COM20019I

Cost Competitive ARCNET (ANSI 878.1) Controller with 2K x 8 On-Chip RAM

Data Brief

Product Features

- New Features:
  - Data Rates up to 312.5 Kbps
  - 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 for Adjusting Network Speed
- Operating Temperature Range of -40^{o}C to +85^{o}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:
  - RS485 Differential Driver Interface For Low Cost, Low Power, High Reliability

ORDERING INFORMATION

Order Numbers:

COM20019ILJP for 28 pin PLCC package; COM20019I-DZD for 28 pin PLCC lead-free RoHS Compliant package

COM20019I-HD for 48 pin TQFP package; COM20019I-HT for 48 pin TQFP lead-free RoHS Compliant package

PRODUCT PREVIEW



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PRODUCT PREVIEW

General Description

SMSC's COM20019I 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 flexible microcontroller and media interfaces, eight- page message support, and extended temperature range of the COM20019I 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 312.5 Kbps when using the COM20019I.

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 maximum data rate, and the internal diagnostics make the COM20019I the highest performance embedded communications device available. With only one COM20019I and one microcontroller, a complete communications node may be implemented.

PRODUCT PREVIEW

Block Diagram

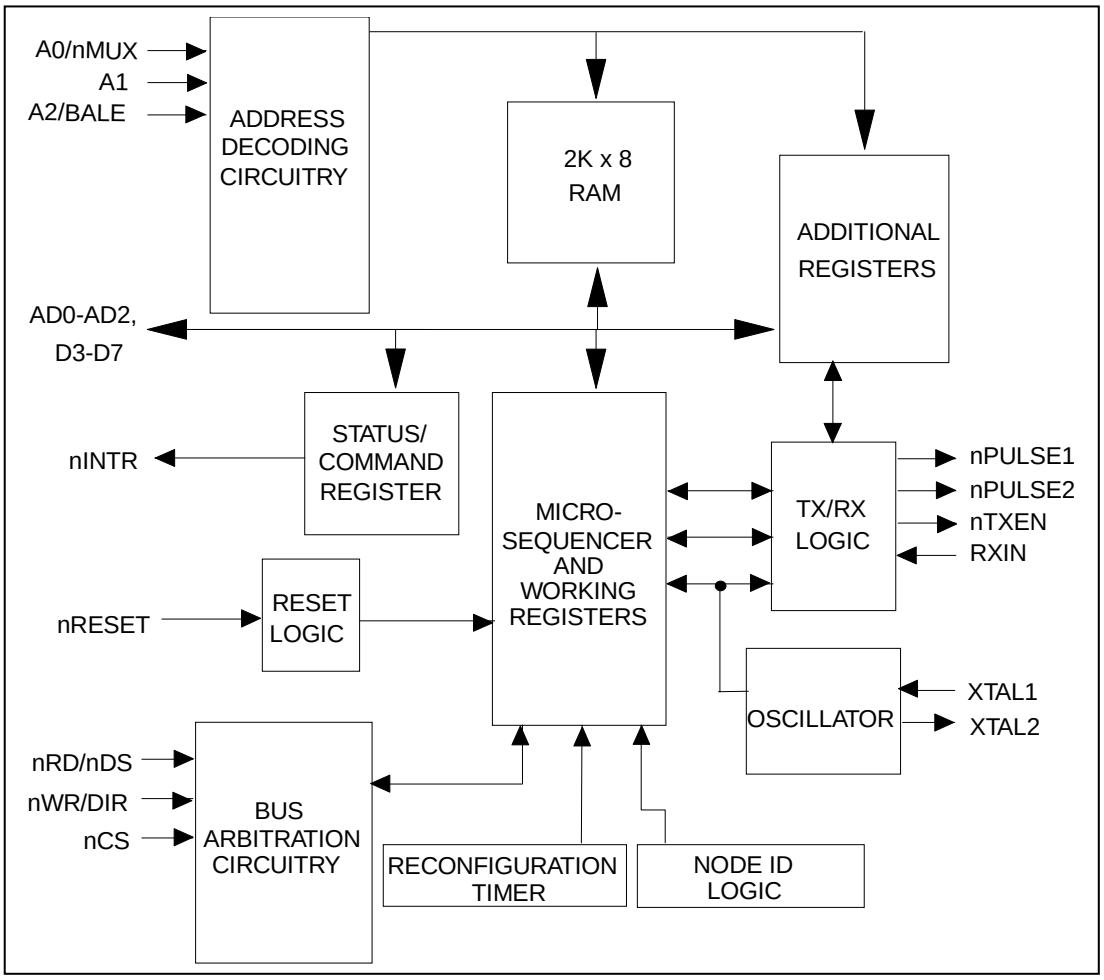
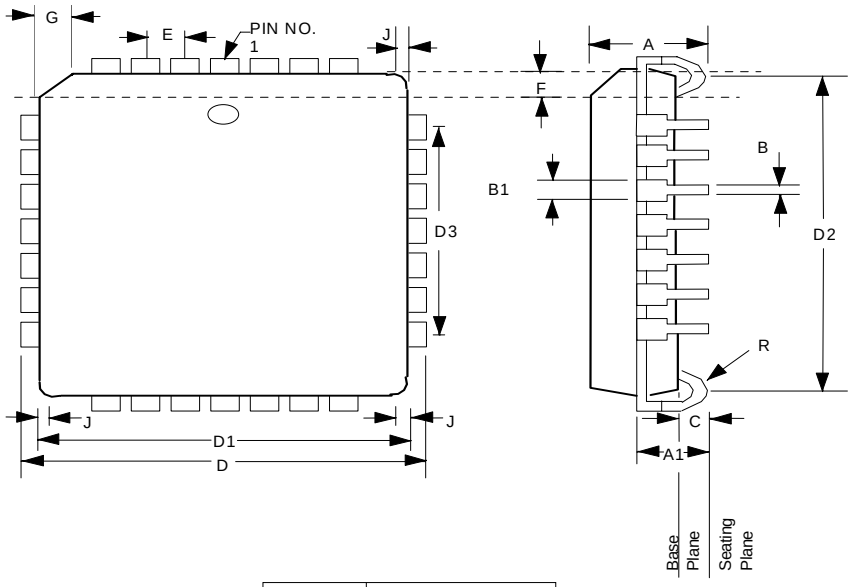


Figure 1 - Internal Block Diagram

PRODUCT PREVIEW

Package Outlines

28-Pin PLCC Package Outline and Parameters



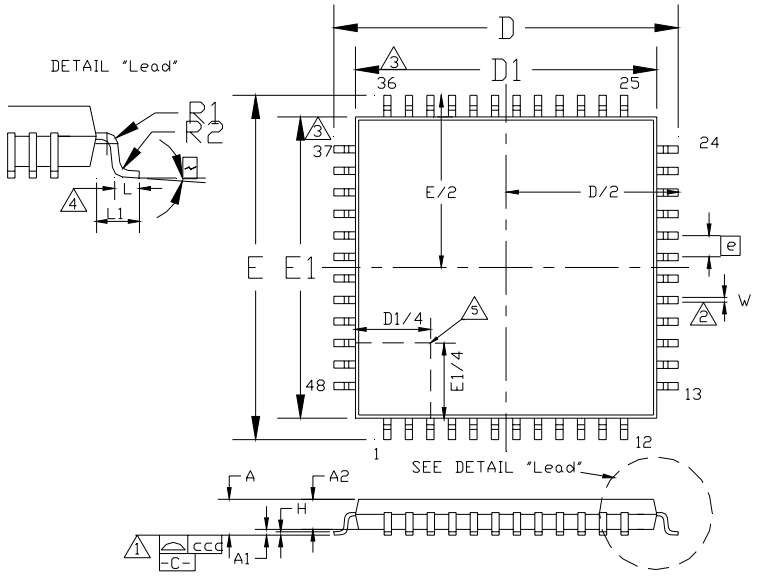
DIM	28L
A	.160-.180
A1	.090-.120
B	.013-.021
B1	.026-.032
C	.020-.045
D	.485-.495
D1	.450-.456
D2	.390-.430
D3	.300 REF
E	.050 BSC
F	.042-.056
G	.042-.048
J	.000-.020
R	.025-.045

NOTES:

1. All dimensions are in inches.
2. Circle indicating pin 1 can appear on a top surface as shown on the drawing or right above it on a beveled edge.

PRODUCT PREVIEW

48-Pin TQFP Package Outline and 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^o	~	7^o	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: Controlling Unit: millimeter

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