

General Description

SY5502 is a chip specially designed for wearables application, which provides a perfect solution of charging and power line communication. SY5502 is integrated with NVDC structure, a BUCK charger, a single signal line for data bidirectional Communication battery gauge, 12-bit SAR-ADC and I²C interface. The I²C interface is used for charging management and data communication.

For TWS, SY5502 also supports the auto-detection of earbuds In/out from cradle status.

Application

- ◆ TWS
- ◆ Wearables
- ◆ IoT

Feature

- ◆ VBAT standby current: 3uA
- ◆ Ship-mode standby current: 400nA
- ◆ Input withstanding voltage 16V
- ◆ VIN OVP = 6.0V/6.8V
- ◆ 2mA~500mA register configurable constant charging current
- ◆ VFLOAT 4.00V~4.10V register configurable , step=25mV; 4.10V~4.50V register configurable, step=12.5mV. Accuracy±0.5%
- ◆ ITC and ITERM: 1mA~40mA register configurable
- ◆ Watchdog function , Watchdog timer 40S/80S/160S configurable
- ◆ BUCK charging efficiency up to 93% Bidirectional communication with communication direction auto-switching or the communication controlled by MCU, up to 3Mbps
- ◆ Powerline bidirectional communication: (1) support voltage mode bidirectional communication (2) support voltage mode receive and current mode send
- ◆ Private control instructions integrated and support the master MCU to control SY5502 through VIN pin
- ◆ Auto detection of earbuds In/out cradle status integrated
- ◆ Support I²C, up to 400kbps
- ◆ 12bit SAR-ADC , with VIN, VBAT, NTC voltage, IBAT charging current and IVIN current data readable
- ◆ Battery gauge integrated with accuracy of 5%
- ◆ Package: CSP-2.0mmx2.0mm

Typical Application Circuit

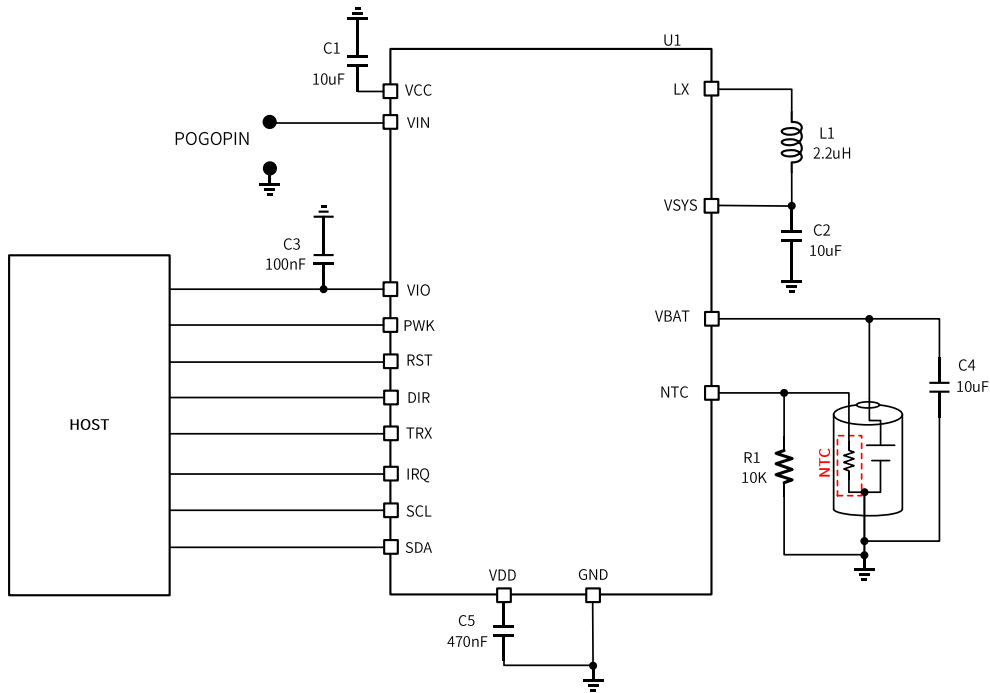


Fig1-1 BUCK mode typical application circuit

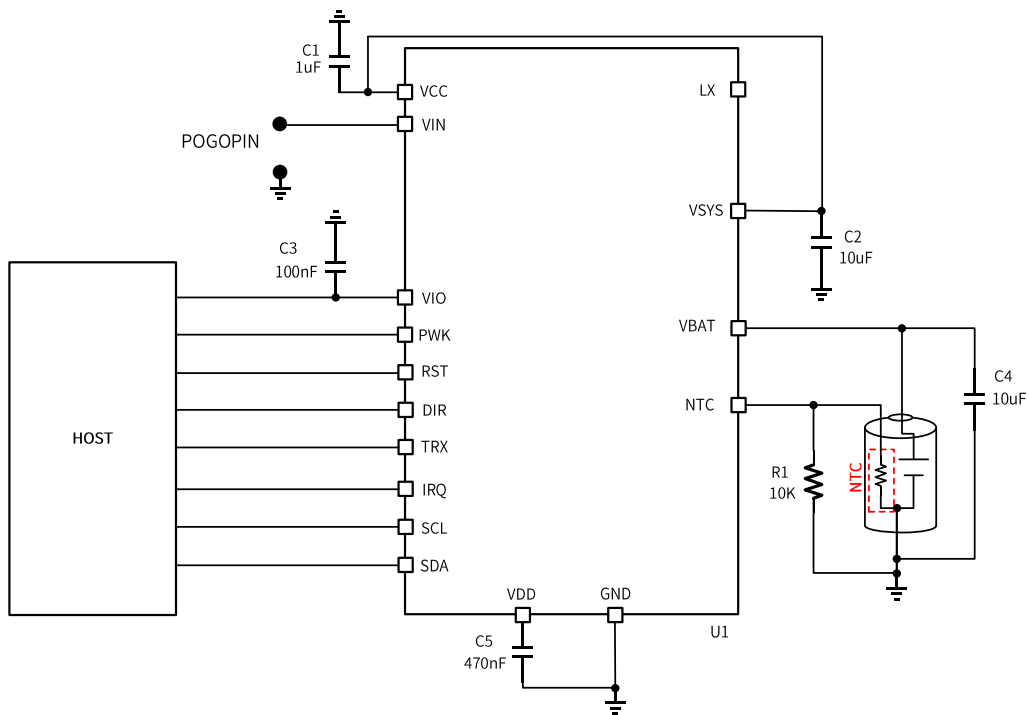


Fig1-2 Linear-Bypass-Mode typical application Circuit