-state electric load having values within limits of the rated output of the gas-turbine-generator unit. It is expressed in percent of rated speed. 98, 58

(2) (Load increase). The minimum instantaneous speed below the steady-state speed occurring after the sudden increase from one specified steady-state electric load to another specified steady-state electric load having values within the limits of rated output of the gas-turbine-generator unit. It is expressed in percent of rated speed. 98, 58

transient stability. A condition that exists in a power system if, after an aperiodic disturbance, the system returns to steady-state stability. *See also:* alternating-current distribution. 64

transient stability factor (system or part of a system). The ratio of the transient stability limit to the nominal power at the point of the system to which the stability limit referred. *See:* stability factor. *See also:* alternating-current distribution. 64

transient stability limit (transient power limit). The maximum power flow possible through some particular point in the system when the entire system or the part of the system to which the stability limit refers is operating with transient stability. *See also:* alternating-current distribution. 64

transient suppression networks. Capacitors, resistors, or reactors so placed as to control the discharge of stored energy banks. They are commonly used to suppress transients caused by switching. 95

transient thermal impedance (semiconductor device). The change in the difference between the virtual junction temperature and the temperature of a specified reference point or region at the end of a time interval divided by the function change in power dissipation at the beginning of the same time interval which causes the change of temperature-difference. *Note:* It is the thermal impedance of the junction under conditions of change and is generally shown in the form of a curve as a function of the duration of the applied pulse. *See also:* principal voltage-current characteristic (principal characteristic); semiconductor power stack. 243, 191, 66, 208

impedance (1) (general). For harmonically varying

quantities at a given frequency, the ratio of the complex amplitude of the voltage at one pair of terminals of a network to the complex amplitude of the current across a different pair of terminals. 185

(2) (of a magnetic amplifier). The ratio of differential output voltage to differential control current. 171

transinformation (of an output symbol about an input symbol) (information theory). The difference between the information content of the input symbol and the conditional information content of the input symbol given the output symbol. *Notes:* (1) If x_i is an input symbol and y_j is an output symbol, the transinformation is equal to

$$[-\log p(x_i)] - [-\log p(x_i|y_j)] \\ = \log \frac{p(x_i|y_j)}{p(x_i)} = \log \frac{p(x_i, y_j)}{p(x_i)p(y_j)}$$

where $p(x_i|y_j)$ is the conditional probability that x_i was transmitted when y_j is received, and $p(x_i, y_j)$ is the joint probability of x_i and y_j (2) This quantity has been called **transferred information**, **transmitted information**, and **mutual information**. *See also:* information theory. 160

transistor. An active semiconductor device with three or more terminals. It is an analog device. 245, 210, 66

transistor, conductivity-modulation. A transistor in which the active properties are derived from minority-carrier modulation of the bulk resistivity of a semiconductor. *See also:* semiconductor; transistor. 245, 210, 66

transistor, filamentary. A conductivity-modulation transistor with a length much greater than its transverse dimensions. *See also:* semiconductor; transistor. 245, 210, 66

transistor, junction. A transistor having a base electrode and two or more junction electrodes. *See also:* transistor. 245, 210, 66

transistor, point-contact. A transistor having a base electrode and two or more point-contact electrodes. *See also:* semiconductors; transistor. 245, 210, 66

transistor, point-junction. A transistor having a base electrode and both point-contact and junction electrodes. *See also:* transistor. 328

transistor, unipolar. A transistor that utilizes charge carriers of only one polarity. *See also:* semiconductor; transistor. 245, 210, 66

transit (1) (electronic navigation). A radio navigation system using low-orbit satellites to provide world-wide coverage, with transmissions from the satellites at very- and ultra-high frequencies, in which fixes are determined from measurements of the Doppler shift of the continuous-wave signal received from the moving satellite. *See also:* navigation. 187, 13

(2) (conductor stringing equipment). An instrument primarily used during construction of a line to survey the route, set "hubs" and P.O.T. (point on tangent) locations, "plumb" structures, determine "downstrain" angles for locations of anchors at the pull and tension sites, and to sag conductors. *Syn:* level; scope; site marker. 45

transit angle. The product of angular frequency and the time taken for an electron to traverse a given path. *See also:* electron emission. 190, 125

transition (1) (motor control). The procedure of changing from one scheme of motor connections to another scheme