



# Analog IC Insights On-the-Go by Maxim Integrated

Created by Eva Herrada



<https://learn.adafruit.com/maxim-app>

Last updated on 2023-08-29 04:30:45 PM EDT

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# Introduction

Download Analog IC Insights On-the-Go by Maxim Integrated here

Maxim has a new app called Essential Analog. This is a really cool app because we're seeing electronic component manufacturers say "Hey, lots of people use mobile devices. Let's make an app for them so they can find all the different parts."

This app is called [Essential Analog IC insights on-the-go, available for iOS and Android \(\)](#).

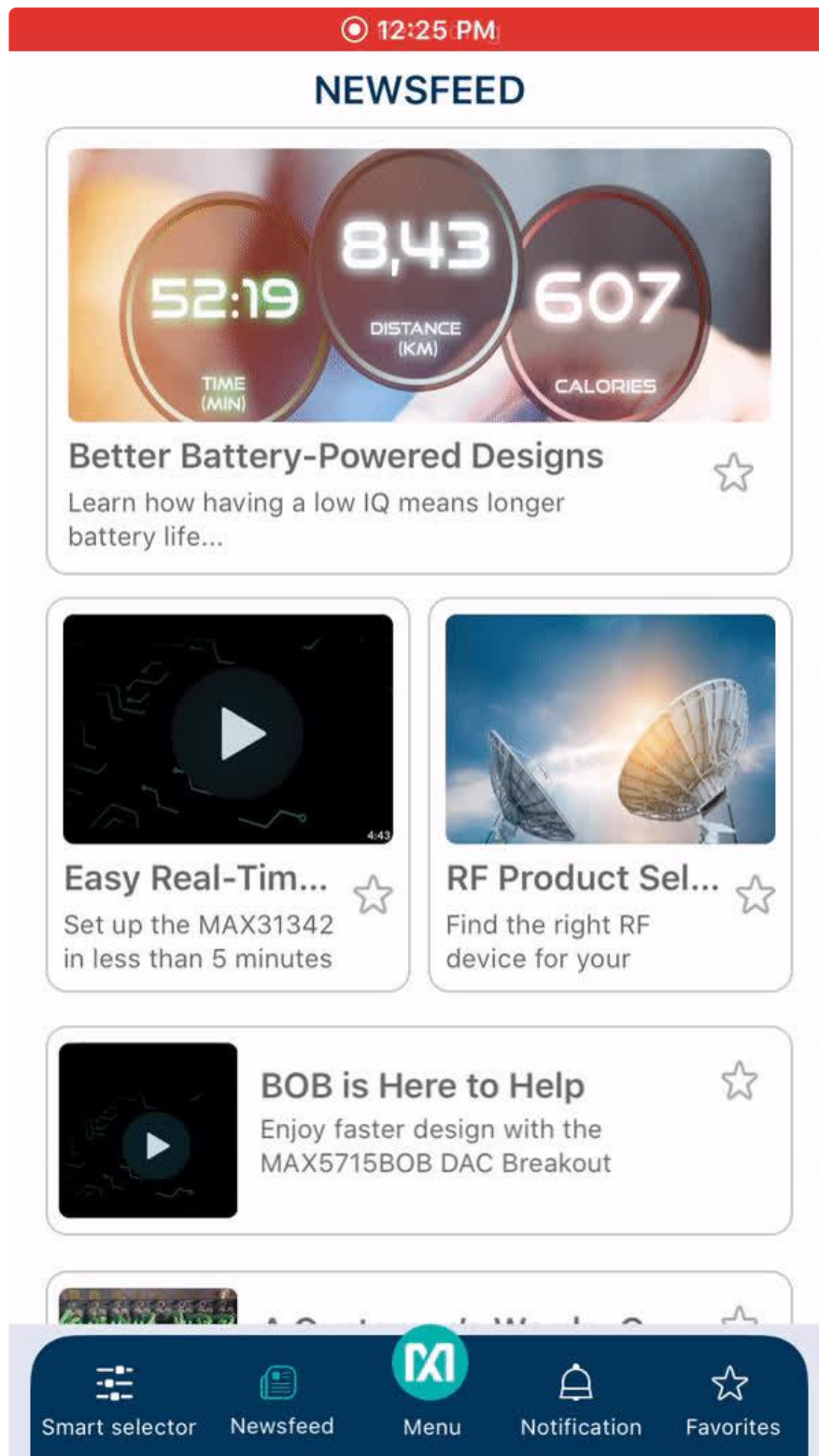
Through the marvels of modern video recording and phone screen capture, we're going to check out and show off what's available in this App.

You don't need to make a [Maxim account \(\)](#) to use the App

However, if you want to purchase or sample components, [you will need to make a My Maxim account \(\)](#)

Thanks to Maxim for supporting Adafruit so we could bring you this guide and video about their new app!

# Newsfeed

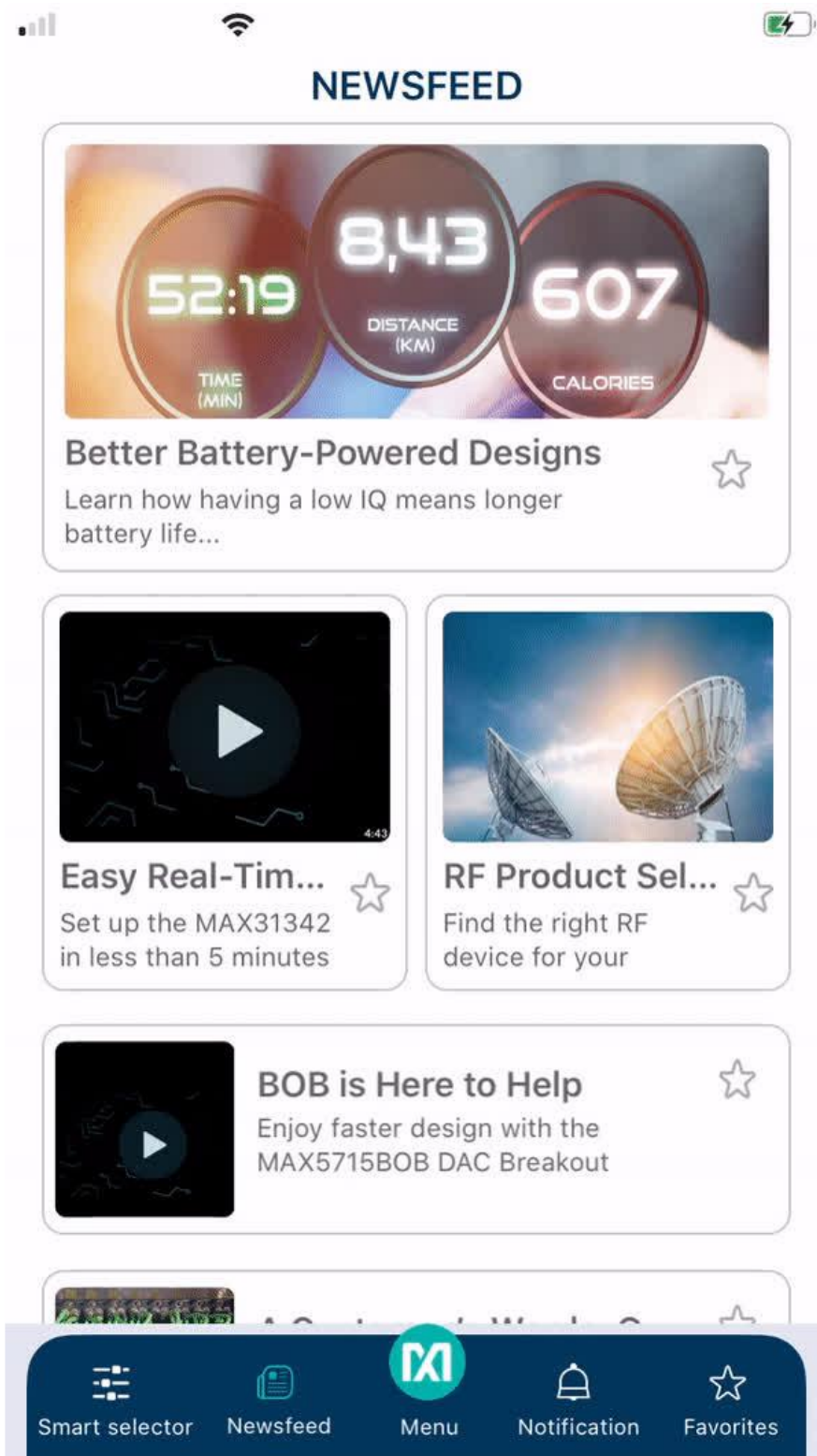


Let's start with the Newsfeed. To me, this is the most interesting because I really like seeing the new products that are coming from each chip manufacturer.

Personally, I like to subscribe to their RSS feeds, or in this case, I subscribe to the Newsfeed. There's videos you can play within the app that demo the latest eval boards, the latest chipsets, and there's a lovely design engineer who will take you through the process. I also like that there are closed captions on these, that's pretty cool!

There's also new app notes to read. App notes are a really good way to get a sense of how to use the part in the most efficient way. Maxim does a lot of medical, wearable, low-power electronics. For example, on the Newsfeed while writing this guide, there's an app note about quiescent current in buck and boost converters. The feature part for this app note is the [MAX17222 \(\)](#) which is a nice little boost regulator because it can go down as low as 400mV input - you can run it off of a more-than-dead AAA battery!

# Getting Part Details & Samples



This MAX17222 seems quite interesting and I'd like to learn more! Click the diagram and it actually takes you to the Maxim website where you can download the datasheet, and at the specs in more detail: what the pinouts are, and voltage in, and

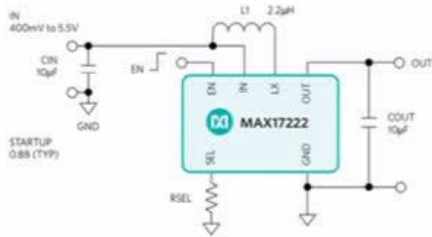
current supply, and quiescent current, etc. There's also design simulators to verify before you start soldering

You can subscribe for more information on updates when this part has news, and for that you have to login. That way, when there's an update to the product you will be notified when there's new datasheet updates. You can also order components directly from this page or get up to 4 pcs samples ordered.

percentage, the better for increased battery life (>90% efficiency at  $\mu\text{A}$  level is ideal)

0.5A peak inductor current limit (Figure 4). With True Shutdown technology, the output is disconnected from the input without forward or reverse current.

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The diagram shows the MAX17222 boost regulator circuit. The input (IN) is connected to a 400mV to 5.5V source through a 10 $\mu\text{F}$  capacitor (CIN). The enable pin (EN) is connected to GND. The feedback pin (FB) is connected to the output (OUT) through a 2.2 $\mu\text{H}$  inductor (L1). The output (OUT) is connected to a 10 $\mu\text{F}$  capacitor (COUT). The reset pin (RSEL) is connected to GND through a resistor. The shutdown pin (SD) is connected to GND. The typical startup current is 0.88mA.

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**Figure 4. nanoPower boost regulators block diagram**

Output voltage can be selected using a single standard 1% resistor. The MAX17222 features post-startup enable transient protection (ETP), which allows the output to remain regulated for input voltages down to 400mV, depending on the load current. The boost converter is available in 0.88 x 1.4mm<sup>2</sup> 6-bump WLP and 6-pin  $\mu\text{DFN}$  packages and features 95% peak efficiency to minimize heat dissipation.

To complement the power benefits of highly efficient boost regulators, choose low-power microcontrollers for your design. However, not all low-power microcontrollers are made the same. Given that the target applications discussed here require a small footprint and are battery-powered, the microcontrollers used should support these small form factor products.

Maxim's DARWIN microcontrollers work well with nanoPower ICs, together enabling products with the longest battery life and the smallest sizes.

DARWIN microcontrollers feature wearable-grade power technology with the lowest active mode and SRAM retention power available; the biggest embedded memories in their class to run more stacks and bigger applications; a scalable memory architecture for running code from external flash or accessing external SRAM to quickly scale application size or meet new market requirements; and advanced embedded security to protect designs from cyber threats. The responsible energy use of DARWIN microcontrollers and nanoPower ICs eases the pressure on the small batteries powering the end products.

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For beginner engineers who don't know this, Maxim is great about sending free samples of chips. If you see a chip and think "I might want to use this," just get the sample now, because it's free!

Maxim will ship it to you in a couple of days. You can get up to four pieces of each sample. And then when you're ready to use it in your design you don't have to dig around and try to find out how to get the part, especially if it's out of stock somewhere. So I always recommend to engineers, sample as much as you want. (I did when I was a student and I saved hundreds and hundreds of dollars!)



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## MAX17222

400mV to 5.5V Input,  
nanoPower Synchronous  
Boost Converter with True  
Shutdown

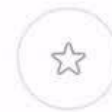
nanoPower Boost Converter that  
Extends Battery Life and Reduces  
Solution Size

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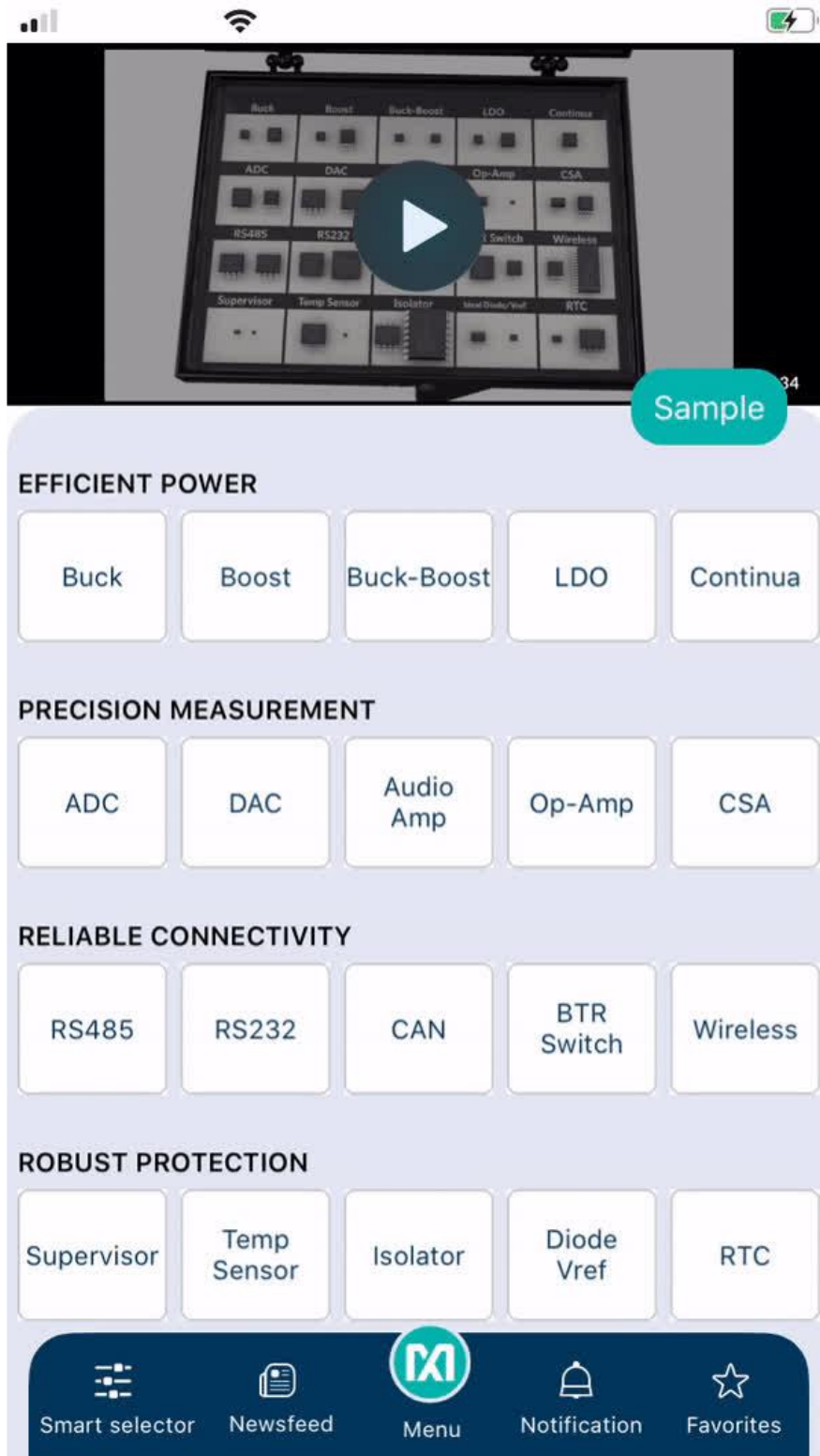


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# Free Analog Parts Kit!

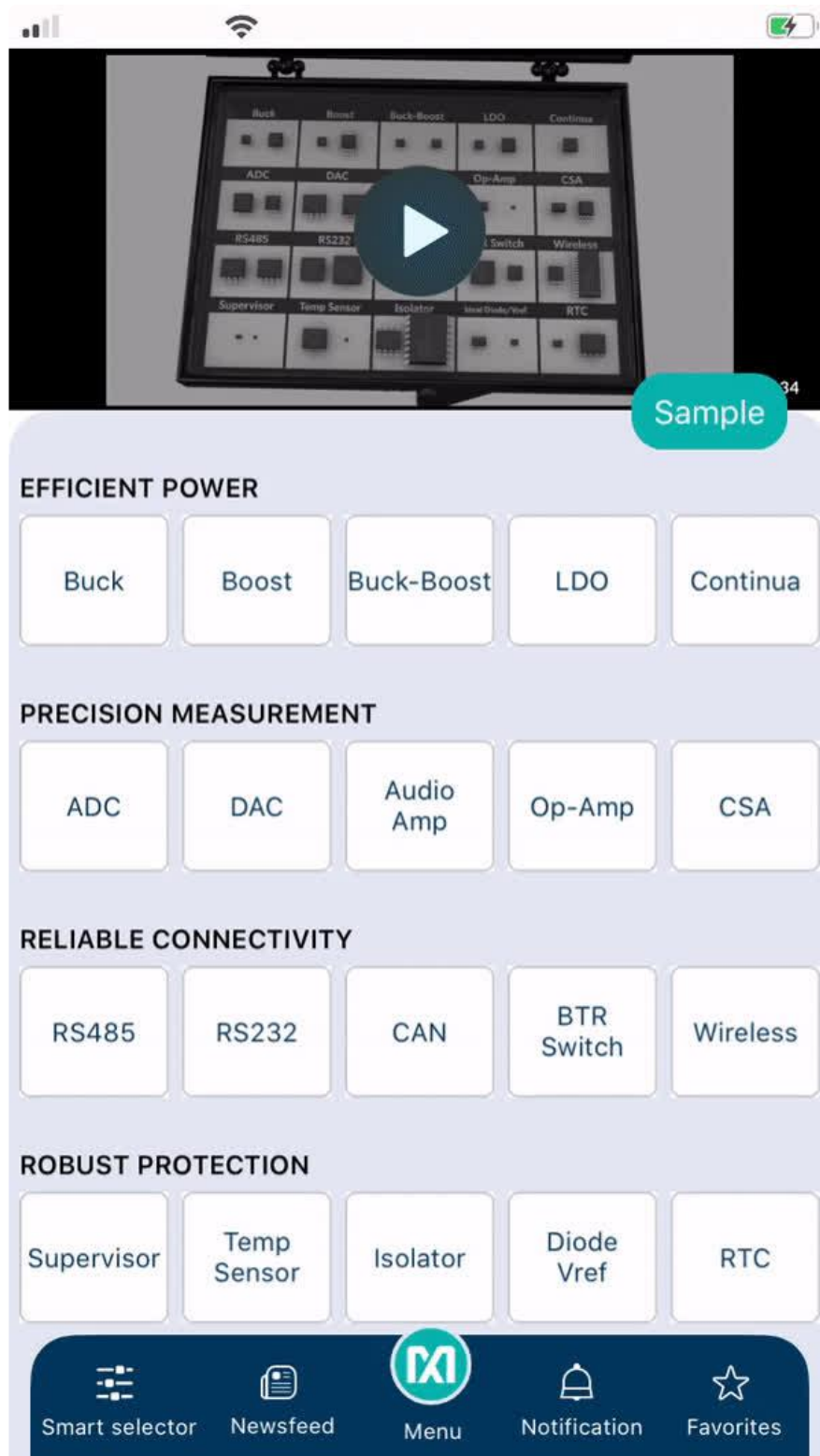


There's free stuff that you can get! Who doesn't love FREE?

There's a free analog toolkit and you can watch the video about it to get a tour of the ~30 analog components included. There's like CAN bus parts, and boost converters, and isolators and all that good Maxim analog stuff.

Did I mention it's FREE? If you register on the Maxim site and through the app here and click sample, you can get this essentials kit for... free. Free app, free stuff!

# Finding & Favoring Parts

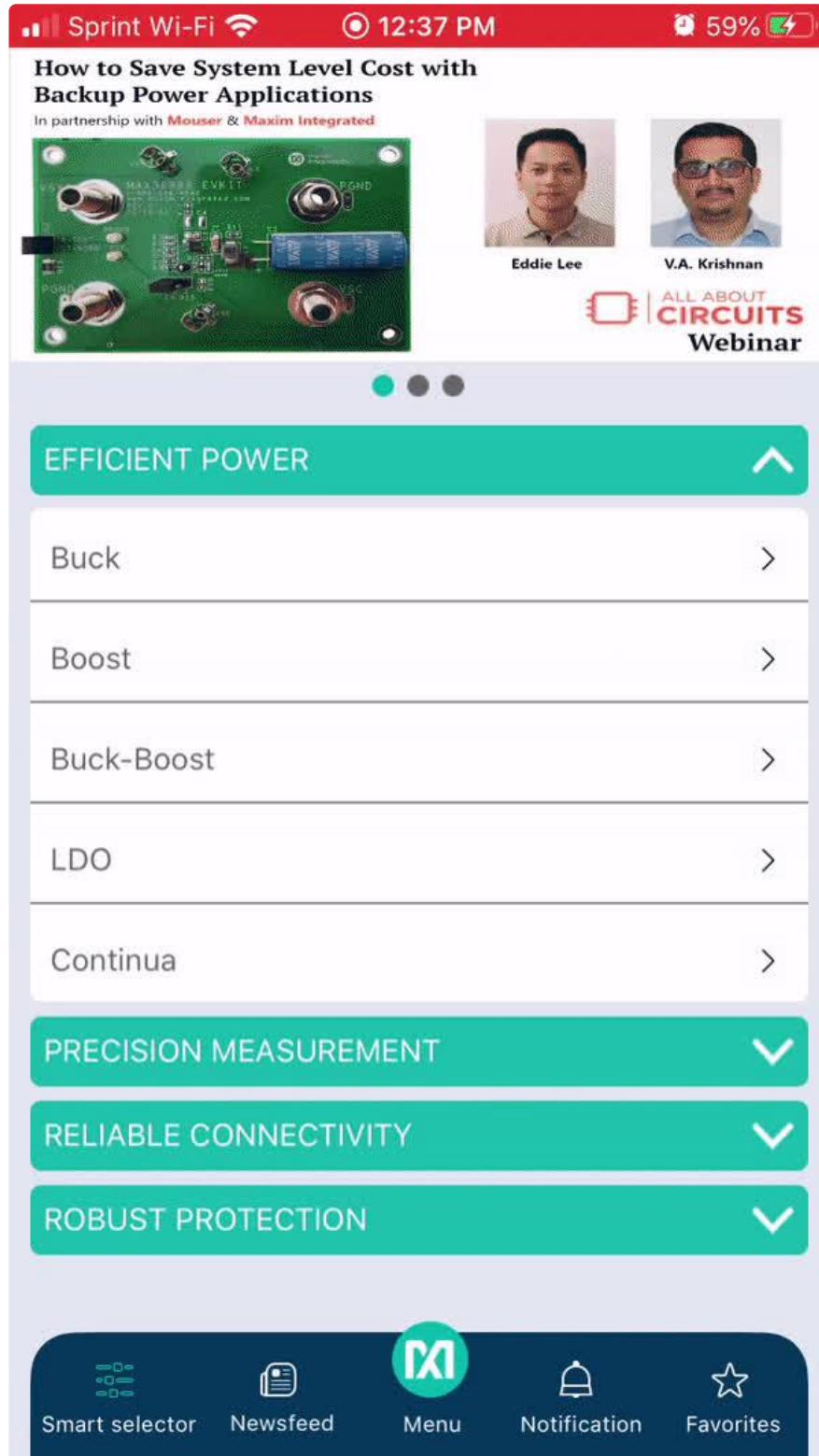


You can also look for parts by type, that's what Maxim does best!

Let's say I want to look for an audio amplifier, they have some recommended ones. If you star a recommended part, when you go to Favorites, it shows up in your favorites

listing. This is good if you're using the smart selector and want to peruse and fav a bunch of components for later specification analysis.

## Filtering Parts



Normally when looking for new parts on Maxim's website (or a distributor website) you would first indicate that you're looking for, say, a boost converter and then you'd filter

by specification "Well, I have to make sure it can take between 2.5 volts and 5 volts and I need it to give me at least 3 volts output, and I need about 200 milli-amps output."

When you search, use the filtering tools to pare down the large quantities of parts to a half dozen or so. Then you might star some as you're going through them and then look at them in detail later when you want to look at the datasheets in more detail. Star which ones you want, they'll show up in your Favorites!

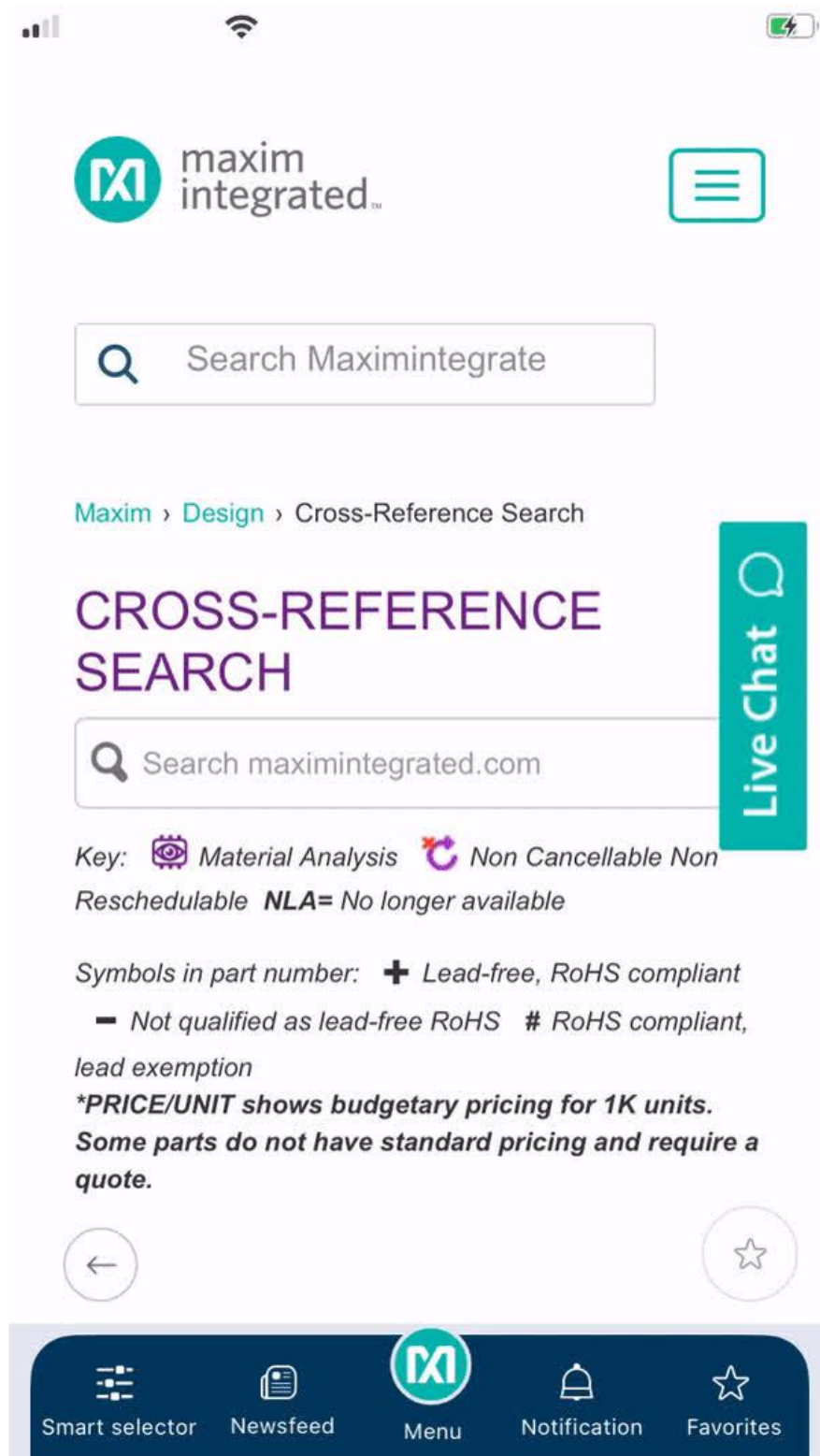
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## Profile & Leaderboard

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There's also a profile, and, a leaderboard. When you watch videos or order samples or look up datasheets, you get points. You can check out leaderboards and if you register, you'll be added if you'd like.

# Cross References



One more thing, I want to show you the cross-references. This is kind of handy: sometimes I want a part that's similar to another part but maybe that part is discontinued, or I want something with different specifications or pricing!

So let's say that I want a Maxim ADC and I'm used to using the TI ADS series of ADCs. Open up the Cross Reference menu and you can type in part of a part number. You don't need to type out the full part number, just the first 5 digits.

The apps will search it's database and give you a few options. So if you're using the ADS1146, you might be interested in the Maxim 1415 for example.

People who watch Desk of Ladyada know I say "Always get multiple sources for your components so if something happens to your supplier, or it's unavailable, or the lead time is really long, you have an alternative." This is a good tool for that!