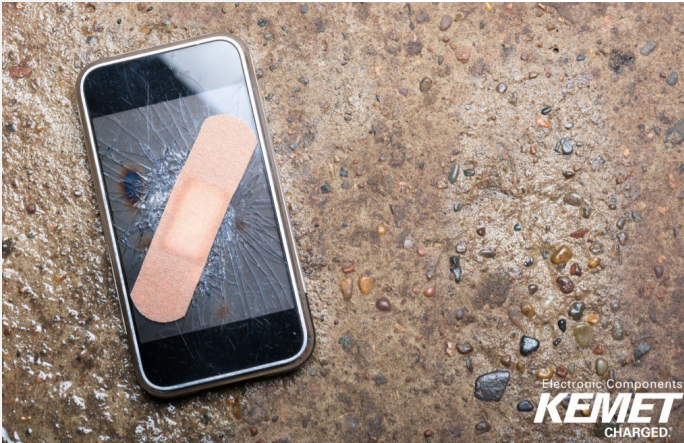


# Ready to Flex?

By Nick Stephen  
April 23, 2019



After breaking something, how many times have you wished a band aid or duct tape could fix the issue? When I was in college, my classmates and I had an inside joke saying, “If it can’t be fixed with duct tape then you’re not using enough duct tape.” I still live by this, for the most part, because duct tape is an all-in-one solution. It’s cheap, flexible, easy to use, and can be cut into different shapes. What if I told you that KEMET has a product that is almost like duct tape, but it’s not used to fix your broken window! (Well, unless you want it to.) Our unique product, Flex Suppressor®, can be used to solve your noise issues in electronic equipment.

## WHAT IS FLEX SUPPRESSOR®?

KEMET is the pioneer in noise suppression, based on a unique, flexible concept. A new material outstripping the limitations of ferrite, the Flex Suppressor suppresses noise by applying magnetic loss. Composed of micro-magnetic foils suspended in a flexible polymer material, the Flex Suppressor attenuates, or suppresses, Electromagnetic and Radio Frequency Interferences (EMI/RFI). Electromagnetic energy is converted into negligible amounts of heat. These sheets can also be used to improve magnetic signal transmissions and receptions. Like a sticker, Flex Suppressors are thin sheets that have an adhesive backing, which can be affixed to areas inside of a system to prevent emission or reception of EMI/RFI. The sheets have a standard dimension of 240 mm x 240 mm and can be custom

cut into different shapes and sizes, as required by the user. I guess they are pretty much like a fancier version of duct tape.

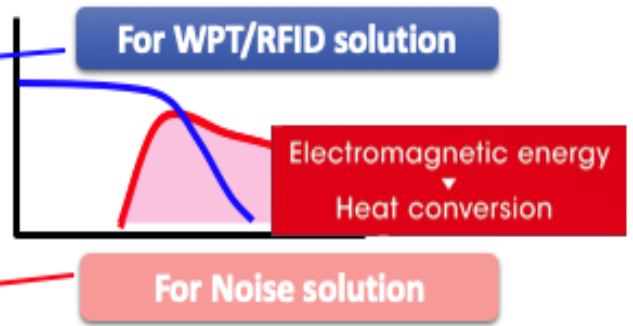
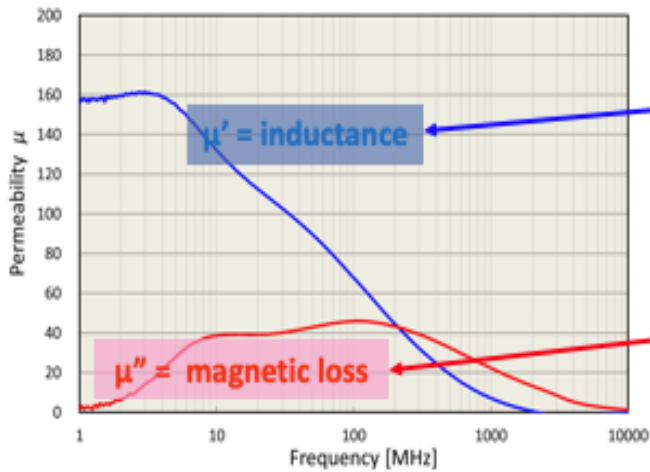


The thickness of each sheet ranges from 0.05 mm to 1 mm. Increasing the thickness of the sheet will improve signal attenuation. When testing this component, the smallest thickness is recommended so that the user can stack multiple sheets in order to identify the optimal thickness for the application. There are several Flex Suppressor series for different types of applications, each with different permeability characteristics.

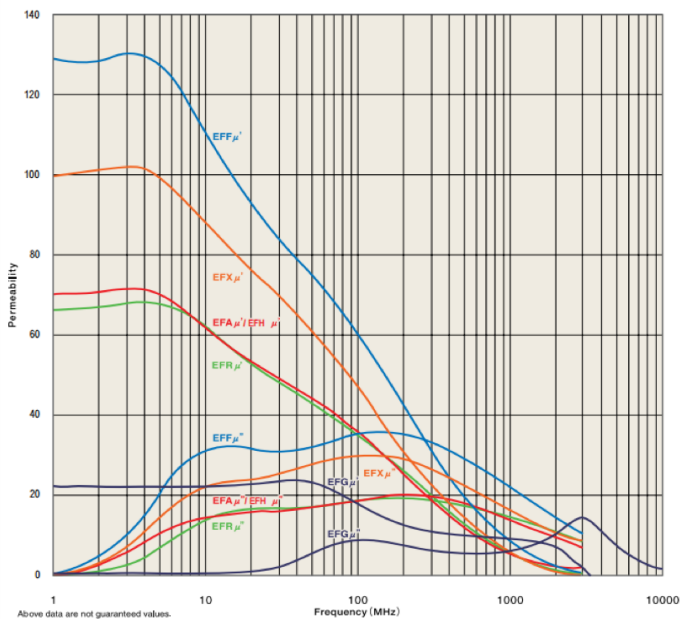
## WHAT MAKES IT SPECIAL?

Flex Suppressor has many different characteristics, but the single most important characteristic is its handy application. You don’t need to change the design on your application, there’s virtually no limitation on where it can be used, and less time required for installation, since it’s like a duct tape.

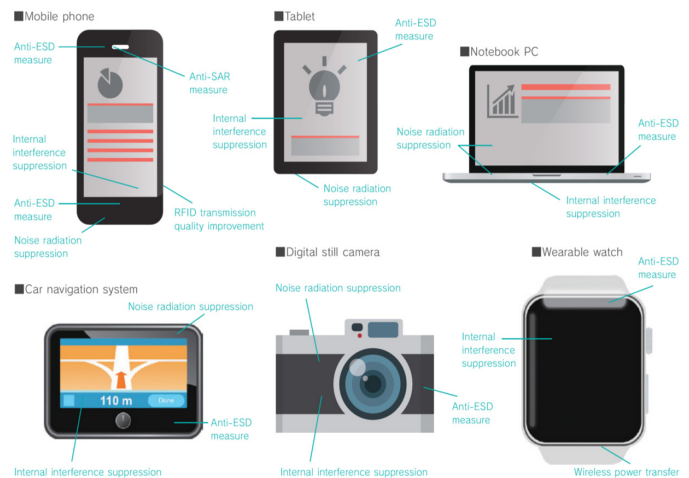
Permeability is also an important factor when considering a flex suppressor. Permeability is the parameter that shows how much electromagnetic wave a substance can absorb. Permeability includes an inductance characteristic called  $\mu'$  (mu prime) and a magnetic loss characteristic called  $\mu''$  (mu double prime). The magnetic loss characteristics of this  $\mu''$  absorbs high frequency magnetic flux, which is the cause of noise and converts this electromagnetic energy into heat. It is effective in a wide range of MHz band to GHz band.



### Permeable Characteristics



FF1 and EFF4 have been designed to provide immunity measures as well as emission countermeasures for in-vehicle devices. Their main features are high temperature resistance, UL 94 V-O approved flame retardancy, and they are within AEC-Q200 standards.



## APPLICATIONS

The applications market for Flex Suppressor is endless, there are no limitations on where it can be used, and less time required for installation. Plus, the thin, flexible material can be used in portable equipment where space can be very limited.

Due to the improvement of LTE, Wi-Fi, and GPS receiving sensitivity, there is an increased demand for thin products with little extra room for other components. KEMET's FX5 and EFX6 are high permeability type and best suited for thin devices with limitation of space. The high frequency noise generated from CPU or memory affects the Wi-Fi receiving sensitivity.

FG1 and EFG2 series Flex Suppressor are high performance type in the GHz band and best suited for improving the Wi-fi receiving sensitivity.

KEMET also offers a reel type Flex Suppressor, which can be wound on cables the suppression of radiated noise generated by a cable. An example would be your smart watch, the charger cable uses a strip of Flex Suppressor to suppress the noise found on the cable. KEMET has the new EFS series Flex Suppressor, which will meet the over 10 GHz high frequency range requirements for 5G.



## CUSTOM CUTTING NOW AVAILABLE AT DIGI-KEY

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KEMET's Flex Suppressor provides multiple variations to meet design needs. To order, provide the below bulleted information to Digi-Key's team. There will be a \$50 set up fee upon approval to order.

Digi-Key Custom Cut Quote Request Required Information:

- Customer Number
- Best contact information for this request  
(The best person Digi-Key should reach out to for any questions regarding this custom cutting inquiry)
- MFG Part Number
- Cut QTY requested
- CAD file (DXF)  
Make sure your 2D DXF is scaled 1:1 to ensure correct sizing of the finished product
- Detailed drawing with measurements

Click [here](#) for more information and to get started.

Noise countermeasures in a high frequency band are becoming increasingly important because of the growing demand for improved receiving sensitivity and faster mobile communications. Flex Suppressor first appeared in the market in 1995, and since then, we have designed and produced variety of Flex Suppressor to solve diverse issues. Even after the continuous evolution of our Flex Suppressor material, the key properties still remain the same. If you have noise problems anywhere in your application, KEMET has the solution for you. No circuit design necessary, easy application, innovative and non- conventional solution. Flex suppressor can save your day just like the trusty duct tape.

For more information on our Flex Suppressor, or to browse our library of products, be sure to visit [Component Edge](#).

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