

SIM HOLDER DESIGN GUIDES Application Note

80000NT10001a Rev. 1 - 04/09/07

This document is related to the following products:

APPLICABILITY TABLE

PRODUCT	PART NUMBER	APPLICABILITY
EZ10-QUAD-PY	3990150467	
GT863-PY	3990250466	
GT864-QUAD	4990150069	
GT864-PY	4990150070	
GM862-GPRS	3990250631	√
GM862-QUAD	3990250655	√
GM862-QUAD-PY	3990250656	√
GM862-GPS	3990250657	√
GM862-GPS	3990250689	√
GM862-QUAD-PY	3990250658	√
GM862-QUAD	3990250659	√
GC864-QUAD	3990250675	√
GC864-PY	3990250676	√
GC864-QUAD-C2	3990250681	√
GE863-QUAD	3990250664	√
GE863-PY	3990250665	√
GE863-QUAD	3990250653	√
GE863-PY	3990250654	√
GE863-GPS	3990250660	√
GE863-GPS	3990250690	√
GE863-PY	3990250661	√
GE863-QUAD	3990250662	√
GE864-PY	3990250650	√
GE864-QUAD	3990250648	√



1 AIM

Aim of this document is to give basic design guide lines to integrate a SIM holder in applications that uses Telit modules

2 APPLICATION

These guide lines are applicable to all the applications that use Telit modules, especially for those application which use GEXXX families modules.

3 ABBREVIATION SYMBOLS

SIM: Subscriber Identity Module
EMI: Electromagnetic Interference
EMC: Electromagnetic Compatibility
ESD: Electrostatic Discharge



4 DESIGN GUIDES

In all Telit modules there are five pins for SIM card holder connection
These lines are:

SIMVCC	(SIM Power supply)
SIMRST	(SIM Reset)
SIMIO	(SIM Data)
SIMIN	(SIM Presence/Absence)
SIMCLK	(SIM Clock)

SIM connection must take in account of **four** key issues:

- 1) **Data Integrity:** standard rules for digital layout and routing must be followed taking in consideration that SIMCLK has frequency of 3.57 MHz and SIMIO has 9600Bps baud rate.
- 2) **EM/EMC:** this is a key aspect to consider designing an application based on TELIT module with internal antenna and/or without a proper-shielded box. Some of these conditions may occur:
 - Antenna picks-up digital noise coming from SIM card lines.
 - Antenna radiated field may interfere digital lines.
 - Digital lines (in particular clock) may radiate spurious in the surrounding space.

To overcome all these potential problems, connection lines must be kept as short as possible and shielded.

SIM-holder position has to be as far as possible from antenna.

RF bypass capacitors (10pF...33pF) closed to SIM card SIM-holder are another good care.

When connection is not short, insertion of 10..100ohm resistor with 10..33pF capacitor (RC filter) is a good caution to improve EMI from SIMCLK line.

Do not insert resistor on SIMVCC, SIMRST and SIMIO lines, their use is not supported by SIM electrical interface.



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3) **ESD:** take standard ESD caution if application based on TELIT module has

SIM holder with contacts reachable from human body.

4) **SIM supply:** do not connect capacitance greater than 10nF to SIMVCC line.

Other notes:

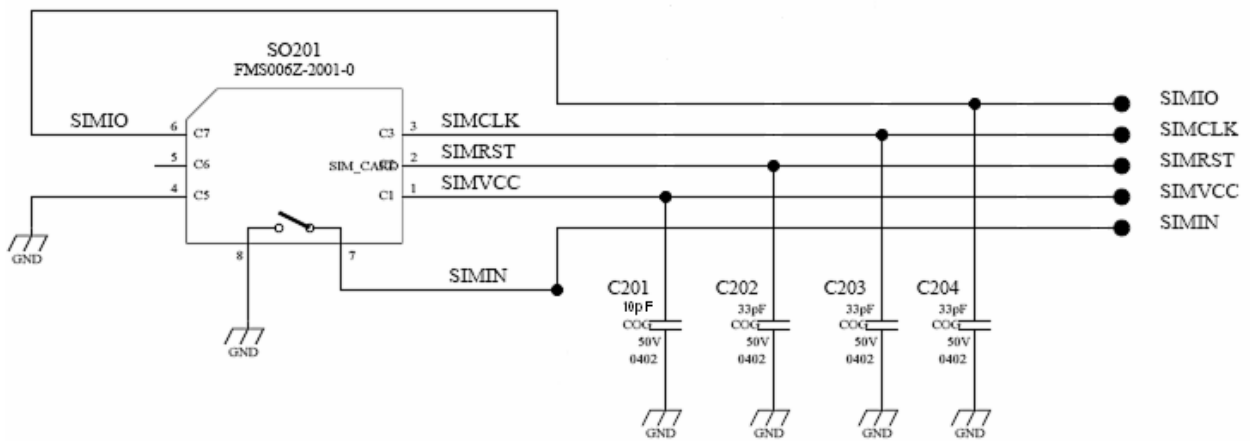
- SIMIN doesn't require any pull-up resistor. It is built in.
- SIM card is detected inserted when this line is short to ground.
- If in the application the SIM holder doesn't foresee the switch for the presence/absence of the SIM card, the **SIMIN** line must be connected to ground.

5 RESPONSIBILITY

For any case not cover in this guideline, please contact TELIT Technical Support.



6 SCHEMATICS



7 Document Change Log

Revision	Date	Changes
ISSUE#0	29/09/06	Release First ISSUE# 0
ISSUE#1	04/09/07	Updated applicability table

