

Batteryless IoT Sensor - NEW

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Batteryless IoT Sensor - NEW

- PIN Photodetectors

- - Reverse Polarity Protection Diodes
 - - Capacitors
 - - Storage Capacitors
 - - MOSFETs
 - - Inductors
 - - Transient/ESD Protection Devices
 - - Environmental Sensors
 - (Temperature/humidity/ambient light/presence/proximity)
 - - RF Matching Components
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Application Overview

This application details the building blocks to build an install-and-forget IoT sensor.

Batteryless IoT Sensor - NEW : Battery Replacement Parts, Buffer Capacitor

MLCC

Product Name	Status	Description	Features	Package	Q-Level
MLCC		Surface Mount Multilayer Ceramic Chip Capacitors	0.5pF (COG)...2.2uF(X5R) 6.3V...50V	0201	

Batteryless IoT Sensor - NEW : Battery Replacement Parts, Storage Capacitor

Enycap

Product Name	Status	Description	Features	Package	Q-Level
ENYCAP HVC 196		Hybrid Energy Storage Capacitors	SMD - Stackable - 1.4V, 2.8V, 4.2V, 5.6V 4 to 90F - in 4.2V version for drop-in replacement of lithium ion battery	Coin Cell Type	

Batteryless IoT Sensor - NEW : Charge Control, Bi-directional Isolation

Dual Mosfet Switch

Product Name	Status	Description	Features	Package	Q-Level
SI5935CDC		Dual P-Channel 20 V (D-S) MOSFET	TrenchFET® power MOSFET	1206-8 ChipFET	

Batteryless IoT Sensor - NEW : Charge Control, Charge Control

Mosfet Switch

Product Name	Status	Description	Features	Package	Q-Level
SI8810EDB		N-Channel 20 V (D-S) MOSFET	TrenchFET® power MOSFET	MICRO FOOT 0.8 x 0.8	
SI8817DB		P-Channel 20 V (D-S) MOSFET	TrenchFET® power MOSFET	MICRO FOOT 0.8 x 0.8	

Batteryless IoT Sensor - NEW : Charge Control, Reverse Leakage Protection

Diode

Product Name	Status	Description	Features	Package	Q-Level
Schottky Diode		Small Signal Schottky Diode FlipKY® Gen 2	0.2 A forward current	Very low dimensions: 0.6x0.3x0.29mm	GREEN

Batteryless IoT Sensor - NEW : Energy Harvesting Element, PV Cell

PIN Photodiode

Product Name	Status	Description	Features	Package	Q-Level
PIN Photodiode		Silicon PIN Photodiode	Blue enhanced - Radiant sensitive area: 7.5 mm ²	(L x W x H in mm): 5 x 4 x 0.9mm	J-STD-020

Batteryless IoT Sensor - NEW : Sensors/Logic, Environmental sensors

Presence Check- Proximity Sensor

Product Name	Status	Description	Features	Package	Q-Level
VCNL4200		High Sensitivity Long Distance Proximity and Ambient Light with I ² C Interface	Integrated modules: infrared emitter (IRED), ambient light sensor (ALS) proximity sensor (PS), and signal conditioning IC	8.0 x 3.0 x 1.8 mm	

RGBW sensor

Product Name	Status	Description	Features	Package	Q-Level
VEML6040		RGBW Color Sensor with I ² C Interface	16-bit resolution for each channel (R, G, B, W) Fluorescent light flicker immunity Supports low transmittance (dark) lens design	OPLGA (2.0 x 1.25 x 1.0mm)	

Batteryless IoT Sensor - NEW : Sensors/Logic, Humidity

To Be Determined

Product Name	Status	Description	Features	Package	Q-Level
TBD					

Batteryless IoT Sensor - NEW : Sensors/Logic, Light

Ambient Light Sensor

Product Name	Status	Description	Features	Package	Q-Level
VEML6030		16bit Ambient Light Sensor with I ² C Interface	Low sleep current of typ 0.5 μ A (keeping all settings) Power saves modes with 2uA @ 4 sec sampling	2 x 2 x 0.87 mm	

Batteryless IoT Sensor - NEW : Sensors/Logic, Presence/Proximity

Combined Solution

Product Name	Status	Description	Features	Package	Q-Level
IR Receiver					
IR Transmitter					

Batteryless IoT Sensor - NEW : Sensors/Logic, Temperature

NTC

Product Name	Status	Description	Features	Package	Q-Level
NTCS...E3...SMT		SMD NTC Thermistors with Enhanced Stability	Monolithic SMD with nickel barrier and pure tin Enhanced stability throughout the lifetime Drift of R25 °C of $\pm 0.5\%$ after 10.000h at any temp		
NTHS Series		SMD NTC Thermistors with Enhanced Stability	4.7k to 350k with 1% tolerance	0402..1206	

Batteryless IoT Sensor - NEW : Transmitter/Receiver Components, Decoupling

RF Blocking Cap at SRF

Product Name	Status	Description	Features	Package	Q-Level
VJ HIFREQ Series		SMD MLCC Capacitors for High Frequency	0.05pF tolerance from 0.1pF to 10pF 0% aging Non-magnetic copper termination available	SMD 0402	

Batteryless IoT Sensor - NEW : Transmitter/Receiver Components, RF Matching Components

HiQ Capacitors

Product Name	Status	Description	Features	Package	Q-Level
VJ HIFREQ Series		SMD MLCC Capacitors for High Frequency	0.05pF tolerance from 0.1pF to 10pF 0% aging Non-magnetic copper termination available	SMD 0402	

Wirewound Inductors

Product Name	Status	Description	Features	Package	Q-Level
IMC-0402-01		Wirewound, Surface Mount Inductors	Q >13 up to 150 Excellent solderability and resistance to soldering heat High reliability	SMD 0402	

Batteryless IoT Sensor - NEW : Voltage Control, Buck Converter

Buck Switch

Product Name	Status	Description	Features	Package	Q-Level
SI8424CDB		N-Channel 8 V (D-S) MOSFET	TrenchFET® power MOSFET with 20mR@2.5V	MICRO FOOT® 1.6 x 1.6 x 0.6mm	
SI8466EDB		N-Channel 8 V (D-S) MOSFET	TrenchFET® power MOSFET with 46mR@2.5V	MICRO FOOT® 1 x 1mm	

microBuck

Product Name	Status	Description	Features	Package	Q-Level
SIC438		3 V to 28 V Input, 8 A, 12 A microBUCK® DC/DC Converter	Versatile, highly efficient, highly configurable, robust	MLP-44L package in 4 mm x 4 mm	

Batteryless IoT Sensor - NEW : Voltage Control, Buck Switch

Mosfet Switch n-Ch

Product Name	Status	Description	Features	Package	Q-Level
SIB422EDK		N-Channel 20 V (D-S) MOSFET	TrenchFET® power MOSFET with 41mR@2.5V Rds=41mR@2.5V, 6nC gate charge, ID=9A Built in Gate Resistor and ESD Protection	PowerPAK SC-75-6L (DFN1616-6) (SOT1189)	
SIB457EDK		P-Channel 20 V (D-S) MOSFET	TrenchFET® Power MOSFET with 49mR@2.5V Rds=49mR@2.5V, 13nC gate charge, ID=9A Built in Resistor and ESD Protection	PowerPAK SC-75-6L (DFN1616-6) (SOT1189)	

Batteryless IoT Sensor - NEW : Voltage Control, Buffer Capacitor

MLCC Ceramic Capacitor

Product Name	Status	Description	Features	Package	Q-Level
VJ0201G225MXY		Surface Mount Multilayer Ceramic Chip Capacitors for Ultra Small Commodity Applications	High capacitance in unit size	SMD 0201	

Batteryless IoT Sensor - NEW : Voltage Control, EMI Filter

Ferrite Bead

Product Name	Status	Description	Features	Package	Q-Level
ILBB-0402		Multilayer Ferrite Beads	High reliability Magnetically self shielded Nickel barrier plating	SMD 0402, 0603, 0805	

Batteryless IoT Sensor - NEW : Voltage Control, Storage Inductor

Inductor

Product Name	Status	Description	Features	Package	Q-Level
IHLP-1212AB-01		IHLP® Commercial Inductors, High Saturation Series Low profile	Shielded construction Lowest DCR/μH Handles current spikes without saturation	3.6 x 3.2 x 1.2mm	
ILSB-0805		Monolithic Chip Inductors	Multilayer Ferrite Beads High reliability Q >15	SMD 0603, 0805, 1206	

Batteryless IoT Sensor - NEW : Voltage Control, Transient Protection

ESD/TVS Diodes

Product Name	Status	Description	Features	Package	Q-Level
VBUS05L1-DD1		Bidirectional Symmetrical (BiSy) Low Capacitance Single-Line ESD Protection Diode in LLP1006-2M ESD immunity acc. IEC 61000-4-2	Working range $\pm 5.5V$, load capacitance $C_D = 0.3pF$ Low package height < 0.4 mm Low leakage current $I_R < 0.1 \mu A$	LLP1006 (1 x 0.6 x 0.35mm)	