

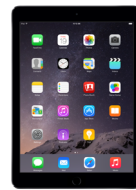
ALL ABOUT GRIFFIN CHARGERS & CABLES

APPLE DEVICE CHARGING RATES

All Lightning charging accessories from Griffin are rated at **12 W** to ensure compatibility with all Apple devices, even iPad.

iPhone 6s and iPhone 6s Plus will not charge faster with a 12 W charger. The Apple device controls the charge rate.

Griffin **only uses MFI-certified Apple connectors** to ensure our cables, chargers and other accessories will work seamlessly with your Apple device.



12 W
(5 V X 2.4 A)

iPad Pro
iPad Air
iPad mini



10 W
(5 V X 2.1 A)

iPhone 7/7 Plus
iPhone 6s/6
iPhone 6s Plus/6 Plus



5 W
(5 V X 1 A)

iPhone 5s
Older iPhone models
iPod



CHARGESENSOR UNIVERSAL CHARGING

Each of the mobile devices in your life has its own, specific charging profile that dictates how much, and how quickly, it can charge.

Griffin's ChargeSensor technology senses the charging requirements of any device plugged into it, and adapts itself to that device. ChargeSensor accepts any AC power source, from 100 to 240 volts, converting it to safe, efficient charging for your smartphones and tablets.



QUALITY & SAFETY

One of the most important attributes for a charger—particularly a wall charger—is **safety certification**. Wall chargers are plugged into high voltage AC power which can be very hazardous.

However, all Griffin wall chargers are safety-tested and certified.

Griffin chargers and cables with this mark on the packaging are **Guaranteed for Life**. Which means that they've been tested and certified for long, reliable life; and that Griffin will replace them if they ever fail to perform as specified.



GRIFFIN TECHNOLOGY SAFETY CERTIFIES ALL CHARGERS TO ENSURE MAXIMUM CONSUMER PROTECTION

Griffin's wall chargers, and other quality chargers, will have a **UL, TUV, or ETL** stamp on the charger. These are all nationally recognized third-party safety testing labs.

The US does not require that external AC power supplies have a safety certification, so some companies choose not to certify their accessories due to the high cost.

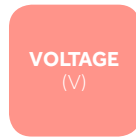
Launched February 2016, the U.S. Department of Energy's **CEC VI certification ("CEC 6")** indicates that a charger must draw essentially zero power when not in use.



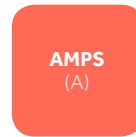
New in 2016!
CEC VI



HOW ARE WATTS CALCULATED?



X



=



The force that drives electrical current, measured in Volts (V)

The steady flow of electrons in a circuit, measured in Amps (A)

Voltage and Current give you electrical power, measured in Watts (W)

APPLE LIGHTNING



- Used for charging and syncing Apple iPhones, iPads and iPods (touch and nano models) since 2012.
- Delivers between 5 and 12 watts of charging power, based on the power needs of the attached device.
- Products with Lightning connectors must carry Apple's MFI badge somewhere on the package to ensure they have met Apple's charging and compatibility requirements, and will reliably charge the customer's Apple device.



UNIVERSAL



- Universal chargers require users to supply their own cable but will work with a variety of devices.
- All other micro-USB devices (non-QC or Samsung Adaptive) will charge between 5–10 W.
- 12 watt chargers can be safely used to charge devices that only require 5-10 W charging power. But they will only deliver the required amount of power.

MICRO-USB




- Most micro-USB-compatible devices (most Android phones and tablets) require between 5–10 W.
- A traditional 5 V micro-USB charger with a claim above 10 W per output does not provide any benefit to the consumer.
- The only micro-USB devices that will benefit from chargers delivering more than 10 W are Quick Charge-compatible and Samsung Adaptive Charging devices and chargers.



QUICK CHARGE



- Products with this logo support Quick Charge. 
- More wattage is available to the connected device and it gets up to a 75% faster charge.
- When a non-QC-compatible device is connected to a Quick Charge charger, the device will default to a 5–7.5 W charge rate.

USB-C



- Delivers up to 15 watts of charging power between compatible power sources, chargers, and devices.
- 15 watt is the current standard charging rate for compatible phones & tablets.
- USB-C cable packaging should clearly identify whether the product is meant for charging only, or capable of handling both power and data.
- Both charger and device must use a USB-C connector. Adapters are available to allow USB-C cables to be connected to legacy USB devices.
- However, those devices will only charge at the expected 5-10 watts.
- When purchasing a USB-C cable it is important to be sure the cable will deliver the promised performance. Look for the "Certified USB" logo to ensure the cable is capable of the high speed data transfer and 15 watt charging for which USB-C is known.



WIRELESS/INDUCTIVE



- Several wireless charging standards exist; Qi, developed by the Wireless Power Consortium, is the most widely adopted standard in wireless devices.
- Both charger and device must support the same wireless/inductive charging standard.

PORTABLE CHARGING



- Milliamp Hour (mAh) is the measure of a battery's energy capacity.
- The higher the mAh the more energy a battery can store and the more charges it can provide.
- If a device's internal battery has a capacity of 2000mAh a 10,000mAh power bank will provide up to 5 charges.