Optical Encoder / Digital Potentiometer

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Optical Encoder / Digital Potentiometer

VISHAY COMPONENTS USED:

- o Power MOSFETS
- o TVS
- o Switching Diodes and Rectifiers
- o Capacitors
- o Resistors
- o Inductors/EMI Filters

Application Overview

A optical encoder, is an optoelctronic, electro-mechanical device that converts the angular position or motion of a encoder blade to an digital code. There are two main types: absolute and incremental (relative). The output of absolute encoders indicates the current position of the code-blade, making them angle transducers. The output of incremental encoders provides information about the motion of the encoder bladet, which is typically further processed elsewhere into information such as speed, distance, and position. Rotary encoders are used in many applications that require precise shaft unlimited rotation—including industrial controls, robotics, computer input devices (such as optomechanical mice and trackballs), climate controll units, and various user interfaces.

Optical Encoder / Digital Potentiometer : Power Supply for Transmissive Sensor, Buck Converter Storage Inductor

Buck Storage Inductor

Product Name	Status	Description	Features	Package	Q-Level
IHLP1616BZ-1A		Low Profile, High Current Shielded Inductor	High saturation current low DCR shielded construction	SMD 1616	

Optical Encoder / Digital Potentiometer : Power Supply for Transmissive Sensor, Buffer Capacitor

Buffer capacitor 5V Line

Product Name	Status	Description	Features	Package	Q-Level
TH3		Solid Tantalum SMD Capacitors; TANTAMOUNT® Molded Case, High Temperature 150 °C	100% surge current tested Range: 0.33 µf to 220µf Voltage Rating:6.3 to 50V	SMD	AEC-Q200

Optical Encoder / Digital Potentiometer : Power Supply for Transmissive Sensor, Filter Capacitor

Filter capacitor for power supply

Product Name	Status	Description	Features	Package	Q-Level
VJ....31 / VJ....34		SMD MLCC Reliable Noble Metal Electrode (NME) s C0G (NP0), X7R, X8R DIELECTRIC	High ESD performance high temperature up to 150°C	SMD	AEC-Q200

Optical Encoder / Digital Potentiometer : Power Supply for Transmissive Sensor, Power Supply for Transmissive Sensor

Reverse Polarity Protection High Side

Product Name	Status	Description	Features	Package	Q-Level
SQ2361EES		P-Channel 60 V (D-S) 175 °C MOSFET	TrenchFET® Power MOSFET ESD Protection 800V	TO-236	AEC-Q101

Reverse Polarity Protection Low Side

Product Name	Status	Description	Features	Package	Q-Level
SQ2308CES		Low Rds(on) and high current	TrenchFET® Power MOSFET 100 % Rg and UIS Tested	SOT-23	AEC-Q101

Optical Encoder / Digital Potentiometer : Protection, ESD Protection

ESD Protection

Product Name	Status	Description	Features	Package	Q-Level
GSOT03C to GSOT36C		Two-Line ESD Protection	± 30 kV contact discharge; ± 30 kV air discharge	SOT-23	

Optical Encoder / Digital Potentiometer : Protection, TVS

Transient Voltage Suppressors

Product Name	Status	Description	Features	Package	Q-Level
TPSMP6.8 thru TPSMP43A		High Power Density Surface Mount PAR® TJ = 185 °C capability;	Very low profile Low incremental surge resistance	DO-220AA (SMP)	AEC-Q101

Optical Encoder / Digital Potentiometer : Sensor Output Amplifier, Filter Capacitor

Filter capacitor for signal conditioning

Product Name	Status	Description	Features	Package	Q-Level
VJ....31 / VJ....34		SMD MLCC Reliable Noble Metal Electrode (NME) system	High ESD performance high temperature up to 150°C	SMD	AEC-Q200

Optical Encoder / Digital Potentiometer : Sensor Output Amplifier, Thin Film Resistor

Low current amplifier resistor

Product Name	Status	Description	Features	Package	Q-Level
MCS 0402 AT... MCA 1206 AT		Professional Thin Film Chip Resistors	Operating temperature up to 175 °C for 1000 h P85 up to 0.4 W	SMD	AEC-Q200

Optical Encoder / Digital Potentiometer : Sensor Output Amplifier, Voltage Divider

Voltage Divider for Amplifierr (Current/Voltage converter)

Product Name	Status	Description	Features	Package	Q-Level
ACAS 0606 ATAU Precision		Precision Gold Terminated Thin Film Chip Resistor Array for Conductive Gluing	TCR down to ± 5 ppm/K ESD stability 1000 V		AEC-Q200

Optical Encoder / Digital Potentiometer : Sensor Unit, Optical Sensor

Transmissive Sensor (Dual Channel)

Product Name	Status	Description	Features	Package	Q-Level
TCUT1300X01		Subminiature Dual Channel Transmissive Optical Sensor with Phototransistor Outputs	Aperture (in mm): 0.3; Gap (in mm): 3 ; Up to 105 °C : MSL1	SMD DIL6	AEC-Q101
TCUT1350X01		Subminiature Dual Channel Transmissive Optical Sensor with Phototransistor Outputs	Aperture (in mm): 0.3 Gap (in mm): 3 ; Up to 105 °C : MSL1	SMD DIL6	AEC-Q101

Transmissive Sensor (Single Channel)

Product Name	Status	Description	Features	Package	Q-Level
TCPT1350X01		Subminiature Transmissive Optical Sensor with Transistor Output	Aperture (in mm): 0.3 Gap (in mm): 3 ; Up to 105 °C : MSL1	SMD DIL6	AEC-Q101