

Super Speed Type-C DRP Port Controller USB 3.1 3.3V/5V T/R 30-Pin WQFN EP

Manufacturer:	Texas Instruments, Inc	<input type="text" value="HD3SS3220RNHR Image"/>
Package/Case:	WQFN30	Images are for reference only
Product Type:	Interface ICs	<input type="button" value="Inquiry"/>
RoHS:	RoHS Compliant/Lead free 	
Lifecycle:	Active	

General Description

The TMP23x -Q1 devices are a family of automotive grade precision CMOS integrated-circuit linear analog temperature sensors with an output voltage proportional to temperature, serving various automotive applications from powertrain to infotainment. These temperature sensors have a typical accuracy from 0°C to +70°C of $\pm 0.5^\circ\text{C}$. The TMP235 -Q1 device provides a positive slope output of 10 mV/°C over the full -40°C to +150°C temperature range and a supply range from 2.3 V to 5.5 V. The higher gain TMP236 -Q1 sensor provides a positive slope output of 19.5 mV/°C from -10°C to +125°C and a supply range from 3.1 V to 5.5 V.

The 9- μA typical quiescent current and 800- μs typical power-on time enable effective power-cycling architectures to minimize power consumption for battery-powered devices. A class-AB output driver provides a strong 500- μA maximum output to drive capacitive loads up to 1000 pF and is designed to directly interface to analog-to-digital converter sample and hold inputs. With excellent accuracy and a strong linear output driver, the TMP23x -Q1 analog output temperature sensors are cost-effective alternatives to passive thermistors.

Key Features

AEC-Q100 qualified for automotive applications
TMP235-Q1 grade 0: -40°C to $+150^{\circ}\text{C}$

TMP236-Q1 grade 1: -40°C to $+125^{\circ}\text{C}$

Functional Safety-Capable
Documentation available to aid functional safety system design

Tight accuracy across a wide temperature range:
 $\pm 2.5^{\circ}\text{C}$ (maximum): -40°C to $+150^{\circ}\text{C}$ (TMP235 -Q1)

$\pm 2.5^{\circ}\text{C}$ (maximum): -10°C to $+125^{\circ}\text{C}$ (TMP236 -Q1)

Positive slope sensor gain, offset (typical):
10 mV/ $^{\circ}\text{C}$, 500 mV at 0°C (TMP235 -Q1)

19.5 mV/ $^{\circ}\text{C}$, 400 mV at 0°C (TMP236 -Q1)

Wide operating supply voltage range:
2.3 V to 5.5 V (TMP235 -Q1)

3.1 V to 5.5 V (TMP236 -Q1)

Short-circuit protected output

Low power: 9 μA (typical)

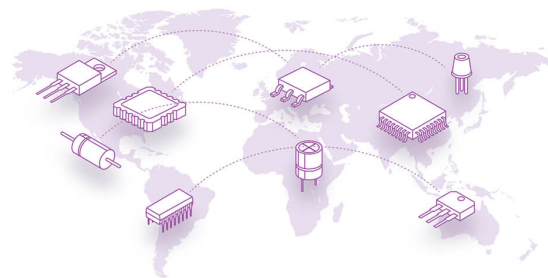
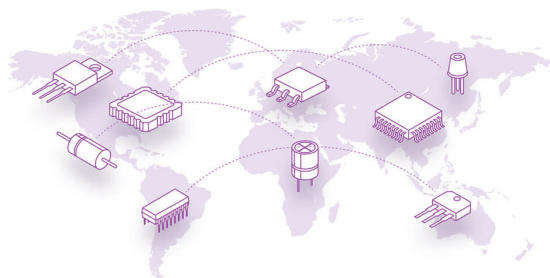
Strong output for driving loads up to 1000 pF

Available package options:
5-pin SC70 (DCK) surface mount

3-pin SOT-23 (DBZ) surface mount

Footprint compatible with industry-standard LMT8x-Q1, LM50-Q1, and LM20 temperature sensors

Cost-effective alternative to thermistors



Recommended For You

HD3SS3202RSVT

Texas Instruments, Inc
UQFN-16

HD3SS3220IRNHR

Texas Instruments, Inc
WQFN30

HD3SS3415RUAR

Texas Instruments, Inc
WQFN42

TLV320AIC23BRHDR

Texas Instruments, Inc
QFN

HD3SS3412RUAR

Texas Instruments, Inc
WQFN42

HD3SS3212RKSRQ1

Texas Instruments, Inc
VQFN20

HD3SS3412RUAT

Texas Instruments, Inc
WQFN-42

HD3SS3202IRSVT

Texas Instruments, Inc
UQFN-16

HD3SS3202IRSVR

Texas Instruments, Inc
UQFN-16

HD3SS3220IRNHT

Texas Instruments, Inc
WQFN30

ISO7221CHD

Texas Instruments, Inc
SOP-8

TB5D2HD

Texas Instruments, Inc
SOP16

TLV320AIC23BIRHDR

Texas Instruments, Inc
QFN28

TLV320AIC23BRHD

Texas Instruments, Inc
QFN-28

HD3SS3212RKSTQ1

Texas Instruments, Inc
VQFN20