

SmartSCM SocketModem

V.90/K56flex™/V.34/V.32 SocketModem Family for Worldwide Data/Fax/TAM Applications

The Conexant™ SmartSCM™ SocketModem™ with SmartDAA™ technology supports analog data up to 56 kbps, 33.6 kbps, and 14.4 kbps, and analog fax up to 14.4 kbps. For most existing designs, the SmartSCM SocketModem is a drop-in replacement for the SF56D/SP, SF336D/SP, or SF144D/SP SocketModem with the exception of some voice features. This SocketModem (Figure 1) is also ideal for new designs due to its low profile and use of Conexant's SmartSCM Single Chip Modem with SmartDAA™. The SocketModem stores over 38 country profiles in memory and more can be added as required.

As a V.90/K56flex™ data modem (SC43 series), the SmartSCM SocketModem can receive data at speeds up to 56 kbps from a digitally connected V.90- or K56flex-compatible central site modem. Taking advantage of the PSTN, which is primarily digital except for some client modem to central office local loops, V90/K56flex modems are ideal for applications such as remote access to an Internet Service Provider (ISP), on-line service, or corporate site. In this mode, the SocketModem can send data at speeds up to V.34 rates.

As a V.34 data modem (SC34 series), the SmartSCM SocketModem operates at line speeds up to 33.6 kbps.

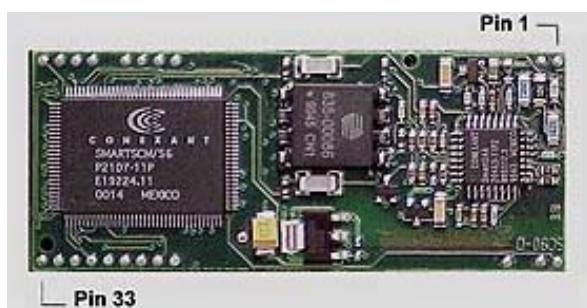
As a V.32 modem, the SmartSCM SocketModem operates at line speeds up to 14.4 kbps.

Error correction (V.42/MNP 2-4) and data compression (V.42 bis/MNP 5) maximize data transfer integrity and boost average data throughput up to 230.4 kbps. Non-error-correcting mode is also supported.

As a fax modem, the SmartSCM SocketModem supports V.17 fax for class 1 or 2 send and receive rates up to 14.4 kbps.

The SmartSCM SocketModem uses a Conexant CX88168 SmartSCM, in a 128-pin TQFP, and a Conexant CX20463 SmartDAA, in a 32-pin TQFP.

Figure 1. Top View of SmartSCM SocketModem



Features

Data Modem Features

- ITU-T V.90/K56flex™, V.34, V.32bis, V.32, V.22bis, V.22, V.23, and V.21; Bell 212A and Bell 103
- V.42 LAPM and MNP 2-4 error correction
- V.42bis and MNP 5 data compression

Fax Modem Features

- V.17, V.29, V.27 ter and V.21 channel 2
- EIA/TIA 578 Class 1 and T.31 Class 1.0 commands
- EIA/TIA 578 Class 2 commands

Advanced Features

- Extension pickup detection
- Remote hang-up detection
- Line-in-use detection
- Digital PBX detection and protection

Telephony/TAM

- V.253 commands
- 2-bit and 4-bit Conexant ADPCM, 8-bit linear PCM, and 4-bit IMA coding
- 8 kHz sample rate
- Concurrent DTMF, ring, and Caller ID detection

General Features

- Small size: 64.54 x 26.54 x 11.95 mm (L x W x H)
- Operates with over 38 country profiles stored in memory
- Optional additional country profiles
- Operating temperature: 0° C to +70° C
- Line quality monitoring and retrain
- Line protection circuitry included
- +3.3 V operation (serial interface)
- +5 V operation (serial or parallel interface)

Compliance

- FCC Part 15B compliant
- FCC Part 68 compliant
- CE Mark and CTR21 compliant
- UL/CUL recognized component, File No. E93908

Ordering Information

The SmartSCM SocketModem ordering information is listed in Table 1.

Table 1. SmartSCM SocketModem Ordering Information

Sales Order No.	Part No.	Configuration
SC56H1	SC43-E310-001	V.90/56 kbps, serial interface, +5 V operation
SC56H1-L	SC43-E320-001	V.90/56 kbps, serial interface, +3.3 V operation
SC336H1	SC34-E310-001	V.34/33.6 kbps, serial interface, +5 V operation
SC336H1-L	SC34-E320-001	V.34/33.6 kbps, serial interface, +3.3 V operation
SC144H1	SC14-E310-001	V.32/14.4 kbps, serial interface, +5 V operation
SC144H1-L	SC14-E320-001	V.32/14.4 kbps, serial interface, +3.3 V operation
SC56H0	SC43-E010-001	V.90/56 kbps, parallel interface, +5 V operation
SC336H0	SC34-E010-001	V.34/33.6 kbps, parallel interface, +5 V operation
SC144H0	SC14-E010-001	V.32/14.4 kbps, parallel interface, +5 V operation

Reference Documents

Title	Doc. No.
SmartSCM SocketModem Designer Guide	101917
AT Commands Reference Manual	100722

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SmartSCM SocketModem Pin Connections

Serial TTL Interface Model

Pin signals for serial interface models are illustrated in Figure 2 and listed in Table 2.

Figure 2. SmartSCM SocketModem Pin Signals - Serial TTL Interface Models

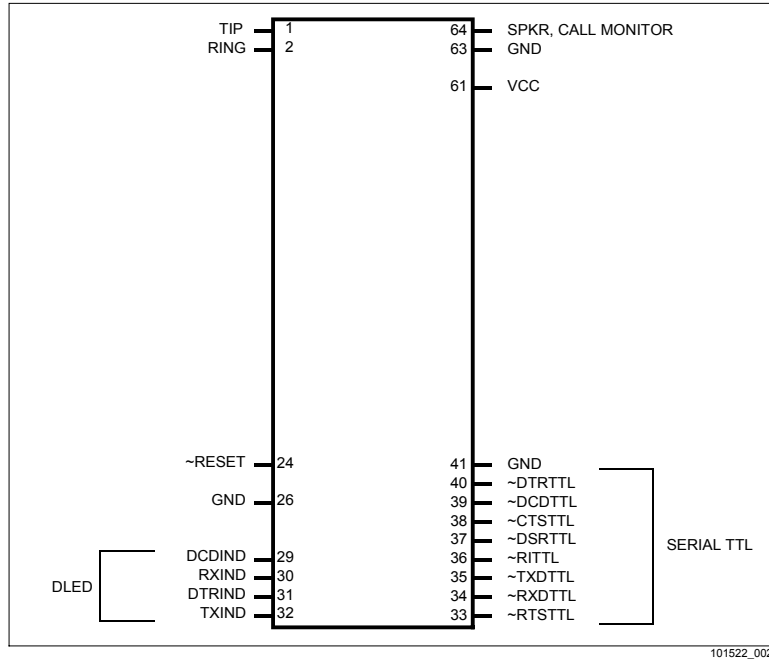


Table 2. SmartSCM SocketModem Pin Signals - Serial TTL Interface Models

Pin	Function
1	Telephone Line Interface – TIP.
2	Telephone Line Interface – RING.
24	Reset, active low, 50 to 100 ms. Closure to GND for reset.
26	Ground.
29	DCD Indicator; can drive an LED anode without additional circuitry.
30	RXD Indicator; can drive an LED anode without additional circuitry.
31	DTR Indicator; can drive an LED anode without additional circuitry.
32	TXD Indicator; can drive an LED anode without additional circuitry.
33	RTS Interface, TTL levels.
34	RXD Interface, TTL levels.
35	TXD Interface, TTL levels.
36	Ring Indicator Interface, TTL levels.
37	DSR Interface, TTL levels.
38	CTS Interface, TTL levels.
39	DCD Interface, TTL levels.
40	DTR Interface, TTL levels.
41	Ground.
61	+5 VDC or +3.3 VDC Input.
63	Ground.
64	Speaker, Call Monitor.
* No pins in positions 3-23, 25, 27, 28, 42-60, and 62.	

Parallel Interface Model

Pin signals for parallel interface models are illustrated in Figure 3 and listed in Table 3.

Figure 3. SmartSCM SocketModem Pin Signals – Parallel Interface Models

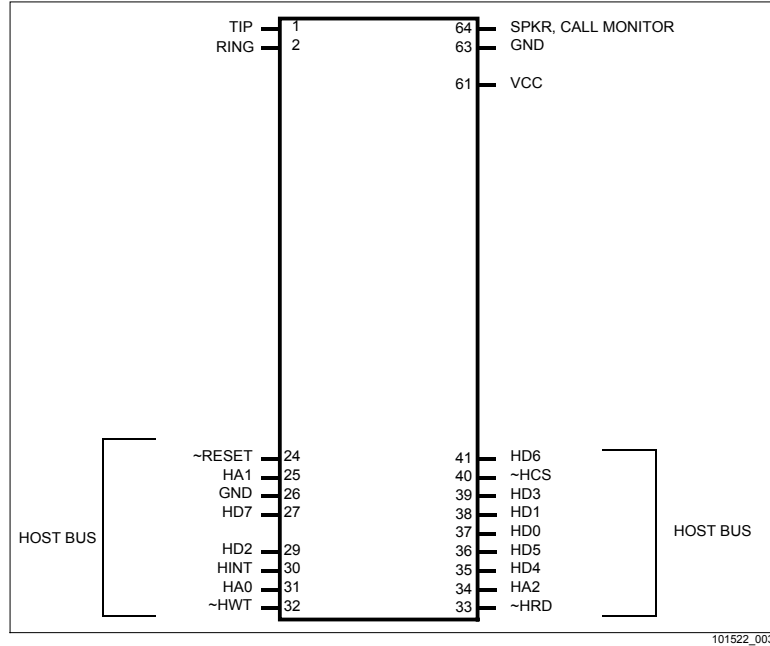


Table 3. SmartSCM SocketModem Pin Signals – Parallel Interface Models

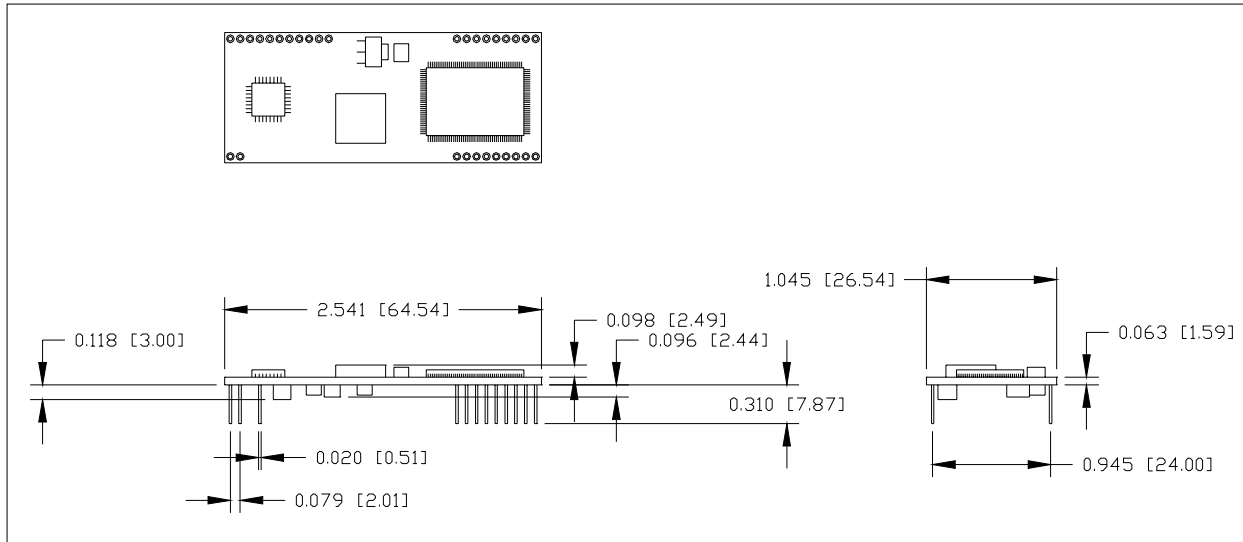
Pin	Function
1	Telephone Line Interface – TIP.
2	Telephone Line Interface – RING.
24	Reset, active low, 50 to 100 ms. Closure to GND for reset.
25	Host Bus Address Line 1.
26	Ground.
27	Host Bus Data Line 7.
29	Host Bus Data Line 2.
30	Host Bus Interrupt Line, active high, Resets on Low.
31	Host Bus Address Line 0.
32	Host Bus Write; when low, allows host to write to SocketModem.
33	Host Bus Read; when low, allows host to read from SocketModem.
34	Host Bus Address Line 2.
35	Host Bus Data Line 4.
36	Host Bus Data Line 5.
37	Host Bus Data Line 0.
38	Host Bus Data Line 1.
39	Host Bus Data Line 3.
40	Host Bus Chip Select, active low.
41	Host Bus Data Line 6.
61	+5 VDC Input.
63	Ground.
64	Speaker, Call Monitor.

* No pins in positions 3-23, 28, 42-60, and 62.

Physical Dimensions

The SmartSCM SocketModem dimensions are 2.541 in. (64.54 mm) [L] x 1.045 in. (26.54 mm) [W] x 0.471 in. (11.95 mm) [H] (Figure 4). The overall height of 0.471 in. (11.95 mm) includes the pin length of 0.310 in. (7.87 mm).

Figure 4. SmartSCM SocketModem Physical Dimensions



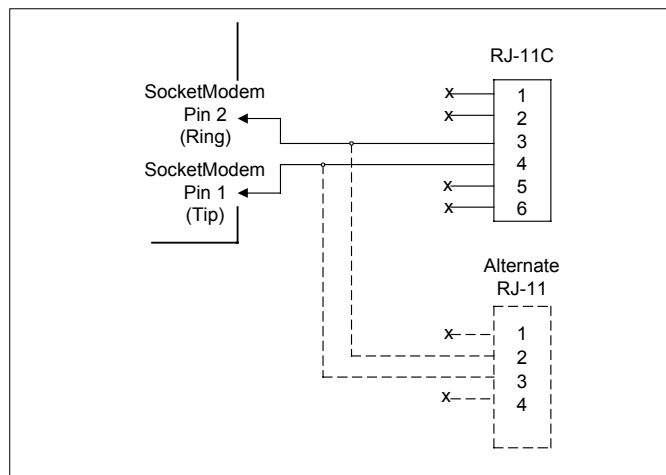
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Telephone Line Interface

Figure 5 illustrates the telephone line interface for the SmartSCM SocketModem.

The TIP and RING SocketModem pins connect directly to the RJ-11 jack or customer-supplied telephone company (telco) interface.

Figure 5. SmartSCM SocketModem Telephone Line Interface



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Electrical and Environmental Specifications

The operating conditions are specified in Table 4.

The absolute maximum ratings are listed in Table 5.

The current and power requirements are listed in Table 6.

Table 4. Operating Conditions

Parameter	Symbol	Limits	Units
+3.3 V Configuration			
Supply voltage (Pin 61 = +3.3 V)	VDD	+3.13 to +3.47	VDC
Operating ambient temperature	T _A	0 to +70	°C
+5 V Configuration			
Supply voltage (Pin 61 = +5 V)	VDD	+4.75 to +5.25	VDC
Operating ambient temperature	T _A	0 to +70	°C

Table 5. Absolute Maximum Ratings

Parameter	Symbol	Limits	Units
Supply voltage (Pin 61 = +3.3 V)	VDD	-0.5 to +4.0	VDC
Supply voltage (Pin 61 = +5 V)	VDD	-0.5 to +7.0	VDC
Input voltage	V _{IN}	-0.5 to (VDD +0.5)	VDC
Voltage applied to outputs in high impedance (Off) state	V _{HZ}	-0.5 to (VDD +0.5)	VDC
DC input clamp current	I _{IK}	±20	mA
DC output clamp current	I _{OK}	±20	mA
Static discharge voltage (25°C)	V _{ESD}	±2500	VDC
Latch-up current (25°C)	I _{TRIG}	±200	mA
Storage temperature	T _{STG}	-40 to +80	°C

Table 6. Current and Power Requirements

Mode	Typ. Current (mA)	Max. Current (mA)	Typ. Power (mW)	Max. Power (mW)
+5 V Configuration (VDD = +5 V)				
Normal Mode (Serial TTL interface)	190	200	0.95	1.05
Normal Mode (Parallel interface)	180	200	0.90	1.05
+3.3 V Configuration (VDD = +3.3 V)				
Normal Mode (Serial TTL interface)	170	180	0.56	0.63
Test conditions: For Pin 61 = +5 V, VDD = +5 V for typical values; VDD = +5.25 V for maximum values. For Pin 61 = +3.3 V, VDD = +3.3 V for typical values; VDD = +3.47 V for maximum values.				

Supported Country Profiles

The SmartSCM SocketModem contains the country profiles listed in Table 7.

Table 7. Supported Country Profiles

Country	Code	Country	Code	Country	Code
Australia	Ø9	Hungary	51	Poland	8A
Austria	ØA	India	53	Portugal	8B
Belgium	ØF	Ireland	57	Singapore	9C
Brazil	16	Israel	58	South Africa	9F
Canada	B5	Italy	59	Spain	AØ
China	26	Japan	ØØ	Sweden*	A5
Czech Republic	2E	Korea	61	Switzerland	A6
Denmark	31	Malaysia	6C	Taiwan	FE
Finland*	3C	Mexico	73	Thailand	A9
France	3D	The Netherlands	7B	Turkey	AE
Germany	42	New Zealand	7E	United Kingdom	B4
Greece	46	Norway*	82	United States	B5
Hong Kong	5Ø	Philippines	89	CTR21	FD

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