



# New Product Announcement

## ZXCT180Q ZXCT181Q

### Automotive-Compliant, High-Bandwidth Current Monitors for Uni- and Bidirectional Current Measurement

The ZXCT18xQ series are automotive-compliant current shunt monitors and are designed to provide a cost-effective solution with a 26V common-mode input voltage range.

The ZXCT180Q only supports unidirectional current-sensing whereas the ZXCT181Q supports both bidirectional and unidirectional current-sensing.

The ZXCT180Q's OUT voltage is proportional to the load current and has four fixed voltage gain options of 20V/V, 50V/V, 100V/V, and 200V/V. The ZXCT180Q has two pinout options, A and B, which provide flexibility for users to choose an optimum PCB layout.

They support small-signal bandwidths as high as 400kHz, and large-signal slew rates of 2V/ $\mu$ s. These abilities detect rapid changes in the sensed current, as well as quickly slew the output, for applications that require a quick response to input current changes.

The ZXCT18xQ devices measure a voltage across a shunt at common-mode voltages from -0.3V to 26V, independent of their 2.7V to 5.5V supply voltage, with a maximum supply current of 370 $\mu$ A.

All versions are AEC-Q100 grade 1 qualified, -40°C to +125°C, and are offered in the SOT25 and SOT26 packages.

Standard compliance versions, ZXCT180 and ZXCT181, are available and are suitable for industrial and commercial applications.

*Automotive-compliant - AEC qualified, manufactured in IATF 16949 certified sites supporting PPAP documents.*

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#### The DIODES Advantage

**These high-bandwidth current monitors support rapid current measurement with small  $V_{SENSE}$  resistors and voltages.**

- **Bandwidth as High as 400kHz**  
Provides wide frequency response to detect rapid current changes
- **Slew Rate Up to 2V/ $\mu$ s**  
Enables fast response to accurately amplify high-frequency signals without distortion
- **Offset Voltage as Low as 400 $\mu$ V**  
Minimizes errors when using low value sense resistors
- **Common Mode Range -0.3 to 26V**  
Ensures accurate measure of high-side and low-side currents, including short-circuited loads
- **Robust ESD Capability (HBM: 5kV, CDM: 1.5kV)**  
Improves system reliability

#### Applications

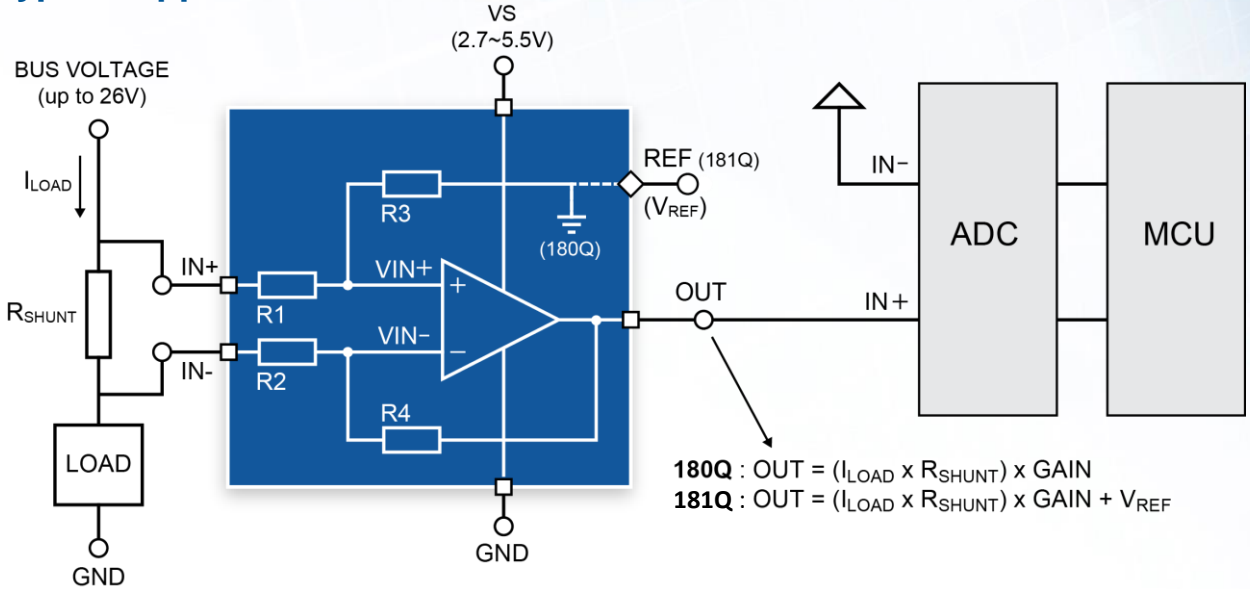
Load and rail current measurement in:

- Ambient lighting controls
- Solenoid valves
- Fault current detection
- Seat heating
- Body control units
- Battery management



## ZXCT180Q ZXCT181Q

### Typical Application



### Product Selection Guide

Part Number <sup>(1)</sup>	Common-Mode Input Voltage <sup>(2)</sup>	Supply Voltage	Gain	Gain Error	Maximum Vos	Bandwidth (BW)	Operating Temp. Range	Package and Pinout
	V	V		%	µV	kHz	°C	
ZXCT180Qx1	-0.3 to 26	2.7 to 5.5	20	±1	±400	400	-40 to +125	
ZXCT180Qx2			50			300		
ZXCT180Qx3			100			150		
ZXCT180Qx4			200			85		
ZXCT181QA1			20			400		
ZXCT181QA2			50			300		
ZXCT181QA3			100			150		
ZXCT181QA4			200			85		

Note 1: Where x is A for pin 1 = OUT and B for pin 4 = OUT

Note 2: Independent of Supply voltage

### Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	REF	OUT	Package	Moisture Sensitivity	Packing	
						Quantity	Carrier
ZXCT180QA1W5-7	Automotive	None	PIN 1	SOT25	MSL-1	3,000	7" Tape & Reel
ZXCT180QA2W5-7	Automotive	None	PIN 1	SOT25	MSL-1	3,000	7" Tape & Reel
ZXCT180QA3W5-7	Automotive	None	PIN 1	SOT25	MSL-1	3,000	7" Tape & Reel
ZXCT180QA4W5-7	Automotive	None	PIN 1	SOT25	MSL-1	3,000	7" Tape & Reel
ZXCT180QB1W5-7	Automotive	None	PIN 4	SOT25	MSL-1	3,000	7" Tape & Reel
ZXCT180QB2W5-7	Automotive	None	PIN 4	SOT25	MSL-1	3,000	7" Tape & Reel
ZXCT180QB3W5-7	Automotive	None	PIN 4	SOT25	MSL-1	3,000	7" Tape & Reel
ZXCT180QB4W5-7	Automotive	None	PIN 4	SOT25	MSL-1	3,000	7" Tape & Reel
ZXCT181QA1W6-7	Automotive	PIN 5	PIN 1	SOT26	MSL-1	3,000	7" Tape & Reel
ZXCT181QA2W6-7	Automotive	PIN 5	PIN 1	SOT26	MSL-1	3,000	7" Tape & Reel
ZXCT181QA3W6-7	Automotive	PIN 5	PIN 1	SOT26	MSL-1	3,000	7" Tape & Reel
ZXCT181QA4W6-7	Automotive	PIN 5	PIN 1	SOT26	MSL-1	3,000	7" Tape & Reel