

DEXATEK

DK9167B

Bluetooth Low Energy Module Specification

Revision History

This table describes the changes to the specification.

| Version | Date | Description |
|---------|------------|--------------------|
| 1.0.0 | 2020/11/30 | Official Release |
| 1.0.1 | 2020/12/08 | Modify Temperature |
| 1.0.2 | 2020/12/30 | Add Order Code |

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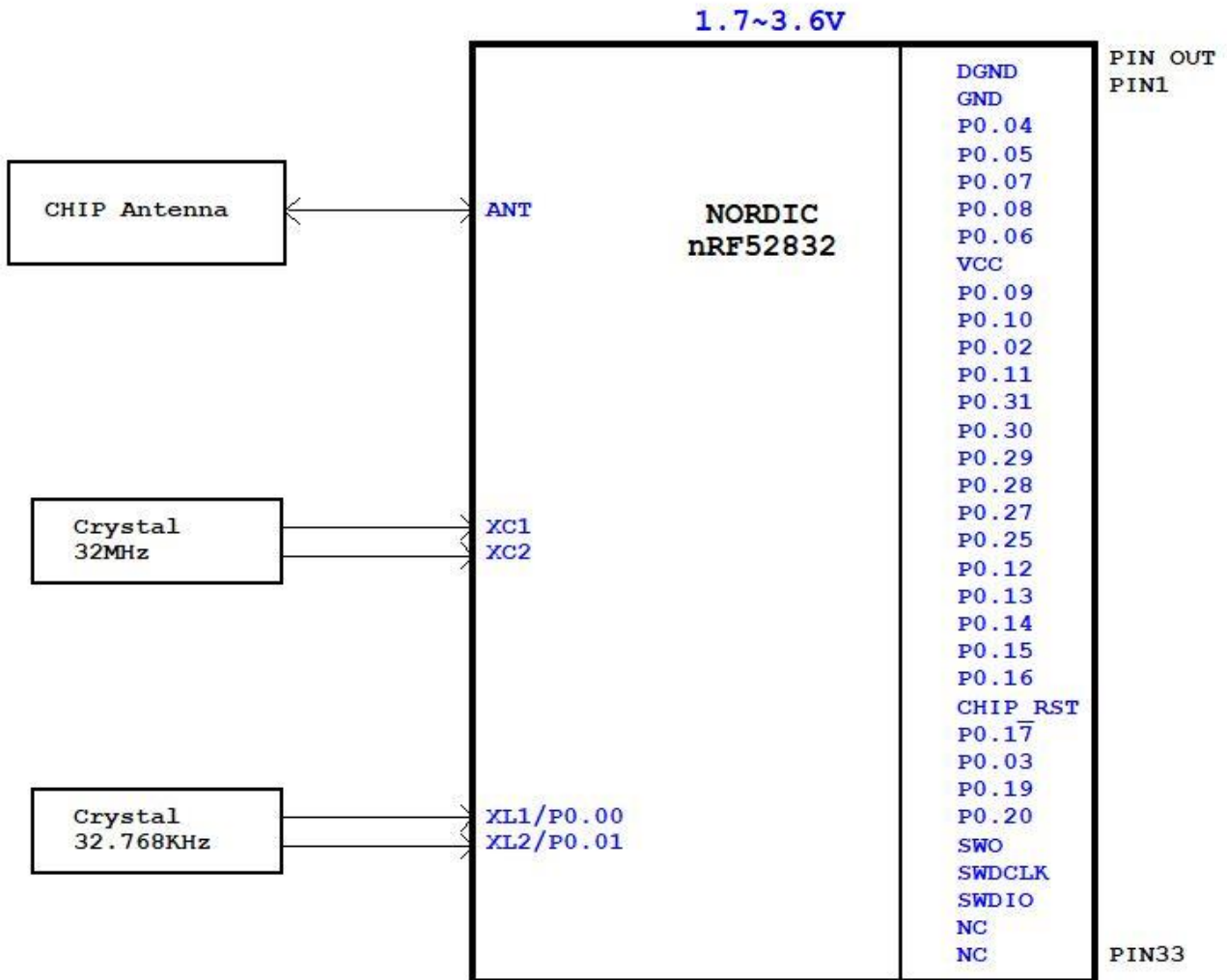
I. Introduction

The DK9167B is compact, surface mount Bluetooth Low Energy (BLE) compliant wireless module. The module is based on Nordic nRF52832 radio Transceiver IC, has a 32 bit ARM[®] Cortex[™]-M4F 64MHz, Flash memory, analog and digital I/O. It can form large scale industrial mesh networks for several applications such as metering. Since its small size, outstanding performance at low power consumption and ultra-low cost, the DK9167B is leading the way for the new generation of Bluetooth low energy modules, provide more tx power performance.

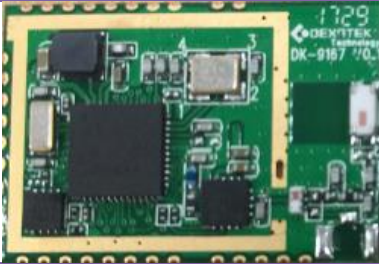
II. Key Features

- 32-bit ARM® Cortex™-M4F 64MHz
- 2.4GHz multi-protocol transceiver
- Data rates: 1Mbps, 2Mbps Bluetooth low energy mode (Bluetooth 5 compatible)
- Sensitivity of -96 dbm for Bluetooth low energy
- 512kB flash, 64kB RAM
- Flexible power management , DC/DC power mode
- Wide supply voltage range: LDO (1.7 to 3.6V), Buck DC/DC (1.7 to 3.6V)
- Flexible and configurable 24 GPIO
- Ultra low-power 32kHz crystal and RC oscillators
- Peripheral 12-bit/200KSPS ADC, Temperature sensor
- Digital I/O
- SPI Master/Slave, 2-wire Master/Slave
- UART (CTS/RTS) with Easy DMA
- AES HW encryption
- Quadrature Decoder (QDEC)

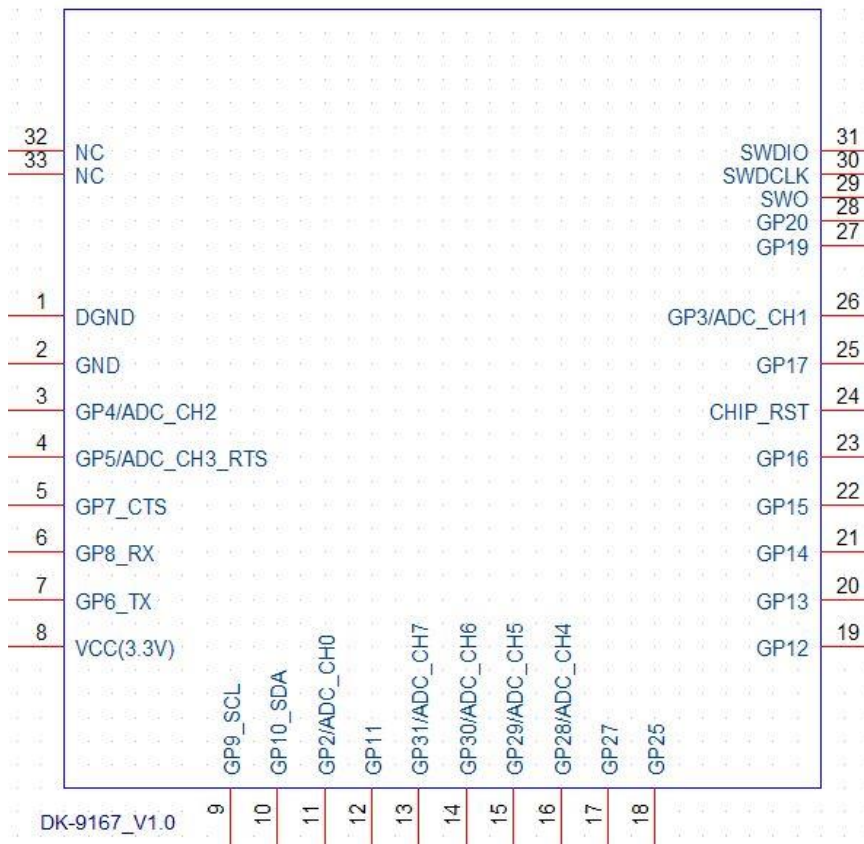
III. Block Diagram



IV. Specification

| | DK-9167B |
|--|--|
| Model |  |
| Antenna | Chip Antenna |
| Main Chip | nRF52832 |
| Application | Non-Home kit Alarm System TaiSEIA & BLE 5.0 |
| CP MFi / PA | W/O MFi CP W/ PA |
| Transmit Power | Tx Maxmum@ 20dBm |
| Wireless Standards | Bluetooth® 5 |
| Data Rates | 2Mbps (Bluetooth® 5) |
| Work Mode | Bluetooth® 5 |
| Frequency Range | 2400MHz---2483.5MHz |
| Power Consumption (in different states) | TX Peak@ 4dBm : 7.5mA RX Peak : 5.4mA |
| Voltage: | 1.7V-3.6V |
| Modulation Technique | GFSK Modulation |
| Wireless Security | AES HW Encryption |
| Dimension(W×D×H) | 25×17×2.4 mm |
| Certification | RoHS / Declaration ID / BQB Test / FCC/ CE RF |
| Environment | Operating Temperature: -40°C~85°C Storage Temperature: -40°C~125°C |

V. Module Pin Definition

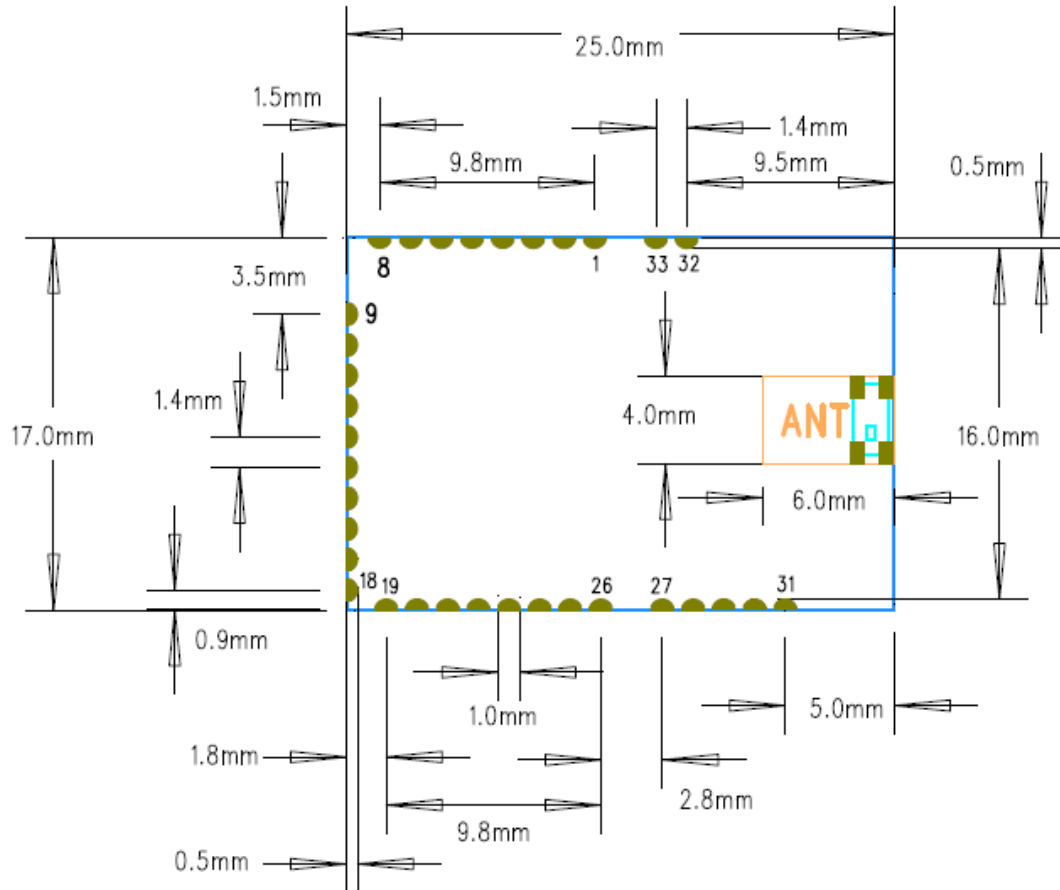


| DK-9167B Module Pin Definition | | | |
|--------------------------------|-------------|----|---------------|
| 1 | <u>DGND</u> | 18 | GP25 |
| 2 | <u>GND</u> | 19 | GP12 |
| 3 | GP4 | 20 | GP13 |
| 4 | GP5 | 21 | GP14 |
| 5 | GP7 | 22 | GP15 |
| 6 | GP8 | 23 | GP16 |
| 7 | GP6 | 24 | CHIP_RST |
| 8 | <u>VCC</u> | 25 | GP17 |
| 9 | GP9 | 26 | GP3 |
| 10 | GP10 | 27 | GP19 |
| 11 | GP2 | 28 | GP20 |
| 12 | GP11 | 29 | SWO |
| 13 | GP31 | 30 | <u>SWDCLK</u> |
| 14 | GP30 | 31 | <u>SWDIO</u> |
| 15 | GP29 | 32 | NA |
| 16 | GP28 | 33 | NA |
| 17 | GP27 | | |

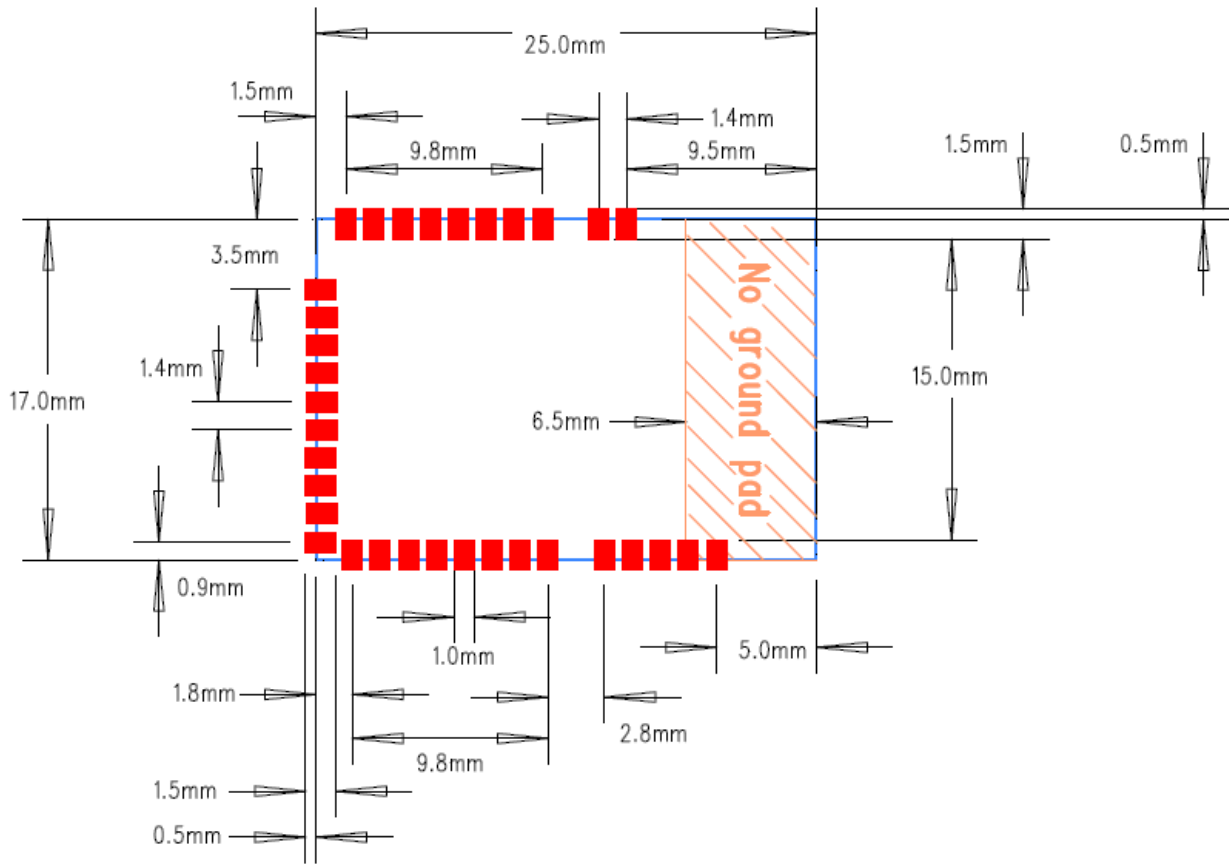
VI. Product Dimension

- PCB SIZE: (W) 25 x (D) 17 mm
- PIN OUT: 33
- Recommended Layout of solder Pad

TOP Layer

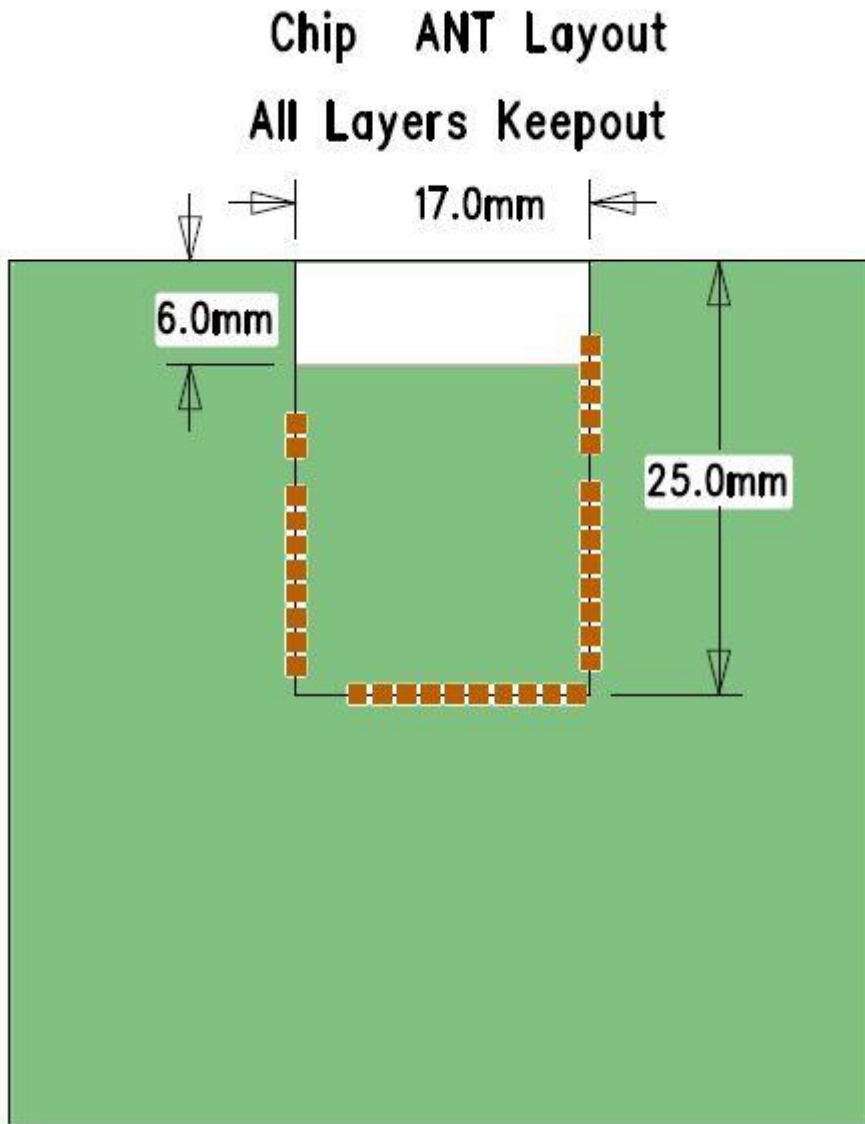


BOTTON Layer



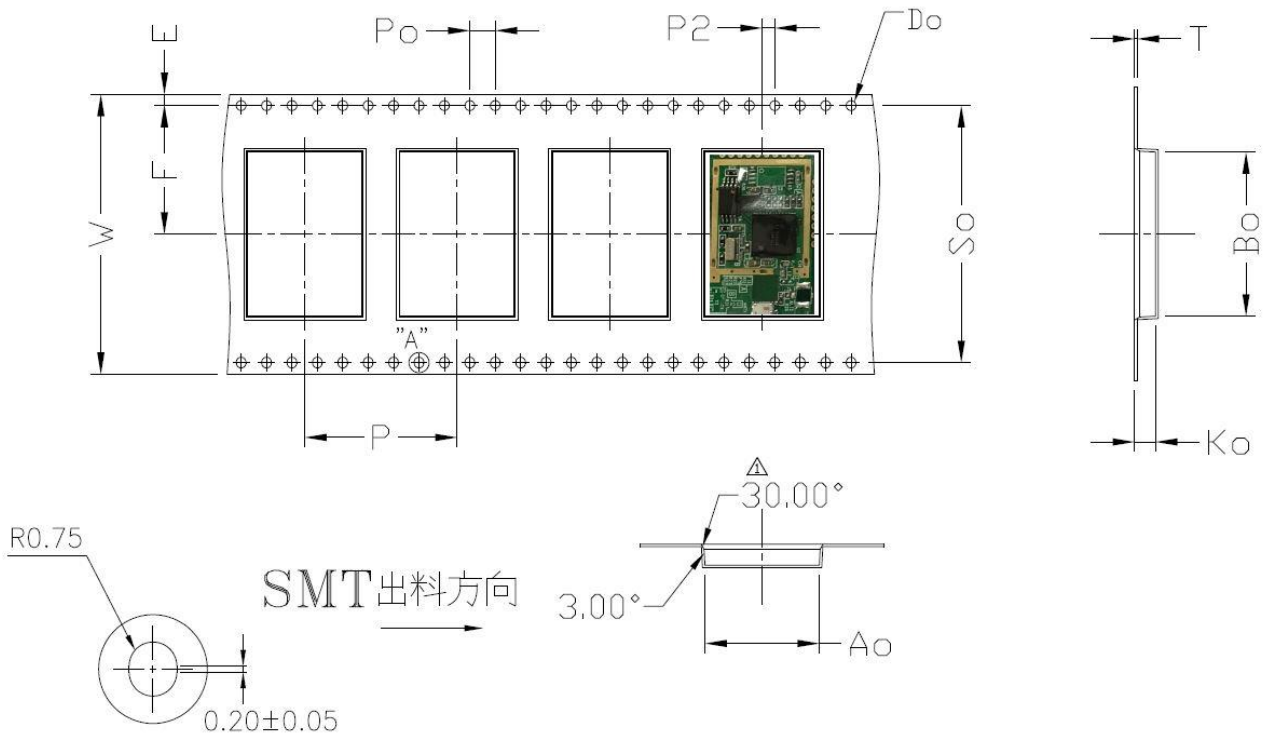
VII. RF Layout Suggestion

Please follow below instruction to avoid RF Performance lose.



VIII. Packaging Info

● Reel Packaging



| ITEM | DIM | ALTERNATE |
|----------------|---|-----------|
| W | 44.00 ^{+0.30} _{-0.30} | |
| E | 1.75 ^{+0.10} _{-0.10} | |
| F | 20.20 ^{+0.15} _{-0.15} | |
| So | 40.40 ^{+0.10} _{-0.10} | |
| P | 24.00 ^{+0.10} _{-0.10} | |
| P ₀ | 4.00 ^{+0.10} _{-0.10} | |
| P ₂ | 2.00 ^{+0.15} _{-0.15} | |
| Do | ∅1.50 ^{+0.10} _{-0.00} | |
| T | 0.40 ^{+0.05} _{-0.05} | |
| Ao | 18.00 ^{+0.10} _{-0.10} | |
| Bo | 25.80 ^{+0.10} _{-0.10} | |
| Ko | 3.30 ^{+0.10} _{-0.10} | |

IX. Order Code

● DK91 Series (For 52810/52832)

| | | | | | | | |
|---|---|---|---|---|---|---|--|
| D | K | 9 | 1 | 6 | 7 | B | |
|---|---|---|---|---|---|---|--|

| Abbreviation | Definition codes |
|--------------|------------------------------------|
| DK | Dexatek Product |
| 91 | Nordic Chip |
| 71 | Without PA Solution / Chip Antenna |
| 76 | Without PA Solution / PCB Antenna |
| 67 | PA Solution / Chip Antenna |
| A | nRF52810 Solution |
| B | nRF52832 Solution |