

# Unmanned Aerial Vehicle - NEW

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# Unmanned Aerial Vehicle - NEW

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- Power Metal Strip Resistors
  - Iron Powder Core Power Inductors
  - Precision Resistors
  - Optical Sensors
  - Power MOSFETs
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## Application Overview

Unmanned aerial vehicles (UAV) commonly known as drones are with various degrees of autonomy operated aircrafts. There are several brushless DC motors attached to the UAV to ensure a stable flight of the device. These motors need an optimized driving circuit to reduce the size and weight of the device and to optimize the efficiency and extend the time of flight. The UAV's up to 16 motors are commonly driven by a B6-bridge topology. Vishay's latest developments in Power MOSFET Technology show a reduction in package size compared to the power level of the device. Due to the autonomous operation a big amount of integrated sensors are used in the UAV. Besides localization sensors like compass or GPS there are additional sensors to monitor the environment of the UAV, like IR proximity sensors. Vishay provides a wide range of different components to be used in this application either in the power stage or in the sensor stage.

## Unmanned Aerial Vehicle - NEW : BLDC Motor, Temperature Sensor

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### NTC Thermistor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">NTCS0402E3...T</a>		Glass Protected NTC Thermistor	R = 4.7 k $\Omega$ ... 100 k $\Omega$ B25/85 = 3490 K ... 4075 K	SMD 0402	AEC Q200

# Unmanned Aerial Vehicle - NEW : Input Conditioning, EMI-Filter

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## Ceramic Capacitor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">VJ...31X</a>		Surface Mount Multilayer Ceramic Chip Capacitor	C = 1 pF ... 1.0 $\mu$ F	SMD 0402 ... 3640	AEC Q200

## Unmanned Aerial Vehicle - NEW : Input Conditioning, ESD Protection

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### ESD Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">GL05T</a>		ESD Protection Diode for High-Speed Data Interfaces	VRWM = 5 V IPPM = 25 A	SMD SOT-23	AEC Q101

## Unmanned Aerial Vehicle - NEW : Input Conditioning, Level Shifting

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### MOSFET

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SQ1470AEH</a>		N-Channel 30V (DS) MOSFET	ID = 1.7 A RDS(on) = 0.095 $\Omega$ @ VGS = 2.5 V	SMD SOT-363	AEC Q101

## Unmanned Aerial Vehicle - NEW : Input Conditioning, Pull-Up/Down Resistor

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### Resistor Array

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">CRA04P</a>		Thick Film Resistor Array	R = 1 $\Omega$ ... 10 M $\Omega$ Tol = 2 % ... 5 %	SMD	AEC Q200

# Unmanned Aerial Vehicle - NEW : Position Sensors, GPS Modul

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## RF Capacitor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">VJ...W1BC High Q Dielectric</a>		Multilayer Ceramic Chip Capacitor for High Q Commodity Applications	C = 0.5 pF ... 3300 pF	SMD 0402 ... 0603	



## Unmanned Aerial Vehicle - NEW : Position Sensors, Proximity Sensor

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### IR Emitter

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">TSAL6200</a>		High Power Infrared Emitting Diode	$\varphi = \pm 17^\circ$	leaded	AEC Q101

### IR Proximity Sensor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">TSSP6P38</a>		Mid Range Proximity Sensor	Distance up to 2 m Analog Output	SMD	
<a href="#">VCNL4020X01</a>		Fully Integrated Proximity and Ambient Light Sensor	Distance up to 200 mm I <sup>2</sup> C Interface	SMD 0402 ... 0603	

## Unmanned Aerial Vehicle - NEW : Power Stage, DC Link Current Sensor

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### Resistor Array

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">ACAS 0612 AT Precision</a>		Precision Thin Film Chip Resistor Array	R = 47 $\Omega$ ... 150 k $\Omega$ rel. Tol = 0.05 %	SMD 0612	AEC Q200

### Shunt Resistor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">WSL, Wide Terminal</a>		Power Metal Strip® Resistor Wide Terminal	R = 1 m $\Omega$ ... 6 m $\Omega$ Tol = 0.5 % ... 5 %	SMD 0612 ... 1020	AEC Q200
<a href="#">WSLP</a>		Power Metal Strip® Resistor	R = 0.5 m $\Omega$ ... 0.1 $\Omega$ Tol = 0.5 % ... 1 %	SMD 0603 ... 2512	AEC Q200

# Unmanned Aerial Vehicle - NEW : Power Stage, EMI-Filter

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## Inductor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">IHLP-6767DZ-A1</a>		IHLP Inductor High Current Low Profile	L = 0.22 $\mu$ h ... 10 $\mu$ H IDC = 92 A ... 19.5 A	SMD 6767	AEC Q200

## Unmanned Aerial Vehicle - NEW : Power Stage, Low Side Current Sensor

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### Shunt Resistor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">WSL, Wide Terminal</a>		Power Metal Strip® Resistor Wide Terminal	R = 1 mΩ ... 6 mΩ Tol = 0.5 % ... 5 %	SMD 0612 ... 1020	AEC Q200
<a href="#">WSL...18</a>		Power Metal Strip® Resistor High Power (2 x Standard WSL)	R = 0.5 mΩ ... 0.1 Ω Tol = 0.5 % ... 1 %	SMD 0603 ... 2512	AEC Q200

## Unmanned Aerial Vehicle - NEW : Power Stage, Motor Switch

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N-Ch. MOSFET

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SQS484EN</a>		N-Channel 40V (DS) MOSFET	ID = 16 A RDS(on) = 0.009 $\Omega$	SMD PowerPAK 1212-8	AEC Q101

## Unmanned Aerial Vehicle - NEW : Power Stage, Reverse Polarity Protection

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### P-Ch. MOSFET

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SQD50P04-09L</a>		P-Channel 40V (DS) MOSFET	ID = -50 A RDS(on) = 0.0094 $\Omega$	SMD TO-252	AEC Q101
<a href="#">SQJ443EP</a>		P-Channel 40V (DS) MOSFET	ID = -40 A RDS(on) = 0.029 $\Omega$	SMD PowerPAK 1212-8	AEC Q101

## Unmanned Aerial Vehicle - NEW : Power Stage, Transient Protection

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TVS Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SM5A27</a>		Transient Voltage Suppressor	Vbr = 27 V	SMD DO-218AB	AEC Q101

# Unmanned Aerial Vehicle - NEW : Power Supply, EMI-Filter

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## Ceramic Capacitor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">VJ...31X</a>		Surface Mount Multilayer Ceramic Chip Capacitor	C = 1 pF ... 1.0 $\mu$ F	SMD 0402 ... 3640	AEC Q200



## Unmanned Aerial Vehicle - NEW : Power Supply, Reverse Polarity Protection

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### P-Ch. MOSFET

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SQD50P04-09L</a>		P-Channel 40V (DS) MOSFET	ID = -50 A RDS(on) = 0.0094 $\Omega$	SMD TO-252	AEC Q101
<a href="#">SQJ443EP</a>		P-Channel 40V (DS) MOSFET	ID = -40 A RDS(on) = 0.029 $\Omega$	SMD PowerPAK 1212-8	AEC Q101

## Unmanned Aerial Vehicle - NEW : Power Supply, SMPS Buck Converter

### Alu Elcap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">150CRZ</a>		Aluminium Electrolytic Capacitor SMD Very Low Z	C = 4.7 $\mu$ F ... 10000 $\mu$ F	SMD	AEC Q200
<a href="#">150RMI</a>		Aluminium Electrolytic Capacitor Radial Low Impedance	C = 100 $\mu$ F ... 8200 $\mu$ F	Radial	AEC Q200

### Inductor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">IHLP-1616BZ-1A</a>		IHLP Inductor High Current Low Profile	L = 0.1 $\mu$ h ... 4.7 $\mu$ H IDC = 12 A ... 1.75 A	SMD 1616	AEC Q200
<a href="#">IHLP-2020BZ-1A</a>		IHLP Inductor High Current Low Profile	L = 0.1 $\mu$ h ... 10 $\mu$ H IDC = 25 A ... 2 A	SMD 2020	AEC Q200

### N-Ch. MOSFET

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SQ3418EV</a>		N-Channel 40V (DS) MOSFET	ID = 8 A RDS(on) = 0.032 $\Omega$	SMD TSOP-6	AEC Q101

### Schottky Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SS3P3L</a>		Schottky Barrier Rectifier High Current Density	VRRM = 30 V IF = 3 A	SMD TO-277A	AEC Q101

### Shunt Resistor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">WSL</a>		Power Metal Strip® Resistor	R = 0.5 m $\Omega$ ... 0.1 $\Omega$ Tol = 0.5 % ... 1 %	SMD 0603 ... 2816	AEC Q200

## Unmanned Aerial Vehicle - NEW : Power Supply, Transient Protection

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### TVS Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SM5A27</a>		Transient Voltage Suppressor	Vbr = 27 V	SMD DO-218AB	AEC Q101

## Unmanned Aerial Vehicle - NEW : WiFi, Transceiver

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### RF Capacitor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">VJ...W1BC High Q Dielectric</a>		Multilayer Ceramic Chip Capacitor for High Q Commodity Applications	C = 0.5 pF ... 3300 pF	SMD	