

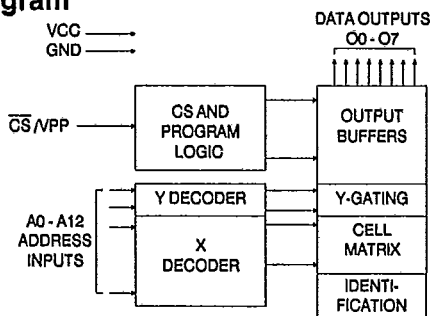
## AT27HC641/2

T-46-13-29

## Features

- Bipolar Speed
  - Read Access Time - 35ns
- Low Power CMOS Operation
  - 35 mA max. Standby
  - 75 mA Active at 10 MHz
- Direct Bipolar PROM Replacement
- High Output Drive Capability
- Reprogrammable - 4ms/byte (typical)
  - Tested 100% for Programmability
- JEDEC Approved Byte-Wide Pinout
  - 300 mil, 600 mil, DIP, or LCC packages
- CMOS and TTL Compatible Inputs and Outputs
- High Reliability Latch-Up Resistant CMOS Technology
- Integrated Product Identification Code
- Full Military, Commercial and Industrial Temperature Ranges

## Block Diagram



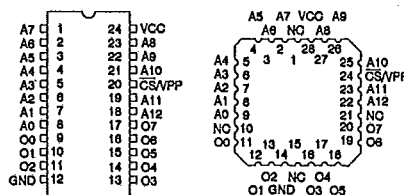
## Description

The AT27HC641/642 chip family is a high-speed, low-power 65,536 bit Ultraviolet Erasable and Electrically Programmable Read Only Memory (EPROM) organized 8K x 8. All require only one 5V power supply in normal read mode operation. All bytes on the 641 and 642 parts can be accessed in less than 35ns, making these parts compatible with high performance systems, without penalizing bit density or power consumption.

The 640 series chips come in a choice of JEDEC-approved 24-pin DIPs or 28-pad LCC packages, providing a direct power saving CMOS upgrade for systems originally using Bipolar PROMs. The AT27HC641 is available in standard 600 mil cerdip or plastic (OTP) and LCC packages, while the AT27HC642 provides a space-saving 300 mil cerdip or plastic (OTP) package.

## Pin Configurations

| Pin Name | Function        |
|----------|-----------------|
| A0-A12   | Addresses       |
| CS/Vpp   | Chip Select/Vpp |
| O0-O7    | Outputs         |



64K (8K x 8)

UV

Erasable

CMOS

PROM

5





## Description (Continued)

Atmel's 1.5 micron, high speed CMOS technology provides optimum speed, low-power and high noise immunity. Power consumption on the AT27HC641 and AT27HC642 is typically only 50 mA in Active Mode and less than 20mA in Standby. The high speed CMOS process is an extension of Atmel's high quality and highly manufacturable floating poly EPROM technology. EPROM reprogrammability, which is fully tested before shipment, provides inherently better programmability and reliability than one-time fusible PROMs.

With a storage capacity of 8K bytes, Atmel's 640 series parts allow firmware to be stored reliably and to be accessed at bipolar PROM speeds. All the 640 series parts have exceptional output drive capability - source 4 mA and sink 16 mA per output.

Atmel's 640 series chips also have additional features to ensure high quality and efficient production use. The fast programming algorithm reduces the time required to program the chip and guarantees reliable programming. The Integrated Product Identification Code electronically identifies the device and manufacturing origin. This feature is used by industry standard programming equipment to select the proper programming algorithms and voltages.

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## Erase Characteristics

The entire memory array of an Atmel 640 series chip is erased (all outputs read as  $V_{OH}$ ) after exposure to ultraviolet light at a wavelength of 2537Å. Complete erasure is assured after a minimum of 20 minutes exposure using  $12,000 \mu W/cm^2$  intensity lamps spaced one inch away from the chip. Minimum erase time for lamps at other intensity ratings can be calculated from the minimum integrated erasure dose of  $15W \cdot sec/cm^2$ . To prevent unintentional erasure, an opaque label is recommended to cover the clear window on any UV erasable EPROM which will be subjected to continuous fluorescent indoor lighting or sunlight.

## Absolute Maximum Ratings\*

|                                                                       |                                |
|-----------------------------------------------------------------------|--------------------------------|
| Temperature Under Bias .....                                          | -55°C to +125°C                |
| Storage Temperature .....                                             | -65°C to +150°C                |
| Voltage on Any Pin with<br>Respect to Ground .....                    | -2.0V to +7.0V <sup>(1)</sup>  |
| Voltage on A9 with<br>Respect to Ground .....                         | -2.0V to +14.0V <sup>(1)</sup> |
| $\overline{CS}/V_{PP}$ Supply Voltage with<br>Respect to Ground ..... | -2.0V to +14.0V <sup>(1)</sup> |
| Integrated UV Erase Dose.....                                         | 7258 $w \cdot sec/cm^2$        |

\*NOTICE: Stresses beyond 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 any other conditions beyond those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

### Notes:

1. Minimum voltage is -0.6V dc which may undershoot to -2.0V for pulses of less than 20ns. Maximum output pin voltage is  $V_{CC}+0.75V$  dc which may overshoot to +7.0V for pulses of less than 20ns.

## Operating Modes

| MODE \ PIN                            | $\overline{CS}/V_{PP}$ | Ai                                                                                                        | V <sub>CC</sub> | Outputs             |
|---------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------|-----------------|---------------------|
| Read                                  | V <sub>IL</sub>        | Ai                                                                                                        | V <sub>CC</sub> | DOUT                |
| Standby                               | V <sub>IH</sub>        | X <sup>(1)</sup>                                                                                          | V <sub>CC</sub> | High Z              |
| Fast Program <sup>(2)</sup>           | V <sub>PP</sub>        | Ai                                                                                                        | V <sub>CC</sub> | DIN                 |
| PGM Verify                            | V <sub>IL</sub>        | Ai                                                                                                        | V <sub>CC</sub> | DOUT                |
| Product Identification <sup>(4)</sup> | V <sub>IL</sub>        | A9 = V <sub>H</sub> <sup>(3)</sup><br>A0 = V <sub>IH</sub> or V <sub>IL</sub><br>A1-A12 = V <sub>IL</sub> | V <sub>CC</sub> | Identification Code |

- Notes: 1. X can be V<sub>IL</sub> or V<sub>IH</sub>.  
2. Refer to Programming characteristics.  
3. V<sub>H</sub> =  $12.0 \pm 0.5V$ .

4. Two identifier bytes may be selected. All Ai inputs are held low (V<sub>IL</sub>), except A9 which is set to V<sub>H</sub> and A0 which is toggled low (V<sub>IL</sub>) to select the Manufacturer's Identification byte and high (V<sub>IH</sub>) to select the Device Code byte.

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**D.C. and A.C. Operating Conditions for Read Operation**

| AT27HC641 / AT27HC642        |      |            |               |               |               |               |
|------------------------------|------|------------|---------------|---------------|---------------|---------------|
|                              |      | -35        | -45           | -55           | -70           | -90           |
| Operating Temperature (Case) | Com. | 0°C - 70°C | 0°C - 70°C    | 0°C - 70°C    | 0°C - 70°C    | 0°C - 70°C    |
|                              | Ind. |            | -40°C - 85°C  | -40°C - 85°C  | -40°C - 85°C  | -40°C - 85°C  |
|                              | Mil. |            | -55°C - 125°C | -55°C - 125°C | -55°C - 125°C | -55°C - 125°C |
| VCC Power Supply             |      | 5V ± 5%    | 5V ± 10%      | 5V ± 10%      | 5V ± 10%      | 5V ± 10%      |

**D.C. and Operating Characteristics for Read Operation**

| Symbol                         | Parameter                                            | Condition                                                                      | Min        | Max                   | Units |
|--------------------------------|------------------------------------------------------|--------------------------------------------------------------------------------|------------|-----------------------|-------|
| I <sub>LI</sub>                | Input Load Current                                   | V <sub>IN</sub> = -0.1V to V <sub>CC</sub> + 1V                                |            | 10                    | μA    |
| I <sub>LO</sub>                | Output Leakage Current                               | V <sub>OUT</sub> = -0.1V to V <sub>CC</sub> + 0.1V                             |            | 10                    | μA    |
| I <sub>PP1</sub>               | $\overline{CS}/V_{PP}^{(1)}$<br>Read/Standby Current | $\overline{CS}/V_{PP}$ = -0.1V to V <sub>CC</sub> + 1V                         |            | 10                    | μA    |
| I <sub>SB</sub>                | V <sub>CC</sub> <sup>(1)</sup> Standby Current       | I <sub>SB1</sub> (CMOS)                                                        | Com.       | 35                    | mA    |
|                                |                                                      | $\overline{CS}/V_{PP}$ = V <sub>CC</sub> - 0.3 to V <sub>CC</sub> + 1.0V       | Ind., Mil. | 40                    | mA    |
|                                |                                                      | I <sub>SB2</sub> (TTL)                                                         | Com.       | 35                    | mA    |
|                                |                                                      | $\overline{CS}/V_{PP}$ = 2.0 to V <sub>CC</sub> + 1.0V                         | Ind., Mil. | 40                    | mA    |
| I <sub>CC</sub>                | V <sub>CC</sub> Active Current                       | f = 10MHz, I <sub>OUT</sub> = 0mA,<br>$\overline{CS}/V_{PP}$ = V <sub>IL</sub> | Com.       | 75                    | mA    |
|                                |                                                      |                                                                                | Ind., Mil. | 90                    | mA    |
| I <sub>OS</sub> <sup>(2)</sup> | Output Short Circuit Current                         | V <sub>OUT</sub> = 0V                                                          |            | -100                  | mA    |
| V <sub>IL</sub>                | Input Low Voltage                                    |                                                                                | -0.6       | 0.8                   | V     |
| V <sub>IH</sub>                | Input High Voltage                                   |                                                                                | 2.0        | V <sub>CC</sub> + 1   | V     |
| V <sub>OL</sub>                | Output Low Voltage                                   | I <sub>OL</sub> = 16mA                                                         |            | .4                    | V     |
| V <sub>OH</sub>                | Output High Voltage                                  | I <sub>OH</sub> = -100μA                                                       |            | V <sub>CC</sub> - 0.3 | V     |
|                                |                                                      | I <sub>OH</sub> = -4.0mA                                                       |            | 2.4                   | V     |

Notes: 1. V<sub>CC</sub> must be applied simultaneously or before  $\overline{CS}/V_{PP}$ , and removed simultaneously or after  $\overline{CS}/V_{PP}$ .

2. Not more than one output at a time should be shorted. Duration of short circuit test should not exceed 30 sec. This parameter is only sampled and is not 100% tested. See Absolute Maximum Ratings.

**A.C. Characteristics for Read Operation**

|                                    |                                        |          | AT27HC641 / AT27HC642 |     |     |     |     |     |     |     |     |     |       |
|------------------------------------|----------------------------------------|----------|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
|                                    |                                        |          | -35                   |     | -45 |     | -55 |     | -70 |     | -90 |     |       |
| Symbol                             | Parameter                              |          | Min                   | Max | Min | Max | Min | Max | Min | Max | Min | Max | Units |
| t <sub>AA</sub> <sup>(4)</sup>     | Address to Output Delay                | Com.     | 35                    |     | 45  |     | 55  |     | 70  |     | 90  |     | ns    |
|                                    |                                        | Ind.,Mil |                       |     | 45  |     | 55  |     | 70  |     | 90  |     | ns    |
| t <sub>CS</sub> <sup>(2,4)</sup>   | $\overline{CS}/V_{PP}$ to Output Delay |          | 25                    |     | 30  |     | 35  |     | 45  |     | 55  |     | ns    |
| t <sub>CD</sub> <sup>(3,4,5)</sup> | $\overline{CS}/V_{PP}$ to Output Float |          | 0                     | 25  | 0   | 30  | 0   | 35  | 0   | 40  | 0   | 45  | ns    |

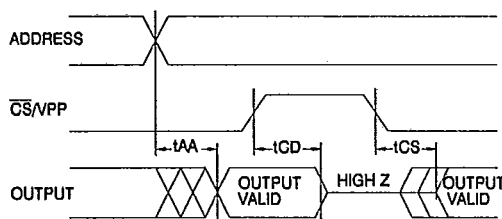
Notes: 2, 3, 4, 5. - see AC Waveforms for Read Operation.





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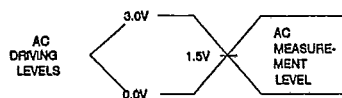
### A.C. Waveforms for Read Operation <sup>(1)</sup>



#### Notes:

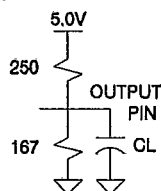
1. Timing measurement reference is 1.5V. Input AC driving levels are 0.0V and 3.0V, unless otherwise specified.
2. Asserting  $\overline{CS}/V_{PP}$  may be delayed up to  $t_{AA} - t_{CS}$  after the address transition without impact on access time.
3. This parameter is only sampled and is not 100% tested.
4.  $C_L = 30\text{pF}$ , add 10ns for  $C_L = 100\text{pF}$ .
5. Output float is defined as the point when data is no longer driven.

### Input Test Waveforms and Measurement Levels



$t_R, t_F < 5\text{ns}$  (10% to 90%)

### Output Test Load



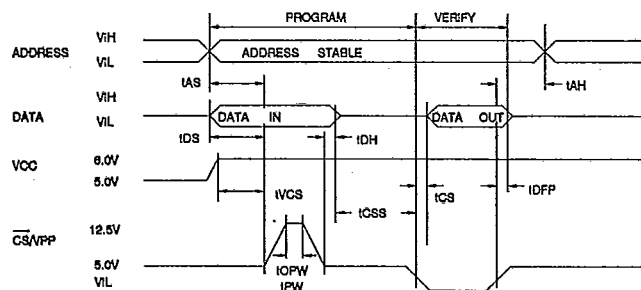
Note:  $C_L = 30\text{pF}$  including jig capacitance.

### Pin Capacitance ( $f = 1\text{MHz}$ $T = 25^\circ\text{C}$ ) <sup>(1)</sup>

|           | Typ | Max | Units | Conditions            |
|-----------|-----|-----|-------|-----------------------|
| $C_{IN}$  | 4   | 6   | pF    | $V_{IN} = 0\text{V}$  |
| $C_{OUT}$ | 8   | 12  | pF    | $V_{OUT} = 0\text{V}$ |

Notes: 1. Typical values for nominal supply voltage. This parameter is only sampled and is not 100% tested.

### Programming Waveforms <sup>(1)</sup>



#### Notes:

1. The Input Timing References are 0.0V for  $V_{IL}$  and 3.0V for  $V_{IH}$ .
2.  $t_{CS}$  and  $t_{DFF}$  are characteristics of the device but must be accommodated by the programmer.

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**D.C. Programming Characteristics** $T_A = 25 \pm 5^\circ\text{C}$ ,  $V_{CC} = 6.0 \pm 0.25\text{V}$ ,  $\overline{CS}/V_{PP} = 12.5 \pm 0.5\text{V}$ 

| Sym-<br>bol | Parameter                                       | Test<br>Conditions              | Limits<br>Min Max Units |
|-------------|-------------------------------------------------|---------------------------------|-------------------------|
| $I_{LI}$    | Input Load Current                              | $V_{IN} = V_{IL}, V_{IH}$       | 10 $\mu\text{A}$        |
| $V_{IL}$    | Input Low Level                                 | (All Inputs)                    | -0.6 0.8 V              |
| $V_{IH}$    | Input High Level                                |                                 | 2.0 $V_{CC} + 1$ V      |
| $V_{OL}$    | Output Low Volt.                                | $I_{OL} = 16\text{mA}$          | .4 V                    |
| $V_{OH}$    | Output High Volt.                               | $I_{OH} = -4.0\text{mA}$        | 2.4 V                   |
| $I_{CC2}$   | $V_{CC}$ Supply Current<br>(Program and Verify) |                                 | 80 mA                   |
| $I_{PP2}$   | $\overline{CS}/V_{PP}$ Supply<br>Current        | $\overline{CS}/V_{PP} = V_{PP}$ | 30 mA                   |
| $V_{ID}$    | A9 Product Iden-<br>tification Voltage          |                                 | 11.5 12.5 V             |

**A.C. Programming Characteristics** $T_A = 25 \pm 5^\circ\text{C}$ ,  $V_{CC} = 6.0 \pm 0.25\text{V}$ ,  $\overline{CS}/V_{PP} = 12.5 \pm 0.5\text{V}$ 

| Sym-<br>bol | Parameter                                               | Test<br>Conditions*<br>(see Note 1) | Limits<br>Min Max Units |
|-------------|---------------------------------------------------------|-------------------------------------|-------------------------|
| $t_{AS}$    | Address Setup Time                                      |                                     | 2 $\mu\text{s}$         |
| $t_{CSS}$   | $\overline{CS}/V_{PP}$ Setup Time                       |                                     | 2 $\mu\text{s}$         |
| $t_{DS}$    | Data Setup Time                                         |                                     | 2 $\mu\text{s}$         |
| $t_{AH}$    | Address Hold Time                                       |                                     | 0 $\mu\text{s}$         |
| $t_{DH}$    | Data Hold Time                                          |                                     | 2 $\mu\text{s}$         |
| $t_{DFP}$   | $\overline{CS}/V_{PP}$ High to<br>Output Float<br>Delay | (Note 2)                            | 0 130 ns                |
| $t_{VCS}$   | $V_{CC}$ Setup Time                                     |                                     | 2 $\mu\text{s}$         |
| $t_{PW}$    | $\overline{CS}/V_{PP}$ Initial Pro-<br>gram Pulse Width | (Note 3)                            | 0.95 1.05 ms            |
| $t_{OPW}$   | $\overline{CS}/V_{PP}$ Overprogram<br>Pulse Width       | (Note 4)                            | 2.85 78.75 ms           |
| $t_{CS}$    | Data Valid from $\overline{CS}/V_{PP}$                  |                                     | 70 ns                   |

**\*A.C. Conditions of Test:**

Input Rise and Fall Times (10% to 90%) ..... 5ns  
 Input Pulse Levels ..... 0.0V to 3.0V  
 Input Timing Reference Level ..... 1.5V  
 Output Timing Reference Level ..... 1.5V

**Notes:**

- $V_{CC}$  must be applied simultaneously or before  $\overline{CS}/V_{PP}$  and removed simultaneously or after  $\overline{CS}/V_{PP}$ .
- This parameter is only sampled and is not 100% tested. Output Float is defined as the point where data is no longer driven — see timing diagram.
- Initial Program Pulse width tolerance is  $1\text{msec} \pm 5\%$ .
- The length of the overprogram pulse may vary from 2.85 msec to 78.75 msec as a function of the iteration counter value X.

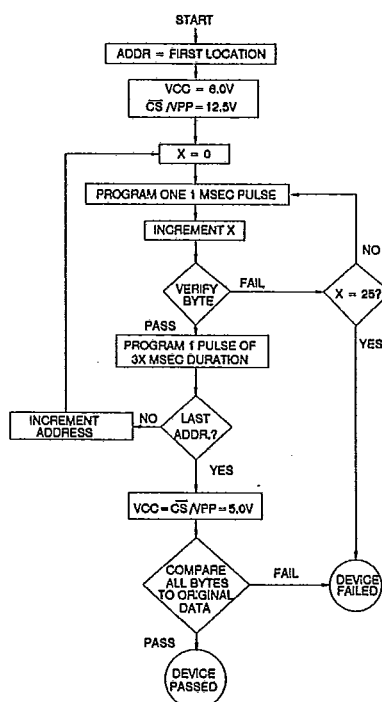
**Atmel's 27HC641/2 Integrated  
Product Identification Code:**

| Codes        | Pins |    |    |    |    |    |    |    |    | Hex Data |
|--------------|------|----|----|----|----|----|----|----|----|----------|
|              | A0   | O7 | O6 | O5 | O4 | O3 | O2 | O1 | O0 |          |
| Manufacturer | 0    | 0  | 0  | 0  | 1  | 1  | 1  | 1  | 1  | 1F       |
| Device Type  | 1    | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 10       |

**Fast Programming Algorithm**

Two 12.5V  $\overline{CS}/V_{PP}$  pulse widths are used to program; initial and overprogram. Ai are set to address the desired byte.  $V_{CC}$  is raised to 6.0V. The first  $\overline{CS}/V_{PP}$  pulse is 1ms. The programmed byte is then verified. If the byte programmed successfully, then an overprogram  $\overline{CS}/V_{PP}$  pulse is applied for 3ms. If the byte fails to program after the first 1ms pulse, then up to 25 successive 1ms pulses are applied with a verification after each pulse. When the byte passes verification, the overprogram pulse width is 3X (times) the number of 1ms pulses required earlier (75ms max).

If the part fails to verify after 25 1ms pulses have been applied, it is considered as failed. After the first byte is programmed, the Ai are set to the next address repeating the algorithm until all required addresses are programmed. Then  $V_{CC}$  is lowered to 5.0V. All bytes subsequently are read to compare with the original data to determine if the device passes or fails.



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## Ordering Information

| t <sub>ACC</sub><br>(ns) | I <sub>CC</sub> (mA) |         | Ordering Code                                                                          | Package                                | Operation Range                                               |
|--------------------------|----------------------|---------|----------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------|
|                          | Active               | Standby |                                                                                        |                                        |                                                               |
| 35                       | 75                   | 35      | AT27HC641-35DC<br>AT27HC642-35DC<br>AT27HC641-35LC                                     | 24DW6<br>24DW3<br>28LW                 | Commercial<br>(0°C to 70°C)                                   |
| 45                       | 75                   | 35      | AT27HC641-45DC<br>AT27HC642-45DC<br>AT27HC641-45LC                                     | 24DW6<br>24DW3<br>28LW                 | Commercial<br>(0°C to 70°C)                                   |
| 45                       | 90                   | 40      | AT27HC641-45DI<br>AT27HC642-45DI<br>AT27HC641-45LI                                     | 24DW6<br>24DW3<br>28LW                 | Industrial<br>(-40°C to 85°C)                                 |
|                          |                      |         | AT27HC641-45DM<br>AT27HC642-45DM<br>AT27HC641-45LM                                     | 24DW6<br>24DW3<br>28LW                 | Military<br>(-55°C to 125°C)                                  |
|                          |                      |         | AT27HC641-45DM/883<br>AT27HC642-45DM/883<br>AT27HC641-45LM/883                         | 24DW6<br>24DW3<br>28LW                 | Military/883C<br>Class B, Fully Compliant<br>(-55°C to 125°C) |
| 55                       | 75                   | 35      | AT27HC641-55DC<br>AT27HC642-55DC<br>AT27HC641-55LC<br>AT27HC641-55PC<br>AT27HC642-55PC | 24DW6<br>24DW3<br>28LW<br>24P6<br>24P3 | Commercial<br>(0°C to 70°C)                                   |
| 55                       | 90                   | 40      | AT27HC641-55DI<br>AT27HC642-55DI<br>AT27HC641-55LI<br>AT27HC641-55PI<br>AT27HC642-55PI | 24DW6<br>24DW3<br>28LW<br>24P6<br>24P3 | Industrial<br>(-40°C to 85°C)                                 |
|                          |                      |         | AT27HC641-55DM<br>AT27HC642-55DM<br>AT27HC641-55LM                                     | 24DW6<br>24DW3<br>28LW                 | Military<br>(-55°C to 125°C)                                  |
|                          |                      |         | AT27HC641-55DM/883<br>AT27HC642-55DM/883<br>AT27HC641-55LM/883                         | 24DW6<br>24DW3<br>28LW                 | Military/883C<br>Class B, Fully Compliant<br>(-55°C to 125°C) |
| 70                       | 75                   | 35      | AT27HC641-70DC<br>AT27HC642-70DC<br>AT27HC641-70LC<br>AT27HC641-70PC<br>AT27HC642-70PC | 24DW6<br>24DW3<br>28LW<br>24P6<br>24P3 | Commercial<br>(0°C to 70°C)                                   |
| 70                       | 90                   | 40      | AT27HC641-70DI<br>AT27HC642-70DI<br>AT27HC641-70LI<br>AT27HC641-70PI<br>AT27HC642-70PI | 24DW6<br>24DW3<br>28LW<br>24P6<br>24P3 | Industrial<br>(-40°C to 85°C)                                 |
|                          |                      |         | AT27HC641-70DM<br>AT27HC642-70DM<br>AT27HC641-70LM                                     | 24DW6<br>24DW3<br>28LW                 | Military<br>(-55°C to 125°C)                                  |

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**Ordering Information**

| t <sub>ACC</sub><br>(ns) | I <sub>CC</sub> (mA) |         | Ordering Code                                                                          | Package                                | Operation Range                                               |
|--------------------------|----------------------|---------|----------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------|
|                          | Active               | Standby |                                                                                        |                                        |                                                               |
| 70                       | 90                   | 40      | AT27HC641-70DM/883<br>AT27HC642-70DM/883<br>AT27HC641-70LM/883                         | 24DW6<br>24DW3<br>28LW                 | Military/883C<br>Class B, Fully Compliant<br>(-55°C to 125°C) |
| 90                       | 75                   | 35      | AT27HC641-90DC<br>AT27HC642-90DC<br>AT27HC641-90LC<br>AT27HC641-90PC<br>AT27HC642-90PC | 24DW6<br>24DW3<br>28LW<br>24P6<br>24P3 | Commercial<br>(0°C to 70°C)                                   |
| 90                       | 90                   | 40      | AT27HC641-90DI<br>AT27HC642-90DI<br>AT27HC641-90LI<br>AT27HC641-90PI<br>AT27HC642-90PI | 24DW6<br>24DW3<br>28LW<br>24P6<br>24P3 | Industrial<br>(-40°C to 85°C)                                 |
|                          |                      |         | AT27HC641-90DM<br>AT27HC642-90DM<br>AT27HC641-90LM                                     | 24DW6<br>24DW3<br>28LW                 | Military<br>(-55°C to 125°C)                                  |
|                          |                      |         | AT27HC641-90DM/883<br>AT27HC642-90DM/883<br>AT27HC641-90LM/883                         | 24DW6<br>24DW3<br>28LW                 | Military/883C<br>Class B, Fully Compliant<br>(-55°C to 125°C) |
| 45                       | 90                   | 40      | 5962-87515 01 JX<br>5962-87515 01 KX<br>5962-87515 01 LX<br>5962-87515 01 3X           | 24DW6<br>24FW<br>24DW3<br>28LW         | Military/883C<br>Class B, Fully Compliant<br>(-55°C to 125°C) |
| 55                       | 90                   | 40      | 5962-87515 02 JX<br>5962-87515 02 KX<br>5962-87515 02 LX<br>5962-87515 02 3X           | 24DW6<br>24FW<br>24DW3<br>24LW         | Military/883C<br>Class B, Fully Compliant<br>(-55°C to 125°C) |
| 70                       | 90                   | 40      | 5962-87515 03 JX<br>5962-87515 03 KX<br>5962-87515 03 LX<br>5962-87515 03 3X           | 24DW6<br>24FW<br>24DW3<br>28LW         | Military/883C<br>Class B, Fully Compliant<br>(-55°C to 125°C) |
| 90                       | 90                   | 40      | 5962-87515 04 JX<br>5962-87515 04 KX<br>5962-87515 04 LX<br>5962-87515 04 3X           | 24DW6<br>24FW<br>24DW3<br>28LW         | Military/883C<br>Class B, Fully Compliant<br>(-55°C to 125°C) |

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**Package Type**

|       |                                                                      |
|-------|----------------------------------------------------------------------|
| 24DW3 | 24 Lead, 0.300" Wide, Windowed, Ceramic Dual Inline Package (Cerdip) |
| 24DW6 | 24 Lead, 0.600" Wide, Windowed, Ceramic Dual Inline Package (Cerdip) |
| 24FW  | 24 Lead, Windowed, Ceramic Bottom-Brazed Flat Package (Flatpack)     |
| 28LW  | 28 Pad, Windowed, Ceramic Leadless Chip Carrier (LCC)                |
| 24P3  | 24 Lead, 0.300" Wide, Plastic Dual Inline Package OTP (PDIP)         |
| 24P6  | 24 Lead, 0.600" Wide, Plastic Dual Inline Package OTP (PDIP)         |

