ContainerPower Energy Solutions

Base station requires negative power supply

Overview

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Telecom and wireless networks typically operate on 48 volt DC power. But unlike traditional 12 and 24 volt systems which have the minus (-) side of the battery connected to ground (i.e. called negative ground systems), telecom batteries have the plus (+) side of the battery connected to ground.

As a result, a variety of state-of-the-art power supplies are required to power 5G base station components. Modern FPGAs and processors are built using advanced nanometer processes because they often perform calculations at fast speeds using low voltages (<0.9 V) at high current from compact.

It looks like that power supply probably connects the DC - to AC line ground, which is a bad idea in the long run. Fortunately, you can probably fix that by removing the other wire that connects to the case ground screw that the green wire from the power line connects to and insulating that wire.

Most op amps don't work properly within 1-2V of the supply rails. Therefore you're going to need to keep your AC signal centered on VCC/2 (15V). Many places in your circuit will require that 15V VCC/2 voltage for reference. You can generate it using a voltage divider easily, but there are some.

Do you have a need for a negative voltage rail to bias a radio frequency (RF) sampling data converter such as the DAC38RF80?

Most applications don’t require the generation of a negative voltage, but you do need it to bias the current sinks in many types of high performance digital-to-analog.

However, higher frequencies require a higher density of sites, which means higher capital expenditures (CAPEX) and operating expenses (OPEX), including power consumption. These daunting challenges create opportunities for 5G infrastructure vendors and their suppliers to help mobile operators:.

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