

5Mbps ARCNET (ANSI 878.1) Controller with 2K x 8 On-Chip RAM

Data Brief

Product Features

- **New Features for Rev. D**
 - Data Rates up to 5 Mbps
 - Programmable Reconfiguration Times
- 28 Pin PLCC and 48 Pin TQFP Packages; Lead-free RoHS Compliant Packages also Available
- Ideal for Industrial/Factory/Building Automation and Transportation Applications
- Deterministic, (ANSI 878.1), Token Passing ARCNET Protocol
- Minimal Microcontroller and Media Interface Logic Required
- Flexible Interface For Use With All Microcontrollers or Microprocessors
- Automatically Detects Type of Microcontroller Interface
- 2Kx8 On-Chip Dual Port RAM
- Command Chaining for Packet Queuing
- Sequential Access to Internal RAM
- Software Programmable Node ID
- Eight, 256 Byte Pages Allow Four Pages TX and RX Plus Scratch-Pad Memory
- Next ID Readable
- Internal Clock Scaler and Clock Multiplier for Adjusting Network Speed
- Operating Temperature Range of -40°C to +85°C
- Self-Reconfiguration Protocol
- Supports up to 255 Nodes
- Supports Various Network Topologies (Star, Tree, Bus...)
- CMOS, Single +5V Supply
- Duplicate Node ID Detection
- Powerful Diagnostics
- Receive All Packets Mode
- Flexible Media Interface:
 - Traditional Hybrid Interface for Long Distances up to Four Miles at 2.5 Mbps
 - RS485 Differential Driver Interface for Low Cost, Low Power, High Reliability

ORDERING INFORMATION

Order Numbers:

COM20020I-LJP for 28 pin PLCC package

COM20020I-DZD for 28 pin PLCC lead-free RoHS compliant package

COM20020I-HD for 48 pin TQFP package

COM20020I-HT for 48 pin TQFP lead-free RoHS compliant package



80 Arkay Drive
Hauppauge, NY 11788
(631) 435-6000
FAX (631) 273-3123

Copyright © 2006 SMSC or its subsidiaries. All rights reserved.

Circuit diagrams and other information relating to SMSC products are included as a means of illustrating typical applications. Consequently, complete information sufficient for construction purposes is not necessarily given. Although the information has been checked and is believed to be accurate, no responsibility is assumed for inaccuracies. SMSC reserves the right to make changes to specifications and product descriptions at any time without notice. Contact your local SMSC sales office to obtain the latest specifications before placing your product order. The provision of this information does not convey to the purchaser of the described semiconductor devices any licenses under any patent rights or other intellectual property rights of SMSC or others. All sales are expressly conditional on your agreement to the terms and conditions of the most recently dated version of SMSC's standard Terms of Sale Agreement dated before the date of your order (the "Terms of Sale Agreement"). The product may contain design defects or errors known as anomalies which may cause the product's functions to deviate from published specifications. Anomaly sheets are available upon request. SMSC products are not designed, intended, authorized or warranted for use in any life support or other application where product failure could cause or contribute to personal injury or severe property damage. Any and all such uses without prior written approval of an Officer of SMSC and further testing and/or modification will be fully at the risk of the customer. Copies of this document or other SMSC literature, as well as the Terms of Sale Agreement, may be obtained by visiting SMSC's website at <http://www.smisc.com>. SMSC is a registered trademark of Standard Microsystems Corporation ("SMSC"). Product names and company names are the trademarks of their respective holders.

SMSC DISCLAIMS AND EXCLUDES ANY AND ALL WARRANTIES, INCLUDING WITHOUT LIMITATION ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, AND AGAINST INFRINGEMENT AND THE LIKE, AND ANY AND ALL WARRANTIES ARISING FROM ANY COURSE OF DEALING OR USAGE OF TRADE. IN NO EVENT SHALL SMSC BE LIABLE FOR ANY DIRECT, INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES; OR FOR LOST DATA, PROFITS, SAVINGS OR REVENUES OF ANY KIND; REGARDLESS OF THE FORM OF ACTION, WHETHER BASED ON CONTRACT; TORT; NEGLIGENCE OF SMSC OR OTHERS; STRICT LIABILITY; BREACH OF WARRANTY; OR OTHERWISE; WHETHER OR NOT ANY REMEDY OF BUYER IS HELD TO HAVE FAILED OF ITS ESSENTIAL PURPOSE, AND WHETHER OR NOT SMSC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

General Description

SMSC's COM20020ID is a member of the family of Embedded ARCNET Controllers from Standard Microsystems Corporation. The device is a general purpose communications controller for networking microcontrollers and intelligent peripherals in industrial, automotive, and embedded control environments using an ARCNET® protocol engine. The small 28 pin package, flexible microcontroller and media interfaces, eight- page message support, and extended temperature range of the COM20020ID make it the only true network controller optimized for use in industrial, embedded, and automotive applications. Using an ARCNET protocol engine is the ideal solution for embedded control applications because it provides a deterministic token-passing protocol, a highly reliable and proven networking scheme, and a data rate of up to 5 Mbps when using the COM20020ID.

A token-passing protocol provides predictable response times because each network event occurs within a predetermined time interval, based upon the number of nodes on the network. The deterministic nature of ARCNET is essential in real time applications. The integration of the 2Kx8 RAM buffer on-chip, the Command Chaining feature, the 5 Mbps maximum data rate, and the internal diagnostics make the COM20020ID the highest performance embedded communications device available. With only one COM20020ID and one microcontroller, a complete communications node may be implemented.

Block Diagram

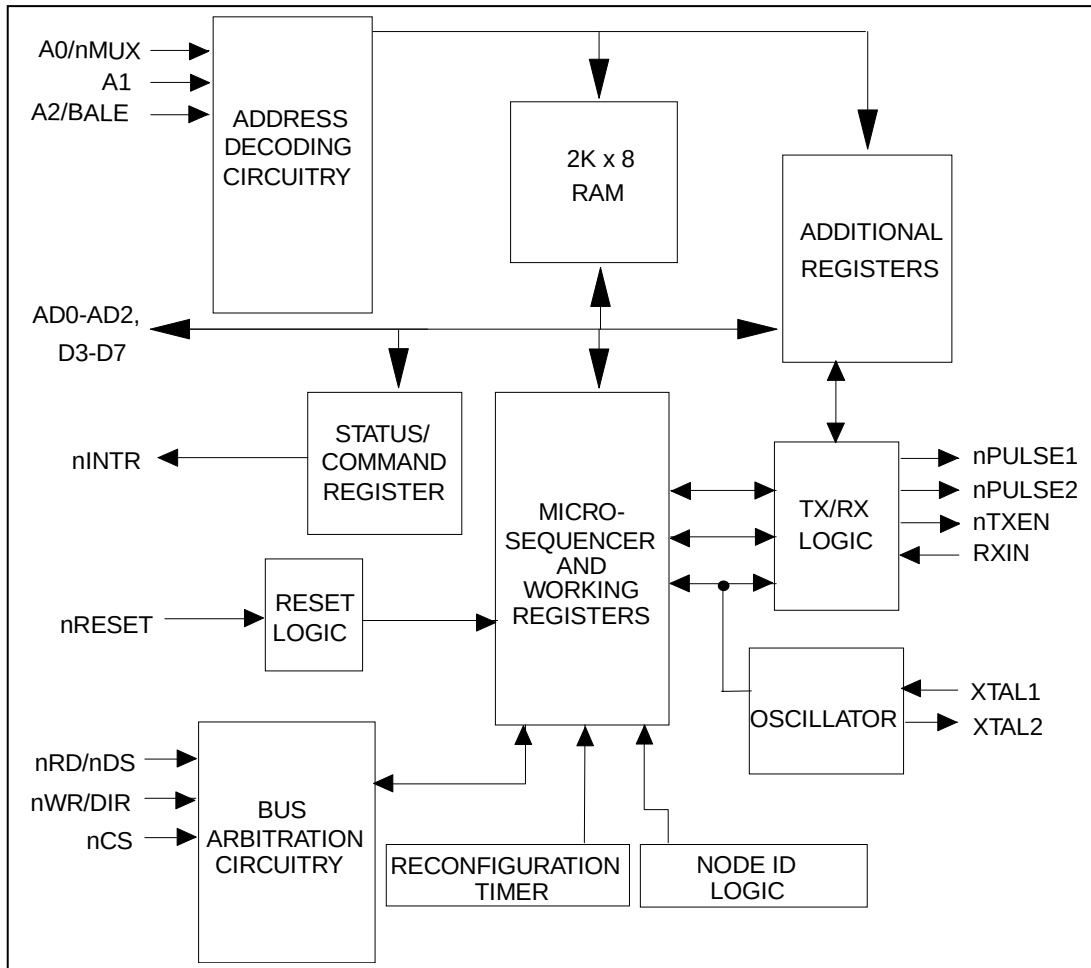


Figure 1 - COM20020ID Internal Block Diagram

Package Outlines

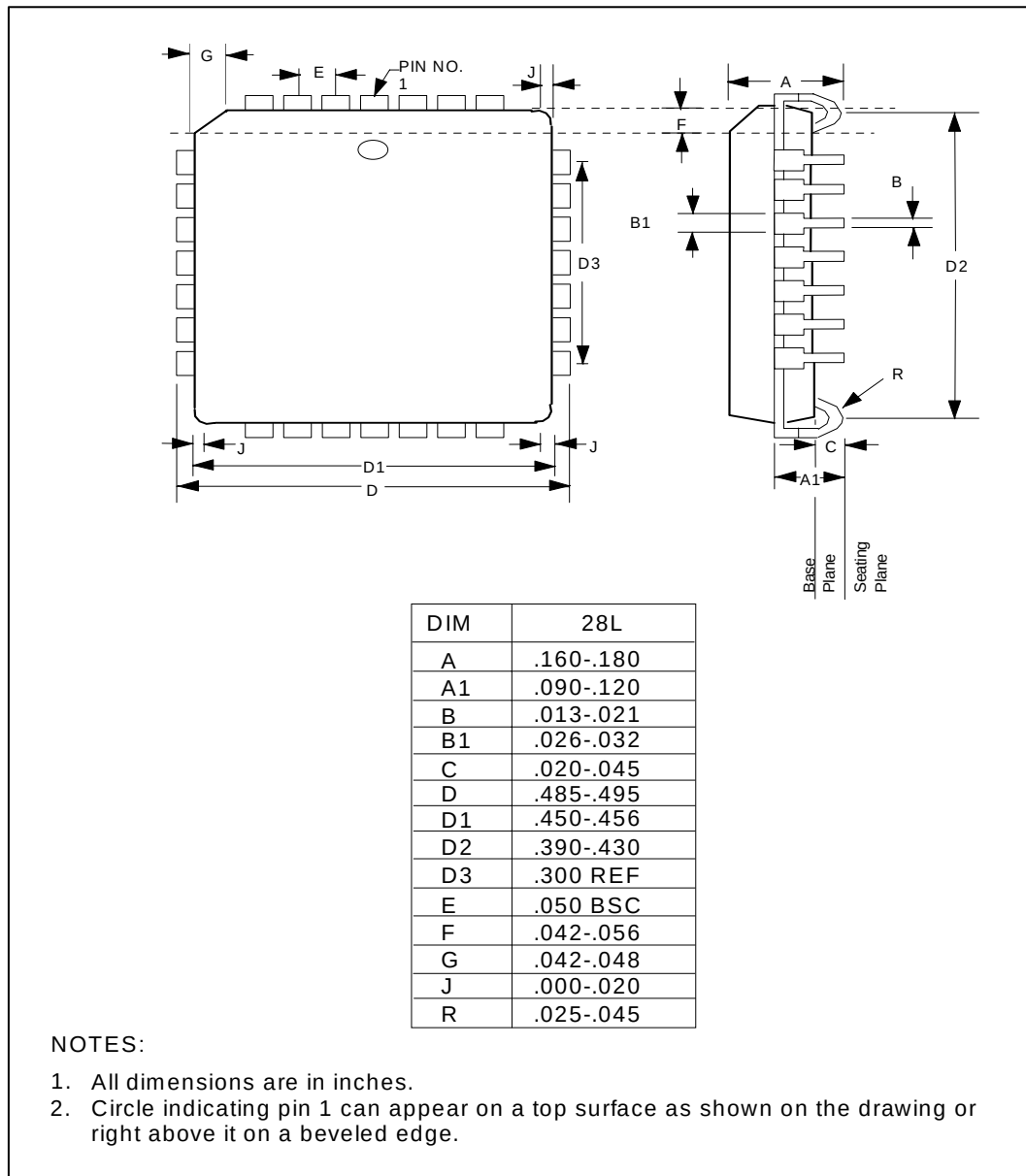


Figure 2 - 28 Pin PLCC Package Dimensions

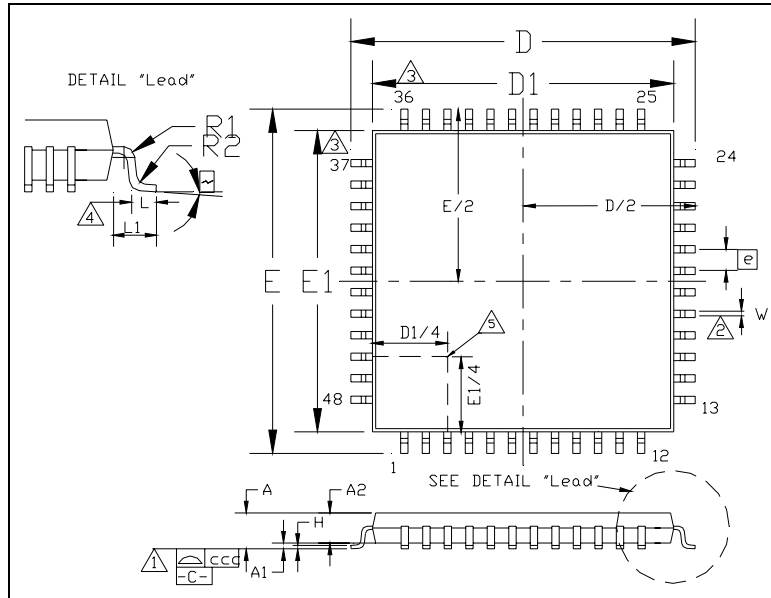


Figure 3 - 48 Pin TQFP Package Outline

Table 1 - 48 Pin TQFP Package Parameters

	MIN	NOMINAL	MAX	REMARK
A	~	~	1.6	Overall Package Height
A1	0.05	0.10	0.15	Standoff
A2	1.35	1.40	1.45	Body Thickness
D	8.80	9.00	9.20	X Span
D/2	4.40	4.50	4.60	¹ / ₂ X Span Measure from Centerline
D1	6.90	7.00	7.10	X body Size
E	8.80	9.00	9.10	Y Span
E/2	4.40	4.50	4.60	¹ / ₂ Y Span Measure from Centerline
E1	6.90	7.00	7.10	Y body Size
H	0.09	~	0.20	Lead Frame Thickness
L	0.45	0.60	0.75	Lead Foot Length from Centerline
L1	~	1.00	~	Lead Length
e	0.50 Basic			Lead Pitch
θ	0°	~	7°	Lead Foot Angle
W	0.17	~	0.27	Lead Width
R1	0.08	~	~	Lead Shoulder Radius
R2	0.08	~	0.20	Lead Foot Radius
ccc	~	~	0.0762	Coplanarity (Assemblers)
ccc	~	~	0.08	Coplanarity (Test House)

Note 1: Controlling Unit: millimeter