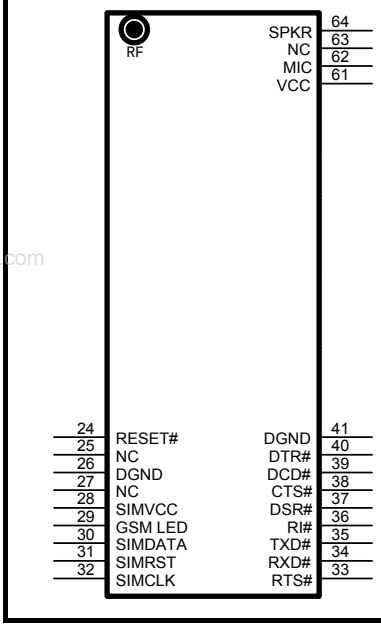
AL7002S-ES Pin Diagram:

Pin Diagram	Pin No	NAME	Pin No	NAME
	1	NO PIN	64	SPEAKER
	2	NO PIN	63	NC
	3..23	NO PIN	62	MICRO IN
	24	RESET	61	VCC
	25	NC	60	NO PIN
	26	GND	59	NO PIN
	27	NC	58	NO PIN
	28	SIMVCC	57	NO PIN
	29	GSM LED	56	NO PIN
	30	SIMDATA	55	NO PIN
	31	SIMRST	54	NO PIN
	32	SIMCLK	45…53	NO PIN
	33	RTS#	44	NO PIN
	34	RXD#	43	NO PIN
	35	TXD#	42	NO PIN
	36	RI#	41	GND
	37	DSR#	40	DTR#
	38	CTS#	39	DCD#

External SIM Interface

4 signals exist:

- SIMVCC: SIM power supply.
- SIMRST: reset.
- SIMCLK: clock.
- SIMDATA : I/O port.

The SIM interface controls a 3V SIM. This interface is fully compliant with GSM 11.11 recommendations concerning SIM functions.
It is recommended to add Transient Voltage Suppressor diodes on the signal connected to the SIM socket in order to prevent any Electrostatic Discharge. TVS diodes with low capacitance (less than 10pF) have to be connected on SIMCLK and SIMDATA to avoid any disturbance of the rising and falling edge. These types of diodes are mandatory for the Full Type Approval. They shall be placed as close as possible to the SIM socket.

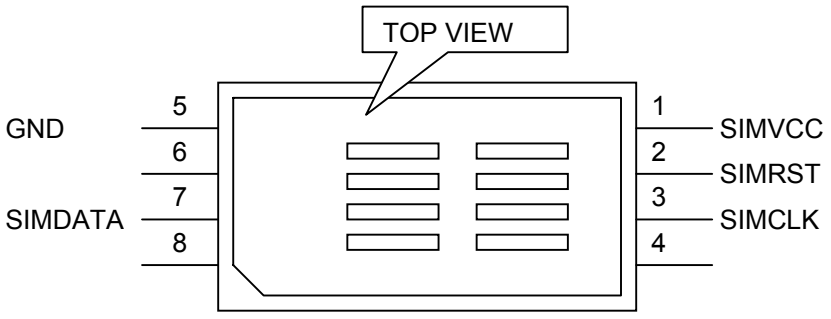
Signal	Pin number	I/O	I/O type	Description
SIMCLK	32	O	2X	SIM Clock
SIMRST	31	O	2X	SIM Reset
SIMDATA	30	I/O	CMOS / 3X	SIM DATA
SIMVCC	28	O		SIM Power Supply

Electrical Characteristics:

Parameter	Conditions	Min	Typ	Max	Unit
SIMDATA V_{IH}	I_{IH} = ± 20µA	0.7xSIMVCC			V
SIMDATA V_{IL}	I_{IL} = 1 mA			0.3xSIMVCC	V
SIMRST SIMDATA SIMCLK V_{OH}	Source current = 20µA	SIMVCC – 0.1V			V
SIMRST SIMDATA SIMCLK V_{OL}	Sink current = -200µA			0.1	V
SIMVCC* Output Voltage	I_{SIMVCC} < = 6mA	2.70	2.80	2.85	V
SIMCLK Rise / Fall Time	Loaded with 30pF			50	ns
SIMRST SIMDATA Rise / Fall Time	Loaded with 30pF			1	µs
SIMCLK Frequency	Loaded with 30pF			3.25	MHz

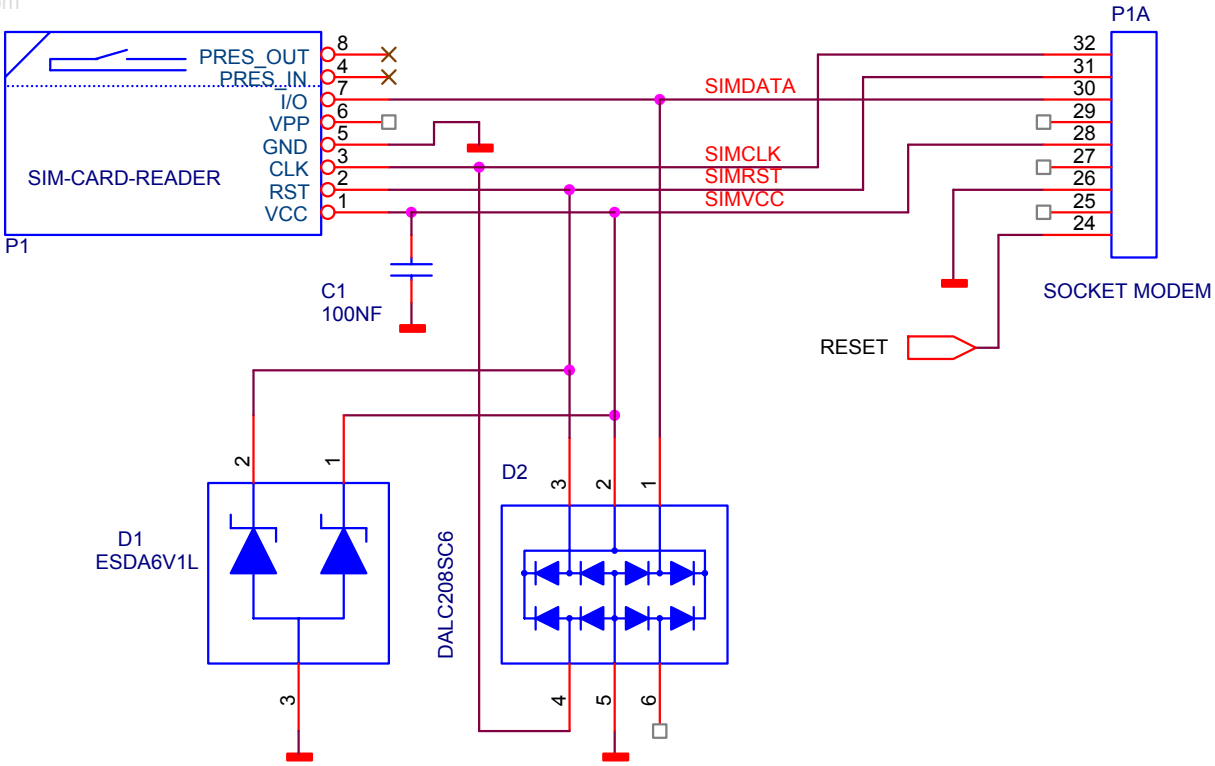
SIM socket pin description:

Signal	Pin Number	Description
VCC	1	SIMVCC
RST	2	SIMRST
CLK	3	SIMCLK
CC4	4	VCC module (Not connected)
GND	5	GROUND
VPP	6	Not connected
I/O	7	SIMDATA
CC8	8	SIMPRES (Not connected)



SIM interface controls a 3V SIM only.
We add Transient Voltage Suppressor (TVS) diodes with low capacitance (less than 10pF) on signal connected to the SIM socket in order to prevent any Electrostatic Discharge.
They shall be placed as close as possible to the SIM socket. Following references are used:
DALC208SC6 from ST Microelectronics, which will be connected, to SIMCLK and SIMDATA
ESDA6V1 from ST Microelectronics for the ESD protection of SIMVCC
On the board near SIM connector, we also add on SIMVCC a 100nF capacitor in parallel as close as possible to the SIM connector to minimize noise.

Schematic of SIM Interface:



Layout Restrictions:

For the SIM interface, length of the tracks between the GSM modem and the SIM connector should be as short as possible (8cm).
EMI layout is recommended for SIMCLK signal.