



New Product Announcement

ZXCT21x

High-Precision, Bi-Directional Current Monitors for Accurate High-Side and Low-Side Current Measurement

The ZXCT21x current monitor series are single-stage instrumentation amplifiers designed to accurately measure very small sense voltages across a wide range of common-mode voltages up to 26V. Their applications include current sensing of load/rail currents in BLDC motor control, telecom power, solar inverters, and battery charged equipment.

The ZXCT21x's low offset voltage (30 μ V) with zero-drift core (100nV/ $^{\circ}$ C) enables it to achieve high-precision current sensing, with maximum drops across the shunt resistor, to as low as 10mV full scale. This allows the use of small-value sense resistors to monitor large currents, thus reducing power loss caused by the measurement.

The series has six fixed voltage gain options in 50V/V, 75V/V, 100V/V, 200V/V, 500V/V, and 1000V/V. The devices measure voltage across the shunt at common-mode voltages from -0.3V to 26V, independent of supply voltage.

These devices operate from a 2.7V to 26V power supply with a maximum 100 μ A supply current. In addition, a REF pin enables bi-directional current flow measurement capability.

All versions are available in the very small U-QFN1418-10 and SOT363 packages and support a -40 $^{\circ}$ C to +125 $^{\circ}$ C ambient temperature range.

The Diodes logo is a registered trademark of Diodes Incorporated in the United States and other countries

© 2023 Copyright Diodes Incorporated. All Rights Reserved.



The DIODES Advantage

These high-precision current monitors support large current measurement with small V_{SENSE} resistors and voltages.

- **Offset Voltage as Low as 30 μ V**
Minimizes errors when using low-value sense resistors
- **Gain Error as Low as 0.5%**
Maintains accurate gain control across temperature and common-mode voltage
- **Common Mode Range -0.3V to 26V**
Accurately measures high-side and low-side currents, including short-circuited loads
- **Wide Operating Voltage Range: 2.7V to 26V**
Provides options for powering separately or from monitored supply
- **Robust ESD Capability (HBM: 5kV, CDM: 1.5kV)**
Improves system reliability

Applications

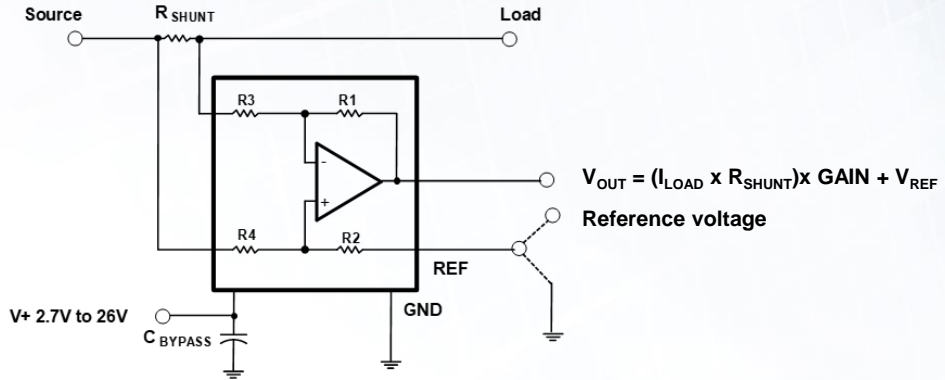
- Notebook computers
- Server farms
- Telecoms
- Instrumentation
- Battery charging and discharging
- High-performance video cards
- Industrial power supplies
- Current sensing (high-side/low-side)



New Product Announcement

ZXCT21x

Typical Application



Precision Current Monitor Product Portfolio

Part Number	Common-Mode Input Voltage ⁽¹⁾	Supply Voltage	Gain	Gain Error	V _{os}	CMRR (Min)	Operating Temperature Range	Package
	V	V		%	µV	dB	°C	
ZXCT210A	-0.3 to 26	2.7 to 26	200	±0.8	±35	100	-40 to +125	SOT363 U-QFN1418-10
ZXCT211A			500		±35	100		
ZXCT212A			1000		±35	100		
ZXCT213A			50		±100	95		
ZXCT214A			100		±75	100		
ZXCT215A			75	±75	100			
ZXCT210B			200	±30	100			
ZXCT211B			500	±30	100			
ZXCT212B			1000	±30	100			
ZXCT213B			50	±90	95			
ZXCT214B			100	±60	100			
ZXCT215B			75	±60	100			
ZXCT210C			200	±30	100			
ZXCT211C			500	±30	100			
ZXCT212C			1000	±30	100			
ZXCT213C	50	±90	95					
ZXCT214C	100	±60	100					
ZXCT215C	75	±60	100					

Note 1: Independent of supply voltage

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Versions	Gain (V/V)	Package	Moisture Sensitivity	Packing	
						Quantity	Carrier
ZXCT210xDSJ-7	Standard	A, B, C	200	U-QFN1418-10 SOT363	MSL-1	3,000	7" Tape & Reel
ZXCT210xDW-7							
ZXCT211xDSJ-7							
ZXCT211xDW-7		A, B, C	500	U-QFN1418-10 SOT363	MSL-1	3,000	7" Tape & Reel
ZXCT212xDSJ-7							
ZXCT212xDW-7							
ZXCT213xDSJ-7		A, B, C	1000	U-QFN1418-10 SOT363	MSL-1	3,000	7" Tape & Reel
ZXCT213xDW-7							
ZXCT214xDSJ-7							
ZXCT214xDW-7		A, B, C	50	U-QFN1418-10 SOT363	MSL-1	3,000	7" Tape & Reel
ZXCT215xDSJ-7							
ZXCT215xDW-7							
ZXCT214xDSJ-7		A, B, C	100	U-QFN1418-10 SOT363	MSL-1	3,000	7" Tape & Reel
ZXCT214xDW-7							
ZXCT215xDSJ-7							
ZXCT215xDW-7	A, B, C	75	U-QFN1418-10 SOT363	MSL-1	3,000	7" Tape & Reel	
ZXCT215xDSJ-7							
ZXCT215xDW-7							