

# PASSIVE COMPONENTS for the Internet of Things

---

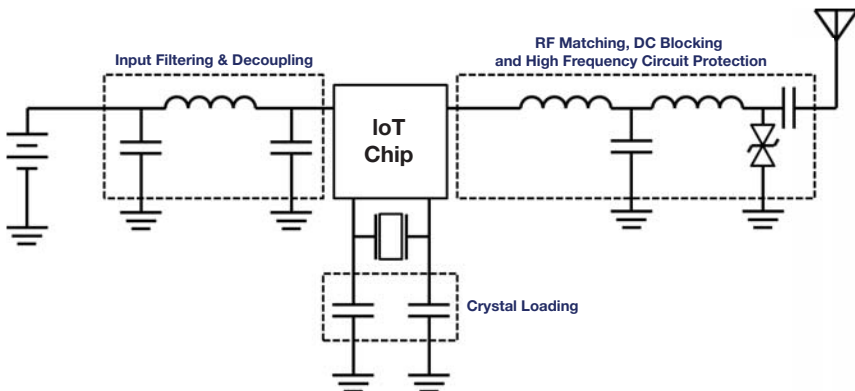
Capacitors, Inductors, and Circuit Protection for RF/Microwave,  
Crystal Loading and Power Circuits in IOT Applications



# IOT DESIGN KIT

Most IoT MCU chips currently require an input voltage filtering/decoupling network, a timing device network, and an output impedance matching network for the RF antenna, which usually communicates using Bluetooth LE, ZigBee, ANT, or other wireless network protocol.

AVX provides passive components suitable for use in all required networks of operation for IoT devices. The diagram below shows an example of a possible use for the components in this kit to get the most out of your IoT device.



Each of these blocks represents an example of how your IoT device might be set up, and all the passive components shown here are included in this kit.

For design suggestions, part recommendations, or other assistance, please contact your local AVX sales office, visit us at [www.avx.com](http://www.avx.com), or call us at (864) 967-2150.

# IOT DESIGN KIT

## IN THIS DESIGN KIT...

## IMPEDANCE MATCHING, DC BLOCKING, & HIGH FREQUENCY CIRCUIT PROTECTION

### Capacitors

AVX Part Number	Case Size	Type	Capacitance	DC Voltage Rating
04025U120JAT2A	0402	RF MLCC	12 pF $\pm$ 5%	50 V
04025U2R2BAT2A	0402		2.2 pF $\pm$ 0.1 pF	50 V

### Inductors

AVX Part Number	Case Size	Type	Inductance	ESR	DC Current Rating
LCMC0402B2N0GTAR	0402	Multilayer Ceramic Inductor	2.0 nH $\pm$ 0.1 nH	0.06 $\Omega$	300 mA
LCWC0402J1N0GTAR	0402	Wirewound Ceramic Inductor	1.0 nH $\pm$ 5%	0.045 $\Omega$	1360 mA

### Circuit Protection

AVX Part Number	Case Size	Type	Working DC Voltage	Breakdown Voltage	Cap
VCH4AG100R8MA	0402	Sub-pF Multilayer Varistor	10 V	125 V	0.8pF

## CRYSTAL LOADING

### Capacitors

AVX Part Number	Case Size	Type	Capacitance	DC Voltage Rating
04025U150JAT2A	0402	NP0/C0G MLCC	15 pF $\pm$ 5%	50 V
04025U270FAT2A	0402		27 pF $\pm$ 1%	50 V

## INPUT VOLTAGE FILTERING AND DECOUPLING

### Capacitors

AVX Part Number	Case Size	Type	Capacitance	DC Voltage Rating
TCNK107M006R0200	K or 1206	Polymer Tantalum Capacitor	100 $\mu$ F $\pm$ 20%	6.3 VDC
TCJS226M006R0400	S or 1206		10 $\mu$ F $\pm$ 20%	6.3 VDC
04026D106MAT2A	0402	X5R MLCC	10 $\mu$ F $\pm$ 20%	6.3 VDC
0603ZD226MAT2A	0603		22 $\mu$ F $\pm$ 20%	10 VDC

### Inductors

AVX Part Number	Case Size (nominal)	Type	Inductance	DCR	I <sub>SAT</sub> *	I <sub>RMS</sub> **
LMLP03B3M100CTAR	0.118 x 0.118 x 0.059 in.	Low Profile SMT	10 $\mu$ H $\pm$ 20%	0.23 $\Omega$	0.7 A	0.71 A
LMLP05D5M100CTAS	0.197 x 0.197 x 0.157 in.		10 $\mu$ H $\pm$ 20%	0.056 $\Omega$	2.3 A	2.1 A
LMLP06A6M100CTAR	0.236 x 0.236 x 0.047 in.	Power Inductor	10 $\mu$ H $\pm$ 20%	0.235 $\Omega$	1 A	1 A