

T-46-13-13



1M Bit (131,072 × 8) Static CMOS Mask ROM

S631000/S631001

Features

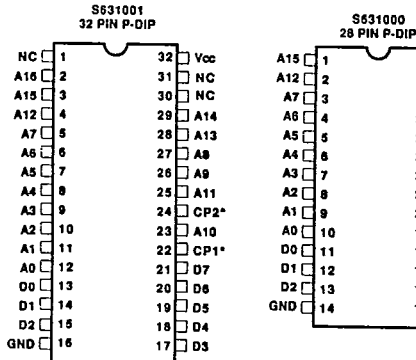
- Fast Access Time:
S631000-10/S631001-10—100ns
S631000-15/S631001-15—150ns
S631000-20/S631001-20—200ns
- Fully Static Operation
- Low Power Dissipation
Active: 125mW (typical)
Standby: 625µW (typical)
- Single +5V±10% Power Supply
- Directly TTL Compatible Inputs
- Three-State TTL Compatible Outputs
- Late Mask Programmable
- Programmable Chip Select/Enable or Programmable Output Enable
- EPROM Compatible (see table 1)
- Standard 32 pin dip—S631001
- 32 Lead PLCC package available—S631001

General Description

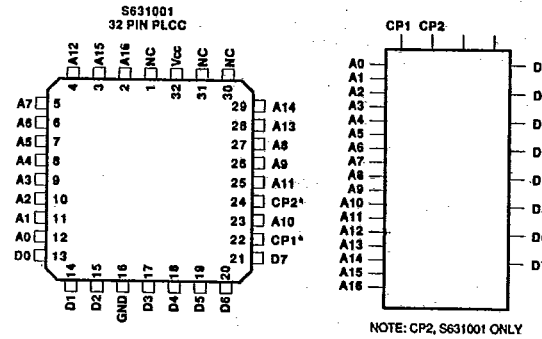
The Gould AMI S631000 device is a 1,048,576 bit static mask programmable CMOS ROM organized as 131,072 words by 8 bits. The device is fully TTL compatible on all inputs and outputs and uses a single +5V power supply. The three-state outputs facilitate memory expansion by allowing the outputs to be OR-tied to other devices.

The S631000 is pin compatible with most UV EPROMS, making system development much easier and more cost effective. The device is fully static, requiring no clocks for operation. The two control pins are mask programmable, with the active level and function for each being specified by the user. When a chip enable pin is not enabled, the power supply current is reduced to a 200µA maximum.

Pin Configuration



Logic Symbol



Pin Names	
A0 - A16	Address Inputs
D0 - D7	Data Outputs
CP1, CP2	Control Pins
Vcc	+5 Volts Supply
GND	Ground

Control Pin Options
All control pins CP1, CP2, can be programmed as: *S631000 Pin 20 (CP1)CE, OE/OE, DON'T CARE S631001 Pin 22 (CP1)CE Pin 24 (CP2)OE

The user decides the control pin function and then defines the active level. The function may also be defined as Don't Care (DC). The chip is enabled when the inputs match the user defined states. Don't Care pins are still connected to input protection diodes and are subject to "Absolute Maximum Ratings."

*CS is equivalent to OE.


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Absolute Maximum Ratings

Ambient Temperature under Bias— T_A	-55°C to +125°C
Storage Temperature	-65°C to +150°C
Operating Temperature	+125°C
Input or Output Voltages	-0.3 to $V_{CC} + 0.3V$
Maximum VDD	-0.3V to 7V
Maximum Power	500mW

*COMMENT: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or at any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

DC Electrical Characteristics: $V_{CC} = 5V \pm 10\%$, $T_A = 0^\circ C$ to $70^\circ C$

Symbol	Parameter	Minimum	Maximum	Units	Conditions
V_{OL}	Output LOW Voltage		0.4	V	$I_{OL} = 3.2mA$
V_{OH}	Output HIGH Voltage	2.4		V	$I_{OH} = -1.0mA$
V_{IL}	Input LOW Voltage	-0.3	0.8	V	
V_{IH}	Input HIGH Voltage	2.2	$V_{CC} + 0.3$	V	
I_{LI}	Input Leakage Current	-1.0	1.0	μA	$V_{IN} = 0V$ to V_{CC}
I_{LO}	Output Leakage Current	-10	10	μA	$V_O = 0V$ to V_{CC} , Chip Deselected
I_{CC1}	Power Supply Current—Active		40.0	mA	$I_O = 0$, $TR = T_{CYC}$, duty=100% $V_I = 0.8V$ or $2.2V$
I_{CC2}	Power Supply Current—Active		35.0	mA	$I_O = 0$, $TR = T_{CYC}$, duty=100% $V_I = GND$ or V_{CC}
I_{SB}	Power Supply Current—Standby		200	μA	Chip in standby mode, $V_I = GND$ or V_{CC}

Capacitance: $T_A = 25^\circ C$, $f = 1.0MHz$

Symbol	Parameter	Minimum	Maximum	Units	Conditions
C_{IN}	Input Capacitance		5	pf	$V_{IN} = 0V$
C_{OUT}	Output Capacitance		5	pf	$V_{IN} = 0V$

 ROM
Family


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S631000/S631001**A.C. Electrical Characteristics:** $V_{CC} = +5V \pm 10\%$, $T_A = 0^\circ C$ to $70^\circ C$

Symbol	Parameter		Minimum	Maximum
T_{CYC}	Period	S631000-10/S631001-10 S631000-12/S631001-12 S631000-15/S631001-15	100ns 120ns 150ns	
T_{AA}	Address Access Time	S631000-10/S631001-10 S631000-12/S631001-12 S631000-15/S631001-15		100ns 120ns 150ns
T_{ACE}	Chip Enable Access Time	S631000-10/S631001-10 S631000-12/S631001-12 S631000-15/S631001-15		100ns 120ns 150ns
T_{OE}	Output Enable Access Time	S631000-10/S631001-10 S631000-12/S631001-12 S631000-15/S631001-15		70ns 70ns 80ns
T_{HOLD}	Output Hold Time	S631000-10/S631001-10 S631000-12/S631001-12 S631000-15/S631001-15	Ons Ons Ons	
T_{OE0}, T_{CEO}	Disable Time From either Chip Enable or Output Enable	S631000-10/S631001-10 S631000-12/S631001-12 S631000-15/S631001-15	Ons Ons Ons	70ns 70ns 70ns

NOTE: See AC Timing Diagram and Test Load for Conditions

ROM Code Data

The preferred method of receiving ROM CODE DATA is by electronic data transmission or in EPROM. For EPROM ROM CODE DATA submission, two EPROMs should be submitted. One is programmed to the desired code and the other is blank. Gould AMI will read the programmed EPROM, transfer this data to disk and then program the blank EPROM from the stored information. This procedure guarantees the EPROM has been properly entered into the Gould AMI computer system. The Gould AMI programmed EPROM is returned to the customer for verification of the ROM data. Unless otherwise requested, Gould AMI will not proceed until the customer has returned the ROM CODE VERIFICATION form.

EPROM Requirements

The following EPROMs should be used for submitted ROM Code Data:

PREFERRED 27010/27011
Optional 2—27512

If two EPROMs are used to specify one ROM pattern, the programmed EPROMs must clearly state which of the EPROMs is for the lower and upper address locations in the ROM.

For electronic data transmission, consult Gould sales office for details.

Pattern Data from ROMs

If a customer has ROMs produced by another supplier, these ROMs can be submitted for ROM pattern instead of EPROMs. Obviously, these ROMs must be pin compatible with the Gould device. (NOTE: In some cases a competitor's ROM may have a different chip select or enable that is not customer defined. However, if this pin is customer defined for the Gould ROM, the required active logic level for this input must be specified.)

Optional Method of Supplying ROM Data*

If an EPROM or ROM cannot be supplied, and electronic data transmission cannot be used, the ROM CODE DATA can be provided on floppy disc (5 1/4" floppy disc).

*Consult Gould sales office for format.

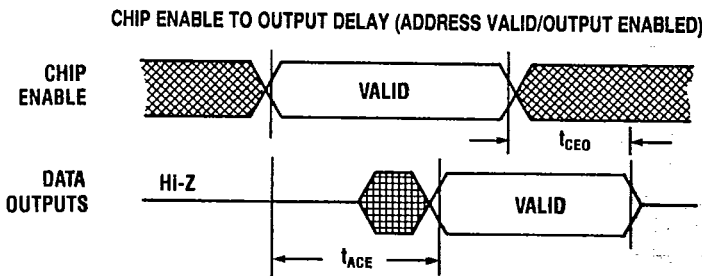
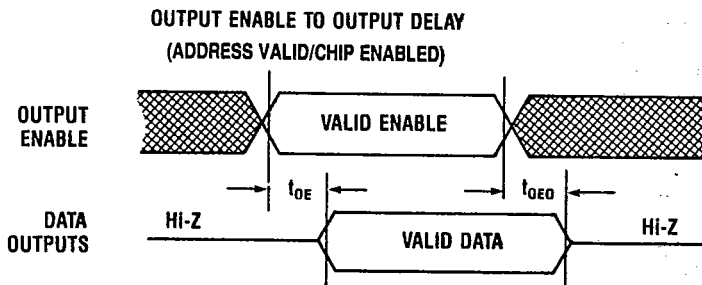
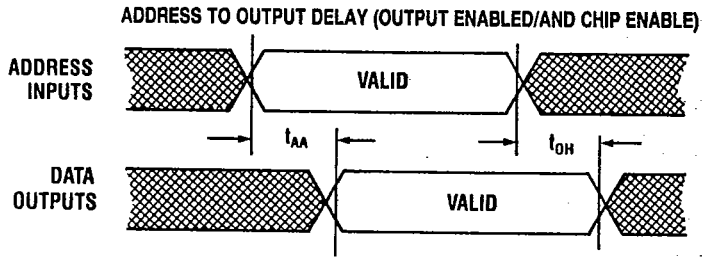


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AC Timing Diagram

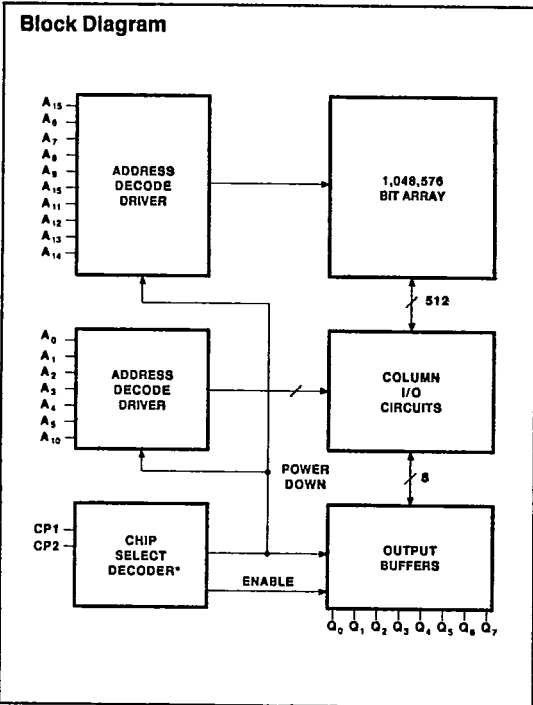
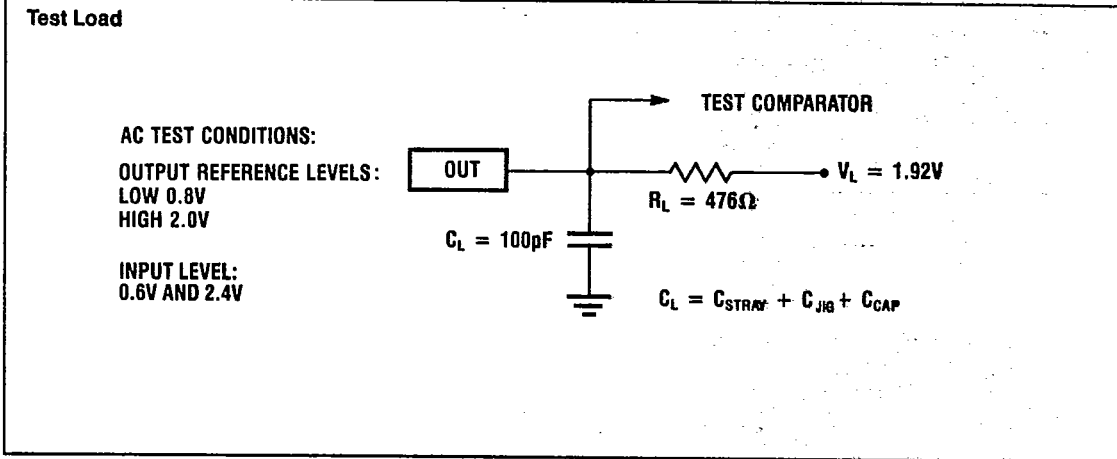


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EPROM Cross Reference

UV EPROM Manufacturer	Gould AMI Device S631000 28 pin dip	Gould AMI Device S631001 32 pin dip
AMD		27C010
Fujitsu	27C100	27C1001
Hitachi	27C301	27C1001
Intel	27011	27010
		27C010
Mitsubishi	27C100	27C101
National		27C1023
NEC	27C1000	

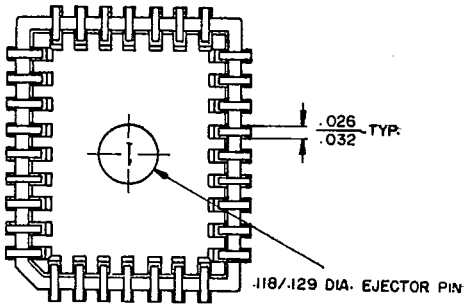
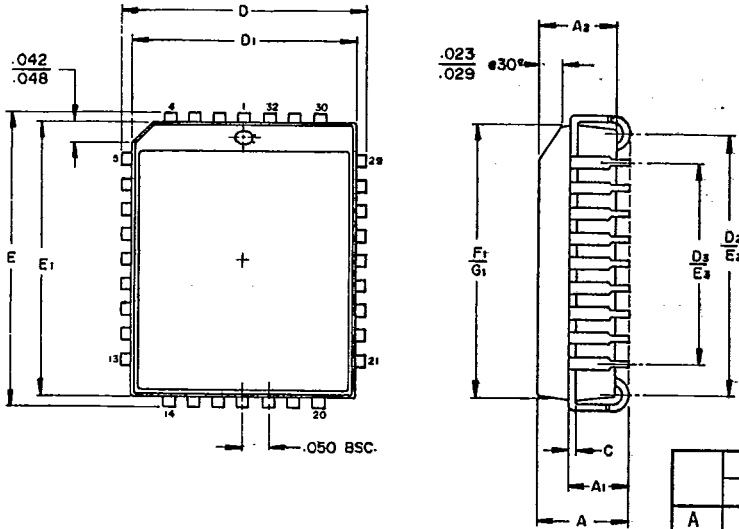


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PLCC Outline



	DIMENSIONS (INCHES)			NOTE
	MIN.	NOM.	MAX.	
A	.123	.130	.140	
A ₁	.078	.085	.095	
A ₂	.106	.109	.112	
D	.485	.490	.495	
D ₁	.449	.451	.453	3
D ₂	.390	.420	.430	2
D ₃	.300 REF.			
E	.585	.590	.595	
E ₁	.549	.551	.553	3
E ₂	.490	.520	.530	2
E ₃	.400 REF.			
F ₁	.441	.443	.445	9
G ₁	.541	.543	.545	9
N	32			5
N _D	7			
N _E	9			
C	.0097	.0100	.0103	

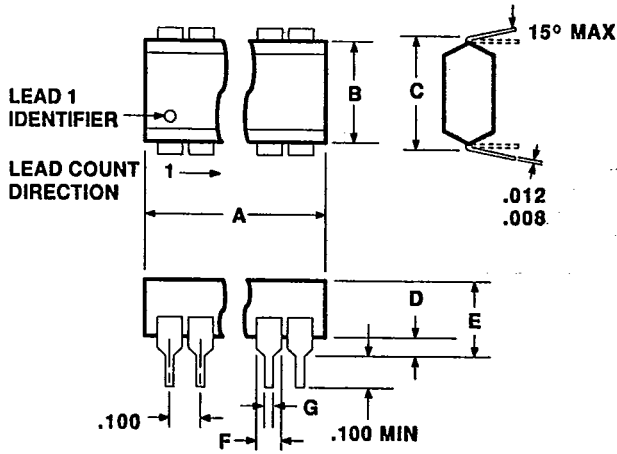
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P-DIP Outline



SYM	Dimensions	
	Lead 28	Count 32
A	1.470 MAX	1.655 MAX
B	.560 .520	.560 .520
C	.610 .580	.610 .580
D	.020 MIN	.020 MIN
E	.200 MAX	.200 MAX
F	.070 .050	.040 .060
G	.020 .015	.020 .015