

# TSB582

## High-voltage & high-current capability operational amplifier



### Dual 200 mA op amp driving high-power industrial and automotive applications

The **TSB582** dual high-output amplifier simplifies circuitry for driving inductive and low-ohmic loads like motors, valves, and rotary resolvers in industrial applications and automotive systems such as traction inverter, steer-by-wire and auto-parking. The TSB582 operates at power supplies ranging from 4 to 36 V and contains two operational amplifiers (op amps), each capable of sinking/sourcing 200 mA.



#### KEY FEATURES & BENEFITS

- Wide supply voltage: 4 to 36 V
- High output current 200 mA each
- Rail-to-rail output, low rail input
- Internal thermal shutdown & output current limiter
- High tolerance to ESD: 4 kV HBM
- Enhanced RF noise immunity
- Extended temperature range: -40 °C to 125 °C
- Automotive grade version available
- Packages with exposed pad: S08 & DFN8 wettable flank

#### KEY APPLICATIONS

- Electric power steering & steer by wire
- EV Traction inverter
- Motor control
- Rotary/Angle resolver
- Servo motors
- Industrial robots
- Aircraft actuators
- LED driver

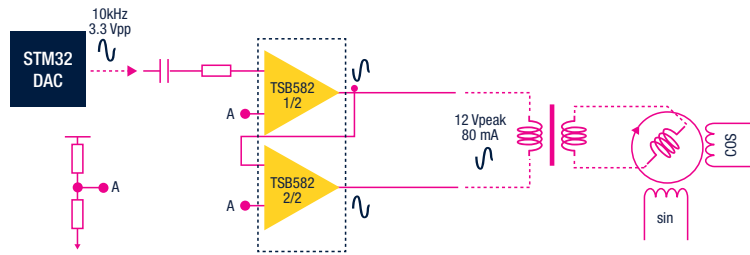


The TSB582 is a unity gain stable, dual operational amplifier. It can operate from 4 to 36 V and it typically outputs up to 200 mA at each of its two channels. This enables direct connection of a load in bridge-tied mode, allowing one TSB582 to replace two single-channel power op amps. While integrating two op amps into one package, the TSB582 is able to save up to 50% of board space and lowers the bill of materials.

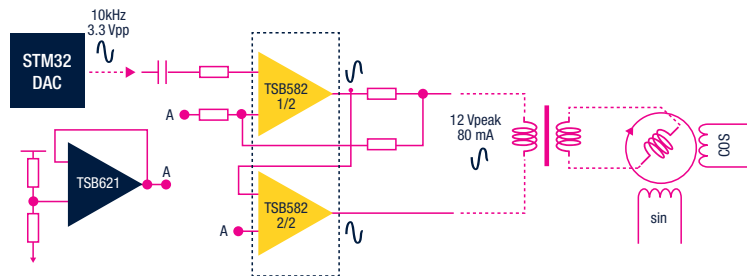
The two high current output amplifiers of the TSB582 feature the advantage of driving loads directly in bridge tied mode or, connected in parallel, allow to double the output sink/source current (up to 400 mA). Available in industrial - as well as in automotive-grade versions, the TSB582 addresses applications such as controlling robot movements and servo motors. Automotive applications include motor-position sensing including steer-by-wire and electric-traction inverters, as well as tracking road-wheel rotation in autonomous driver-assistance systems and self-driving vehicles.

The TSB582 comes with internal short circuit and over-temperature protection, it has rail-to-rail outputs and operates up to 3.1 MHz gain-bandwidth (GBW). Both the industrial - and automotive-grade versions are qualified over a temperature range of -40°C to 125°C, are EMI hardened, and provide ESD robustness up to 4kV HBM. There are two package options, each with low thermal resistance: an SO8 with exposed thermal pad and a 3 mm x 3 mm DFN8 with exposed pad and wettable flanks. The wettable flanks aid inspection after soldering to meet automotive quality-assurance requirements. One of the main application for TSB582 is the rotary resolver in which the op amp manages the power amplification (excitation amplifier) for the primary winding.

## Typical application circuits - Rotary resolver (excitation amplifier)



Voltage mode control



Current mode control

## Product ordering

Order code	Grade	Temperature range	Package	Packing
TSB582IDT	Industrial	-40°C to +125°C	SO8 exposed pad	Tape & reel
TSB582IYDT <sup>(1)</sup>	Automotive			
TSB582IQ2T	Industrial		DFN8 exposed pad wettable flank	
TSB582IYQ2T <sup>(1)</sup>	Automotive			

Note (1): Qualified and characterized according to AEC Q100 and Q003 or equivalent, advanced screening according to AEC Q001 & Q002 or equivalent.



© STMicroelectronics - March 2023 - Printed in the United Kingdom - All rights reserved  
 ST and the ST logo are registered and/or unregistered trademarks of STMicroelectronics International NV or its affiliates in the EU and/or elsewhere. In particular, ST and the ST logo are Registered in the US Patent and Trademark Office.  
 For additional information about ST trademarks, please refer to [www.st.com/trademarks](http://www.st.com/trademarks).  
 All other product or service names are the property of their respective owners.

