

Glossary O

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Octal Darlington Arrays

Circuit diagram of Darlington configuration

In electronics, the Darlington transistor is a semiconductor device which combines two bipolar transistors in tandem (often called a “Darlington pair”) in a single device so that the current amplified by the first is amplified further by the second transistor. This gives it high current gain (written β or hFE), and takes up less space than using two discrete transistors in the same configuration. The use of two separate transistors in an actual circuit is still very common, even though integrated packaged devices are available.

Ohms

Definition: >An ohm is a resistance that produces a potential difference of one volt when a current of one ampere is flowing through it.

1 ohm = 1volt/amp ($1 \Omega = 1 \text{ V/A}$)

Op amp

Operational amplifier Also called an op amp. A specialized linear integrated circuit (IC) that consists of several transistors, resistors, diodes, and capacitors, interconnected to produce gain over a wide range of frequencies. A single amplifier can comprise an entire IC, or an IC can contain several amplifiers. The dual op amp and the quad op amp are common variants. Some ICs contain one or more amplifiers in addition to other circuits. The devices can be used with resistance-capacitance (RC) network combinations to build active filters for use at audio frequencies.

Open collector

Open-collector configuration In an integrated circuit, an output scheme utilizing no internal pull-up resistor. Wired-OR outputs can thus have opposite states without risk of damage to the device.

OpenLCB

Refers to the Open Layout Control Bus, a publicly developed MRR accessory bus which is designed to work along side a traction bus, such as [DC](#) or [DCC](#). It uses a variety of physical buses, including CAN, Ethernet and Wifi. It is the basis for [NMRAnet](#). See: [OpenLCB website](#).

Optical detector

Optical detector: An integrated-circuit (IC) that provides light-to-voltage conversion. Its direct-current output voltage is proportional to the intensity of light impinging on its sensor.

Opto-isolator

A light-emitting diode (LED) or infrared-emitting diode (IRED) and a photodiode combined in a single package with a transparent gap between them. The LED or IRED converts an electrical signal to visible light or IR; the photodiode changes the visible light or IR back into an electrical signal. This device eliminates interstage impedance reflections that can plague systems that employ electronic coupling. Even the most drastic changes in load impedance have no effect on the impedance "seen" by the signal source. The devices can also protect expensive equipment against electrical transients; for example, in telephone-line modems used with personal computers.

Oscillation

The periodic change of a body or electrical quantity in amplitude or position (e.g., oscillation of a pendulum, voltage, or crystal plate).

Oscilloscope

An instrument that presents the pattern representing variations in an electrical quantity for visual inspection on a Cathode Ray Tube (CRT)

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Last update: **2014/11/11 13:27**

