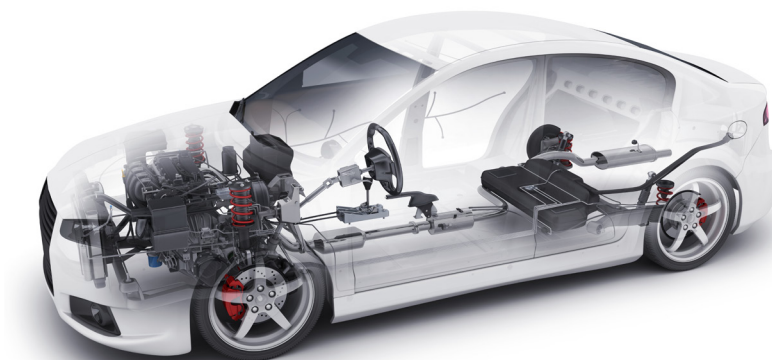




AEC-QUALIFIED

Overview of AEC-Qualified Products

AEC-QUALIFIED PRODUCTS



DISCRETE SEMICONDUCTORS

- Diodes / Rectifiers
 - ESD Protection Diodes
 - Rectifiers (Schottky, Standard / Fast Recovery, and Ultrafast Recovery)
 - Sinterglass Diodes
 - Small Signal Diodes (Schottky, Switching, Zener)
 - Transient Voltage Suppressors (TVS)
- MOSFETs
- Optoelectronics
- Integrated Circuits
 - Analog Switches

PASSIVE COMPONENTS

- | | | | |
|-------------------------|-------------|------------------------|----------------------|
| • Capacitors | • Inductors | • Non-Linear Resistors | • Resistors |
| – Aluminum Electrolytic | – IHLP® | – NTC Thermistors | – Film |
| – Ceramic | – IHTH | – Pt Thin Film Sensor | – Power Metal Strip® |
| – Film | | | – Thick Film Power |
| – Tantalum | | | – Wirewound |

Blue font indicates families in Vishay's Automotive Grade Product Program.
Click [here](#) for the brochure.



**AEC-QUALIFIED****Overview of AEC-Qualified Products****AEC-Q100 Products Table**

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Integrated Circuits Semiconductors AEC-Q100-Qualified	Description / Families	Packages	RoHS-Compliant?
Analog Switches	1.8 V to 5.5 V single supply operation and power down protection - Dual DPDT / Quad SPDT switch fits both analog and digital signals - Very low on-resistance	miniQFN16	Yes

AEC-Q101 Products Table

Discrete Semiconductors AEC-Q101-Qualified	Description / Families	Packages	RoHS-Compliant?
ESD Protection	± 30 kV contact or air discharge ESD protection - Single line and dual line (bidirectional)	SOT-23, SOT-323, SMF (DO-219AB), SOD-323, SOD-523, CLP0603, Die Products	Yes
Rectifiers	- Schottky (Planar / TMBS®) - Standard and fast recovery (GPP / Planar) - Ultrafast recovery (GPP / Planar / FRED Pt® / HEXFRED®)	D²PAK (TO-263AB), TO-220, TO-262, TO-247, eSMP® Series (MicroSMP, SMP, SMPC, SMPA, SlimSMA), SMA, SMB, SMC, Superelectifier®, Axial, Die Products	Yes
Sinterglass Diodes	Fast rectification, high switching avalanche-rated energy, glass passivated junction, hermetically sealed	SOD-57, SOD-64 (depending on part numbers)	Yes
Small Signal Diodes (Schottky, Switching, Zener)	- Industry standard part numbers - Planar technology - T_j max = 150 °C to 175 °C - Very low leakage current 2 % / 5 % Zener voltage tolerance - Low profile / flat lead and gull wing lead surface-mount	SOT-23, SOD-123, SOD-323, DO-214AC (BZG03/04/05), SMF (DO-219AB), MicroSMF (DO-219AC)	Yes
TVS	- PAR® TVS (for automotive applications) - TransZorb® TVS	SMA, SMB, SMC, eSMP® Series (MicroSMP, SMP, SMPC, SlimSMA), SMD, Axial, Die Products	Yes
MOSFETs	- N-channel and p-channel TrenchFET® power MOSFETs - Avalanche-rated cell density process - Very low on-resistance - Optimized logic-level and standard-level types	PowerPAK® 1212-8, PowerPAK® SO-8L, PowerPAK® 8x8L, DPAK (TO-252), TO-262, TO-263, TO-220, reverse DPAK, Bare Die, SO-8, TSOP-6, SOT-23, SC-70	Yes
Optoelectronics	- LED: full color palette including white - Infrared emitters: 830 nm, 850 nm, 870 nm, 890 nm, and 940 nm - Photodiodes, phototransistors - peak sensitivity matches emitters: 400 nm to 1100 nm, 790 nm to 970 nm - Ambient light sensors: peak sensitivity of 540 nm - Optical sensors: reflective sensors, slotted interrupters	PLCC-2, PLCC-2 Plus, PLCC-4, PLCC-4 multicolor, PLCC-6, Little Star®, TELUX, 1206, 0805, 0603, 1.8 mm gullwing, reverse gullwing, MiniLED, SMD, custom packages	Yes

**AEC-QUALIFIED**

Overview of AEC-Qualified Products

AEC-Q200 Products Table

Blue font indicates families in Vishay's Automotive Grade Product Program.
Click [here](#) for program description.

Passive Components AEC-Q200-Qualified	Description / Families	Packages	RoHS-Compliant?
CAPACITORS			
Aluminum Electrolytic	Axial		
	Very long lifetime, high temperature and ripple current	120 ATC	RoHS 2
	Radial		
	Very long lifetime, high ripple current, high temperature up to 150 °C, low ESR	160 RLA, 146 RTI, 140 RTM, 150 RMI, 152 RMH	RoHS 2
	High vibration capability, temperature up to 150 °C	246 RTI-V, 250 RMI-V	RoHS 2
	SMD		
	Very long lifetime, high ripple current, high temperature up to 150 °C, low ESR	160 CLA, 146 CTI, 140 CRH, 150 CRZ	RoHS 2
	High vibration capability, temperature up to 150 °C	260 CLA-V, 246 CTI-V, 250 CRZ-V	RoHS 2
Ceramic	Ceramic Singlelayer		
	AY2 Series, X1 / Y2 Safety Capacitors - Radial leaded, straight leads - Tin plated copper-clad steel wire, 0.6 mm - Temperature cycle: 3000 cycles (-55 °C to +125 °C)	- Safety Class X1, 440 V_{AC} (IEC 60384-14.3) - Safety Class Y2, 300 V_{AC} (IEC 60384-14.3) - Lead spacing of 5 mm, 7.5 mm, and 10.0 mm	Yes
	Leaded MLCCs		
	A..R Series, K...R Series - Axial, radial crimped or straight leads - Tin plated copper-clad steel wire, 0.5 mm	50 V_{DC}, 100 V_{DC}, 200 V_{DC} - Class 1 and Class 2 ceramic - Lead spacing of 2.5 mm and 5.0 mm	Yes
	HOTCap® (K...H Series) - Radial crimped or straight leads - Tin plated copper - Maximum operating temperature: 200 °C	50 V_{DC}, 100 V_{DC}, 200 V_{DC} - Class 1 and Class 2 ceramic - Lead spacing of 2.5 mm and 5.0 mm	Yes
	Surface-Mount MLCCs		
	- Matte tin terminations including Polymer layer (Soft-/Flex-) option - AgPd terminations for conductive epoxy assembly	- SMD (GA...31G Automotive Series GREEN for soldering) - SMD (GA...34G Automotive Series GREEN for silver epoxy bonding)	Yes
	C0G (NP0), X7R, and X8R	SMD (VJ...31X RoHS Automotive Series)	Yes with exemptions
	- Size 0402 up to 1812 with ranges from 16 V to 3000 V - Excellent ESD performance: 0603 in X7R (10 nF / 100 V) 25 kV ESD AD; 0805 and 1206 in X7R up to 25 kV ESD AD - Vishay GREEN series: no use of RoHS and ELV exemptions	SMD (VJ...31 and VJ...34 Automotive Series)	Available



AEC-QUALIFIED

Overview of AEC-Qualified Products

AEC-Q200 Products Table

Passive Components AEC-Q200-Qualified		Packages	RoHS-Compliant?
CAPACITORS			
Film	MKP DC-Link potted radial	27.5 mm to 52.5 mm (MKP1848 DC-Link)	Yes
	MKP RFI Y2 potted radial	7.5 mm to 27.5 mm (MKP338 6 Y2 300 V _{AC})	Yes
	MKT DC potted radial	10 mm to 27.5 mm (MKT 1820)	Yes
	MKT DC potted radial	5 mm (MKT 370)	Yes
	MKT RFI X2 potted radial	15 mm to 27.5 mm (F1772-2, 310 V, X2, ≤ 470 nF)	Yes
	MKT RFI X2 potted radial	7.5 mm to 27.5 mm (MKP339 X2 310 V _{AC})	Yes
Tantalum	TP3 • High performance, low ESR	Cases A, B, C, D, and E	RoHS 2
	TP8 • Small case sizes, maximum capacitance	Cases: 0603, 0805, low-profile A and B	RoHS 2
	TH3 • High temperature: 150 °C	Cases A, B, C, D, and E	RoHS 2
	TH4 • High temperature: 175 °C	Cases B, C, and D	RoHS 2

**AEC-QUALIFIED****Overview of AEC-Qualified Products****AEC-Q200 Products Table**

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Passive Components AEC-Q200-Qualified	Description / Families	Packages	RoHS-Compliant?
INDUCTORS			
Inductors	IHLP® - Low profile, high current, surface mount - Shielded construction - Handles high transient current spikes without hard saturation - Ultra-low buzz noise due to composite construction	1616 to 6767 (-A1 and -1A suffix) - Frequency range to 5 MHz 1616 to 8787 (-5A suffix) - High operating temperature, up to +155 °C 1616 to 8787 (-8A suffix) - High operating temperature, up to +180 °C	Yes
	IHTH - High current, through-hole - High operating temperature range: -55 °C to +155 °C - Shielded construction - Handles high transient current spikes without hard saturation - Ultra-low buzz noise due to composite construction	0750, 1125, 1500	Yes
	IHLM - Low profile, high current, surface mount - Encapsulated body offers improved environmental protection - Shielded construction - Handles high transient current spikes without hard saturation - Ultra-low buzz noise due to composite construction	2525	Yes
	IHLE - Low profile, high current, surface mount - Integrated E-shield for maximum EMI reduction - High operating temperature range: -55 °C to +155 °C - Shielded construction - Handles high transient current spikes without hard saturation - Ultra-low buzz noise due to composite construction	2525, 3232, 4040, 5050	Yes
	IHCL - Low profile, high current, surface-mount Coupled inductor - High operating temperature range: -55 °C to +155 °C - Shielded construction - Handles high transient current spikes without hard saturation - Ultra-low buzz noise due to composite construction	4040, 5050	Yes
	IHLD - Low profile, high current, Dual inductor - Two inductors in one package - High operating temperature range: -55 °C to +155 °C - Shielded construction - Handles high transient current spikes without hard saturation - Ultra-low buzz noise due to composite construction	2525, 3232, 4032	Yes

**AEC-QUALIFIED**

Overview of AEC-Qualified Products

AEC-Q200 Products Table

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Passive Components AEC-Q200-Qualified	Description / Families	Packages	RoHS-Compliant?
NON-LINEAR RESISTORS*			
NTC Thermistor	NTCS - Tolerance on R25 down to 1 % - Suitable for wave or reflow soldering - NiSn terminations - Fully glass coated and protected	SMD sizes: 0402, 0603, 0805	Yes
	NTCAFLEX05 Series - Flex foil sensors - Suitable for narrow-space applications - Insulated and humidity resistant	25 mm x 6 mm	Yes
	NTCALUG		
	NTCALUG01A Series - Standard lug sensors - Insulated PTFE cable	Stud Screw M3, ø7.1 mm	Yes
	NTCALUG02A Series Low-gradient lug sensors	Stud Screw M3, ø8.5 mm	Yes
	NTCALUG03 Mini Lug Series Small-size connector and small lug ring tongue terminal	Stud Screw M2, M3, ø5.5 mm	Yes
	NTCLE203E3...SB0 2-point radial-leaded sensor 0.5 °C basic accuracy	Radial leaded 4.2 mm	Yes
	NTCLE300E3...SB 2-point mini-chip sensor - Insulated flexible leads	Radial leaded 2.4 mm	Yes
	NTCLE301E4 - Mini-chip sensor - Insulated flexible SP leads	Radial leaded 2.4 mm	Yes
	NTCLE305E4...SB 2-point micro-chip sensor - Insulated leads - Fast response time: 0.7 s	Radial leaded 1.6 mm	Yes
Thin Film RTD	PTS-AT - Platinum sensors - Class F0.3, F0.6 in 100 Ω, 500 Ω, or 1000 Ω - High temperature: 175 °C	SMD 0603, 0805, 1206	Yes
TFPT	- Nickel sensor in 100 Ω to 10 kΩ range 0.5 %, 1.0 %, and 5 % tolerance	SMD 0603, 0805, 1206	Yes

*Flame retardance test may not be applicable to some resistor technologies. Contact Vishay Sales or Product Marketing for additional information



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Overview of AEC-Qualified Products

AEC-Q200 Products Table

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Passive Components AEC-Q200-Qualified	Description / Families	Packages	RoHS-Compliant?
RESISTORS*			
Film	Leaded Packages		
	MBA/SMA0204 (10 Ω to 301 k Ω)	Leaded	RoHS 2
	MBB/SMA0207 (10 Ω to 7.5 M Ω)		RoHS 2
	MBE/SMA0414 (10 Ω to 22 M Ω)		RoHS 2
	PR01, PR02, WK2		RoHS 2
	VR25, VR37		RoHS 2
	Surface-Mount Packages		
	Carbon Film MELF • 2.2 Ω to 200 k Ω	Most SMD packages available	RoHS 2
	MELF (SMM, MMA, MMB, MMU) • High pulse capabilities, low TK		RoHS 2
	Thin Film (ACAS AT all sizes, MC AT, MC HP, TNPW e3) • High vibration capability, temperature up to 150 °C		RoHS 2
	WSF • 10 Ω to 100 k Ω		
	CRA		RoHS 2
	CRCW		RoHS 2
	CRCW-AP		RoHS 2
	CRCW-HP		RoHS 2
	CRCW-HR		RoHS 2
	CRCW-IF		RoHS 2
	CRCW-P		RoHS 2
	CRCW-TR		RoHS 2
	PAT, PATT, MPMA, NOMCA		
	RCA		RoHS 2
	RCL		RoHS 2
	RCWE, RCWL		Available

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Passive Components AEC-Q200-Qualified	Description / Families	Packages	RoHS-Compliant?
RESISTORS*			
Power Metal Strip®	WSBS	8518	Yes
	WSHM / WSHP	2818	Available
	WSK	0612, 2512	Available
	WSK	1216	RoHS 2
	WSL	0603, 0805, 1020, 1206, 2010, 2512, 2816, 3637	Available
	WSL	2726, 3921, 4026, 5931	RoHS 2
	WSLF	2512	RoHS 2
	WSL High Power	WSLxxx...18	Available
	WSLP	0603, 0805, 1206, 2010, 2512	Available
	WSLP	2726, 3921, 4026, 5931	RoHS 2
	WSLS	2512	
	WSLT	2010...18, 2512	Available
	WSLT	2726, 3921, 4026, 5931	RoHS 2
	WSMS	2908	Yes
	WSR	4527 (2, 3, and 5 {high power})	Available
Thick Film Power	D2TO20 and D2TO35 • SMD power resistor, 20 W and 35 W at 25 °C • Wide resistance range: 0.01 Ω to 550 kΩ • Non-inductive	D ² PAK (TO-263)	Yes
	LTO100 • Power resistor, 100 W at 25 °C • Wide resistance range: 0.015 Ω to 1 MΩ • Non-inductive	TO-247	Yes
	DTO25 • SMD power resistor, 25 W at 25 °C, min 3 W on PCB • Wide resistance range: 0.016 Ω to 700 kΩ • Non-inductive	DPAK (TO-252)	Yes
Wirewound	AC-AT	Leaded	RoHS 2
	SR (1 W to 5 W, radial leads)	2515 to 7532 packaging (inch)	RoHS 2 (WSZ)
	WSC, WSN, WSZ		

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