

---

**PART NUMBER****AM25LS2548**

---

**Rochester Electronics  
Manufactured Components**

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All re-creations are done with the approval of the Original Component Manufacturer. (OCM)

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds the OCM data sheet.

**Quality Overview**

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-38535
  - Class Q Military
  - Class V Space Level

**Qualified Suppliers List of Distributors (QSLD)**

- Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

---

*The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.*

# Am25LS2548

Chip Select Address Decoder with Acknowledge

## DISTINCTIVE CHARACTERISTICS

- One-of-Eight Decoder provides eight chip select outputs
- Acknowledge output responds to enables and read or write command
- Open-collector Acknowledge output for wired-OR application
- Inverting and non-inverting enable inputs for upper address decoding

## GENERAL DESCRIPTION

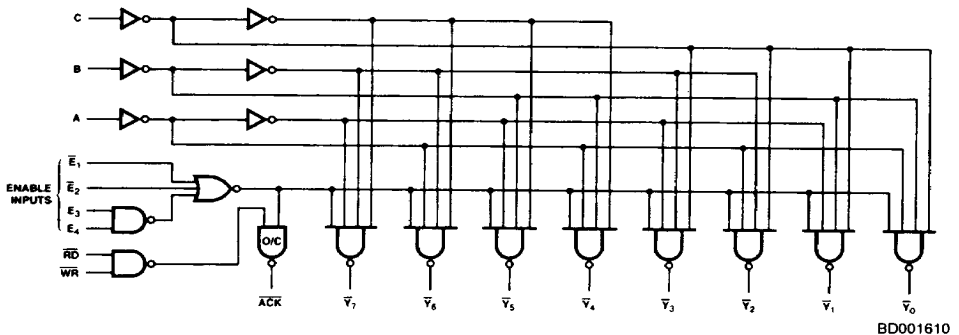
The Am25LS2548 Address Decoder combines a three-line to eight-line decoder with four qualifying enable inputs (two active HIGH and two active LOW) and the acknowledge output required for "ready" or "wait state" control of all popular MOS microprocessors.

The acknowledge output,  $\overline{ACK}$ , is active LOW and responds to the combination of all enables active and a read ( $\overline{RD}$ ) or write ( $\overline{WR}$ ) input command.

The eight chip select outputs are individually active LOW in response to the combination of all enables active and the corresponding 3-bit input code at inputs A, B, and C.

The Am25LS2548 is intended for chip select decoding in small, medium or large systems where multiple chip selects must be generated and address space must be allocated conservatively.

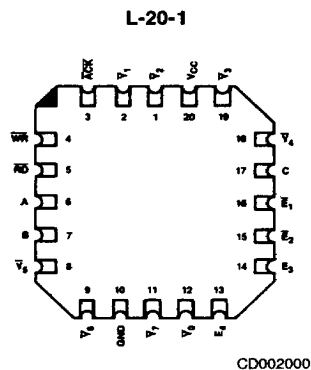
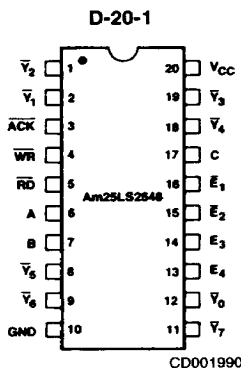
## BLOCK DIAGRAM



## RELATED PRODUCTS

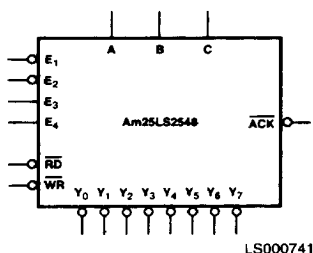
Part No.	Description
Am25LS2536	8-Bit Decoder
Am25LS2537	1-of-10 Decoder
Am25LS2538	1-of-8 Decoder
Am25LS2539	Dual 1-of-4 Decoder
Am2921	1-of-8 Decoder
Am2924	3-to-8 Line Decoder/Demultiplexer

### CONNECTION DIAGRAM Top View

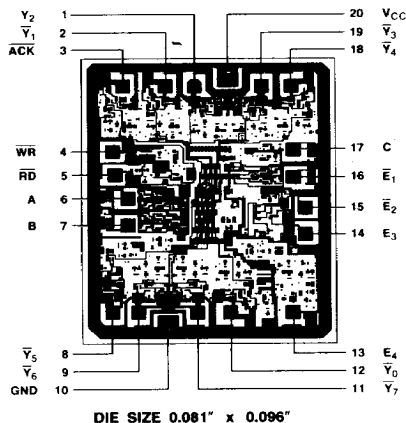


Note: Pin 1 is marked for orientation

### LOGIC SYMBOL



### METALLIZATION AND PAD LAYOUT



### ORDERING INFORMATION

AMD products are available in several packages and operating ranges. The order number is formed by a combination of the following: Device number, speed option (if applicable), package type, operating range and screening option (if desired).

Am25LS2548

D

C

B

- Screening Option
  - Blank - Standard processing
  - B - Burn-in
- Temperature (See Operating Range)
  - C - Commercial (0°C to +70°C)
  - M - Military (-55°C to +125°C)

- Package
  - D - 20-pin CERDIP
  - F - 20-pin flatpak
  - L - 20-pin leadless chip carrier
  - P - 20-pin plastic DIP
  - X - Dice

Device type  
Address Decoder

#### Valid Combinations

Am25LS2548	PC
	DC, DM
	FM
	LC, LM
	XC, XM

#### Valid Combinations

Consult the AMD sales office in your area to determine if a device is currently available in the combination you wish.

## PIN DESCRIPTION

Pin No.	Name	I/O	Description
6, 7, 17	A, B, C	I	Three-line to eight-line chip select decoder inputs.
16, 15	$\bar{E}_1, \bar{E}_2$	I	The active LOW enable inputs. A HIGH on either the $\bar{E}_1$ or $\bar{E}_2$ input forces all decoded functions to be disabled, and forces $\bar{ACK}$ HIGH.
14, 13	$E_3, E_4$	I	The active HIGH enable inputs. A LOW on either the $E_3$ or $E_4$ input forces all the decoded functions to be inhibited, and forces $\bar{ACK}$ HIGH.
4, 5	$\bar{WR}, \bar{RD}$	I	The write input, $\bar{WR}$ , and read input, $\bar{RD}$ , are active LOW inputs used as conditions for an active LOW output at the acknowledge, $\bar{ACK}$ , output.
3	$\bar{ACK}$	O	The acknowledge output, $\bar{ACK}$ , is an active LOW output used to signal the microprocessor that specific devices have been selected. $\bar{ACK}$ goes LOW only when $\bar{E}_1$ and $\bar{E}_2$ are LOW, $E_3$ and $E_4$ are HIGH and $\bar{WR}$ or $\bar{RD}$ is LOW.
	$\bar{Y}_i$	O	The eight active LOW chip select outputs.

## FUNCTION TABLES

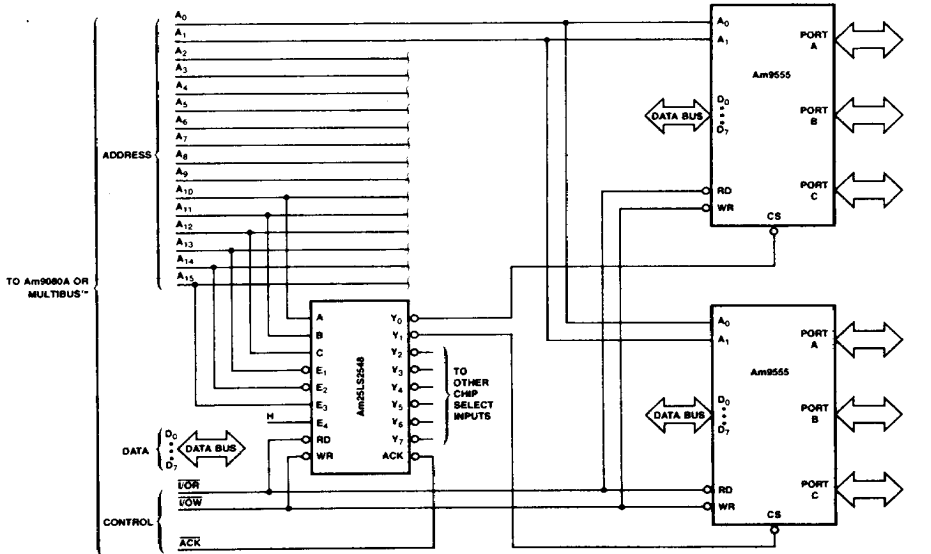
CHIP SELECT OUTPUTS  $\bar{Y}_i$ 

C	B	A	$\bar{E}_1$	$\bar{E}_2$	$E_3$	$E_4$	$\bar{Y}_0$	$\bar{Y}_1$	$\bar{Y}_2$	$\bar{Y}_3$	$\bar{Y}_4$	$\bar{Y}_5$	$\bar{Y}_6$	$\bar{Y}_7$
L	L	L	L	L	H	H	L	H	H	H	H	H	H	H
L	L	H	L	L	H	H	H	L	H	H	H	H	H	H
L	H	L	L	L	H	H	H	H	L	H	H	H	H	H
L	H	H	L	L	H	H	H	H	H	L	H	H	H	H
H	L	L	L	L	H	H	H	H	H	H	L	H	H	H
H	L	H	L	L	H	H	H	H	H	H	H	L	H	H
H	H	L	L	L	H	H	H	H	H	H	H	H	L	H
H	H	H	L	L	H	H	H	H	H	H	H	H	H	L
X	X	X	H	X	X	X	H	H	H	H	H	H	H	H
X	X	X	X	H	X	X	H	H	H	H	H	H	H	H
X	X	X	X	X	L	X	H	H	H	H	H	H	H	H
X	X	X	X	X	X	L	H	H	H	H	H	H	H	H

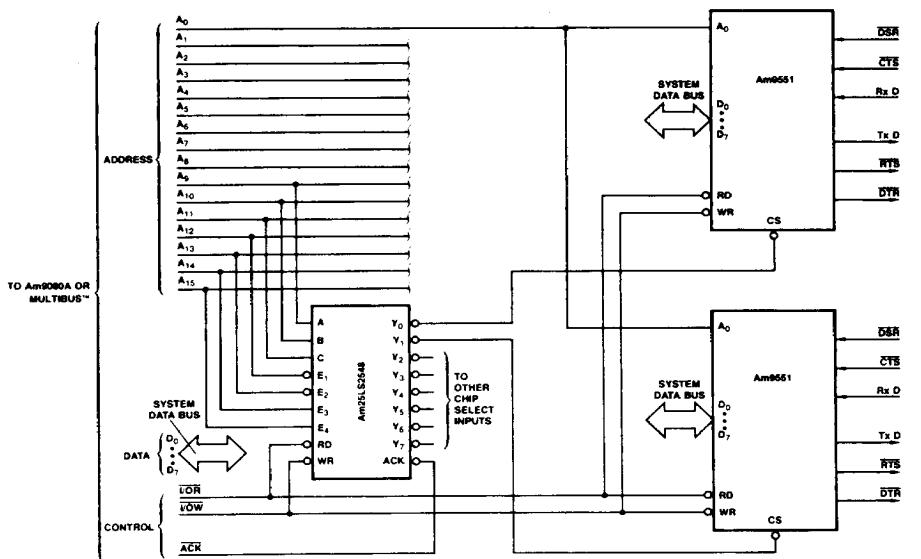
ACKNOWLEDGE OUTPUT  $\bar{ACK}$ 

$\bar{E}_1$	$\bar{E}_2$	$E_3$	$E_4$	$\bar{RD}$	$\bar{WR}$	$\bar{ACK}$
H	X	X	X	X	X	H
X	H	X	X	X	X	H
X	X	L	X	X	X	H
X	X	X	L	X	X	H
L	L	H	H	L	X	L
L	L	H	H	X	L	L

### APPLICATIONS



AF001050



AF001060

**ABSOLUTE MAXIMUM RATINGS**

Storage Temperature .....	-65°C to +150°C
Ambient Temperature Under Bias .....	-55°C to +125°C
Supply Voltage to Ground Potential Continuous .....	-0.5V to +7.0V
DC Voltage Applied to Outputs For High Output State .....	-0.5V to +V <sub>CC</sub> max
DC Input Voltage .....	-0.5V to +7.0V
DC Output Current, Into Outputs .....	30mA
DC Input Current .....	-30mA to +5.0mA

Stresses above those listed under **ABSOLUTE MAXIMUM RATINGS** may cause permanent device failure. Functionality at or above these limits is not implied. Exposure to absolute maximum ratings for extended periods may affect device reliability.

**OPERATING RANGES****Commercial (C) Devices**

Temperature .....	0°C to +70°C
Supply Voltage .....	+4.75V to +5.25V

**Military (M) Devices**

Temperature .....	-55°C to +125°C
Supply Voltage .....	+4.5V to +5.5V

Operating ranges define those limits over which the functionality of the device is guaranteed.

**DC CHARACTERISTICS** over operating range unless otherwise specified

Parameters	Description	Test Conditions (Note 2)	Min	Typ (Note 1)	Max	Units
V <sub>OH</sub>	Output HIGH Voltage	V <sub>CC</sub> = MIN V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub>	2.4	3.4		Volts
V <sub>OL</sub>	Output LOW Voltage	V <sub>CC</sub> = MIN V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub>	I <sub>OL</sub> = 4.0mA		0.4	Volts
			I <sub>OL</sub> = 8.0mA		0.45	
V <sub>IH</sub>	Input HIGH Level	Guaranteed input logical HIGH voltage for all inputs	2.0			Volts
V <sub>IL</sub>	Input LOW Level	Guaranteed input logical LOW voltage for all inputs	MIL		0.7	Volts
			COM'L		0.8	
V <sub>I</sub>	Input Clamp Voltage	V <sub>CC</sub> = MIN, I <sub>IN</sub> = -18mA			-1.5	Volts
I <sub>IL</sub>	Input LOW Current	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 0.4V			-0.36	mA
I <sub>IH</sub>	Input HIGH Current	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 2.7V			20	μA
I <sub>I</sub>	Input HIGH Current	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 7.0V			0.1	mA
I <sub>SC</sub>	Output Short Circuit Current (Note 3)	V <sub>CC</sub> = MAX	-15		-85	mA
I <sub>CC</sub>	Power Supply Current (Note 4)	V <sub>CC</sub> = MAX		15	20	mA

- Notes: 1. Typical limits are at V<sub>CC</sub> = 5.0V, 25°C ambient and maximum loading.  
 2. For conditions shown as MIN or MAX, use the appropriate value specified under Operating Ranges for the applicable device type.  
 3. Not more than one output should be shorted at a time. Duration of the short circuit test should not exceed one second.  
 4. Test conditions: A = B = C = E<sub>1</sub> = E<sub>2</sub> = GND; RD = WR = E<sub>3</sub> = E<sub>4</sub> = 4.5V.

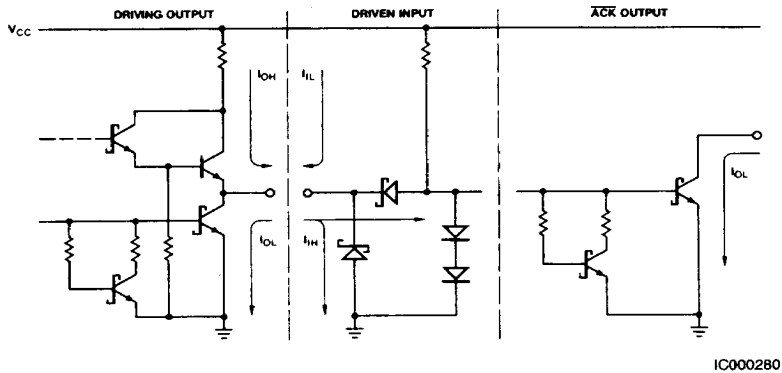
**SWITCHING CHARACTERISTICS** ( $T_A = +25^\circ\text{C}$ ,  $V_{CC} = 5.0\text{V}$ )

Parameters	Description	Test Conditions	Min	Typ	Max	Units
$t_{PLH}$	A, B or C to $\bar{Y}_i$ (Three Level Delay)	$C_L = 15\text{pF}$ $R_L = 2.0\text{k}\Omega$		14	20	ns
$t_{PHL}$				19	27	ns
$t_{PLH}$	A, B, or C to $\bar{Y}_i$ (Two Level Delay)			13	18	ns
$t_{PHL}$				15	21	ns
$t_{PLH}$	$\bar{E}_1, \bar{E}_2$ to $\bar{Y}_i$			13	18	ns
$t_{PHL}$				16	23	ns
$t_{PLH}$	$E_3, E_4$ to $\bar{Y}_i$			15	21	ns
$t_{PHL}$				19	27	ns
$t_{PLH}$	$\bar{W}R, \bar{R}D$ to $\bar{A}C\bar{K}$			25	35	ns
$t_{PHL}$				16	22	ns
$t_{PLH}$	$\bar{E}_1, \bar{E}_2$ to $\bar{A}C\bar{K}$			29	40	ns
$t_{PHL}$				25	35	ns
$t_{PLH}$	$E_3, E_4$ to $\bar{A}C\bar{K}$		29	40	ns	
$t_{PHL}$			25	35	ns	

**SWITCHING CHARACTERISTICS** over operating range unless otherwise specified

Parameters	Description	Test Conditions	COMMERCIAL		MILITARY		Units
			Am25LS2548		Am25LS2548		
			Min	Max	Min	Max	
$t_{PLH}$	A, B or C to $Y_i$ (Three Level Delay)	$C_L = 50\text{pF}$ $R_L = 2.0\text{k}\Omega$		27		30	ns
$t_{PHL}$				34		36	ns
$t_{PLH}$	A, B or C to $Y_i$ (Two Level Delay)			23		25	ns
$t_{PHL}$				28		31	ns
$t_{PLH}$	$\bar{E}_1, \bar{E}_2$ to $\bar{Y}_i$			23		25	ns
$t_{PHL}$				29		31	ns
$t_{PLH}$	$E_3, E_4$ to $\bar{Y}_i$			27		28	ns
$t_{PHL}$				34		36	ns
$t_{PLH}$	$\bar{W}R, \bar{R}D$ to $\bar{A}C\bar{K}$			45		45	ns
$t_{PHL}$				31		35	ns
$t_{PLH}$	$\bar{E}_1, \bar{E}_2$ to $\bar{A}C\bar{K}$			45		45	ns
$t_{PHL}$				39		40	ns
$t_{PLH}$	$E_3, E_4$ to $\bar{A}C\bar{K}$		45		45	ns	
$t_{PHL}$			39		40	ns	

**Am25LS2548**  
**LOW-POWER SCHOTTKY INPUT/OUTPUT**  
**CURRENT INTERFACE CONDITIONS**



Note: Actual current flow direction shown.

IC000280