1. DESCRIPTION

MT3503 is a high-performance, ultra-low power optical navigation sensor with integrated digital image processing circuits. This chip is based on LASER optical navigation technology, which measures changes in position by optically acquiring sequential surface images (frames) and mathematically determining the speed, direction, and magnitude of motion. This tracking system does not require encoded pattern, encoded strip or any special marking on the tracking surface. The built-in current calibration and CPI calibration functions, suitable for high volume assembly, ensures consistency.

2. APPLICATIONS

- Smart watches
- Bracelets
- Space-constraint and battery-powered wireless devices
- Devices requiring tracking on surfaces with a wide depth of field
- Devices that require tracking on small diameter shafts

3. FEATURES

- Miniature reflowable SMT package with built-in 850nm Infrared VCSEL LASER light source
- Ultra-wide depth of field (DOF) and 24×24 pixels super large sensing area
- Programmable resolution up to 2500 counts/rev
- Efficient low power management with programmable sleep modes & adaptive frame rate
- Applicable to all kinds of stainless steel shaft, including smooth shaft and frosted shaft
- Compliance to IEC/EN 60825-1 Eye Safety
- One-time programmable (OTP) calibration for CPI & LASER, adapts to different shaft assembly tolerances
- I²C fast plus mode up to 1MHz.
- Supports 3 kinds of I²C ID Address and SDA/SCL Swap
- Key press detection by extra IO interrupt
- VDD supply voltage range: 1.7V ~ 2.0V
- Lead-free OLGA 3.00×2.10×0.48mm package (RoHS compliant)

4. TYPICAL APPLICATION CIRCUIT