

Avago Technologies R²Coupler™ Optocouplers for Automotive Applications

Proven Quality and Reliability Track Record

Avago Technologies' R²Coupler isolation products are designed to meet the stringent requirements for the automotive market. Building upon 35 years of optocoupler expertise, the automotive parts are manufactured in a TS 16949 certified manufacturing facility and are PPAP supported. Robustness is demonstrated through qualification in accordance to AEC-Q100 Grade 1 guidelines. Avago optocouplers have been used extensively in long life and mission critical isolation applications such as locomotive transportation, aerospace, military and industrial automation. Since the introduction of R²Coupler products in 2006, these automotive grade products have seen wide adoption by many automotive suppliers with millions of units operating in more than 30 car models.

Technology Leader

Avago Technologies is the first supplier to introduce 125°C plastic optocouplers for automotive applications, with the largest portfolio of optocouplers ranging from IGBT gate drivers, isolation amplifier, high speed and low power digital isolation and analog feedback isolation. Advanced LED technology enabled the best-in-class performance over lifetime and at high temperature. These optocouplers maintain their very high voltage ratings with robustness and reliable galvanic isolation technology with international component safety certifications (UL1577, IEC 60747-5-5, CSA Component Notice 5). Optocouplers demonstrate superior EMI and common mode noise immunity.

	Automotive Grade
Qualification Plan	AEC-Q100
Maximum Temperature Range	-40°C ≤ T _A ≤ +125°C
Quality Management	TS 16949
PPAP	Yes
Lot Tracking	Traceable to wafer # and lot #
Record Retention	≥10 years typically

		Ultra Stable LED Performance at High Temperature under Continuous Operation ($I_F = 10mA, 50\%$ Duty Cycle, $T_A = +125$ °C)												
	1.4	4										\neg		
r Ratio	1.2											\dashv		
Normalized Current Transfer Ratio	1.0													
	0.8											-		
	0.6									—— Average Average +3σ - Average -3σ				
	0.4									Ave	rage -3	3		
orma	0.2											_		
Z	0													
	() :	2	4	6	8	10	12	14	16	18	20		

Field Years



Charger & Converters

Analog Sensing

- Voltage Sensing (IsoAmp)
- Current Sensing (IsoAmp)
- · Analog Feedback

Digital Interface

- Communications
- Wake-Up/Status Control
- Fault Feedback

Gate Drive

- High Speed MOSFET Driver
- Integrated IGBT Gate Driver

CANBUS Interface

Digital Communications Status Control

Analog Sensing

Temperature/Voltage Sensing Current sensing

Oil Pump

Inverter

• IPM Drive Interface

CANBus Interface

Integrated IGBT Gate Drive

Digital CommunicationsStatus Control

Drive System

IPM Drive Interface IGBT Gate Drive

• Integrated IGBT Gate Drive

Analog Sensing

- Voltage Sensing
- Current Sening

Digital Interface

- Communications
- Wake-UpFault Feedback

Aircon Compressor / Heater

Inverter

- IPM Drive Interface
- Integrated IGBT Gate Drive
- Voltage Sensing (IsoAmp)

Heater

IGBT Gate Drive

CANBus Interface

- Digital Communications
- Status Control

Battery Management System

Battery Pack Monitoring

Voltage Sensing (IsoAmp)

Battery Cell Management

- Digital CommunicationsWake-Up/Status Control
- Fault Status Feedback

CANBus Interface

- Digital Communications
- Status Control

	MOSFET Driver	IGBT Driver	IsoAmp	IPM Driver	10BMd Digital	≤1MBd Digital	Analog
	ACPL-K30T	ACPL-K33T	ACPL-782T	ACPL-M46T	ACPL-M71T/K71T/K74T	ACPL-M43T	ACPL-M43T/K43T
Part No.	ACPL-K34T	ACPL-38JT	ACPL-C87AT/C87BT	ACPL-M43T	ACPL-M72T/K72T/K75T	ACPL-M46T	ACPL-M49T/K49T
Part No.	ACPL-31JT*	ACPL-34JT/344JT	ACPL-C797T	ACPL-K43T/K44T	ACPL-M61T	ACPL-K43T/K44T	
		ACPL-32JT	ACPL-C799T*		ACFL-6211T/6212T*	ACFL-5211T/5212T*	
Charger	•	•	•	•	•	•	•
Inverter		•	•	•	•	•	•
HVAC		•	•	•	•	•	•
DC/DC	•	•	•	•	•	•	•
Oil Pump				•	•	•	•
BMS	•		•		•	•	•

^{*} Advance information

For product information and a complete list of distributors, please go to our web site:

www.avagotech.com /optocouplers

