



CD54AC240, CD54AC244, CD54ACT240, CD54ACT241, CD54ACT244, CD74AC240, CD74AC244, CD74ACT240, CD74ACT241, CD74ACT244

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## CDx4AC24x、CDx4ACT24x オクタルバッファ / ラインドライバ、3 ステート

### 1 特長

- SCR ラッチアップ耐性の高い CMOS プロセスと回路設計
- 消費電力を大幅に低減した、バイポーラ FAST /AS/S の速度
- 伝搬遅延時間の平衡化
- AC タイプは 1.5V~5.5V で動作し、バランスのとれたノイズ耐性を電源の 30% で実現
- $\pm 24\text{mA}$  出力駆動電流
  - 15 個の FAST\* IC にファンアウト
  - 50 $\Omega$  伝送ラインを駆動

### 2 概要

RCA CD54/74AC240、CD54/74AC241、CD54/74AC244 および CD54/74ACT240、CD54/74ACT241、CD54/74ACT244、3 ステート オクタ ル バッファ / ライン ドライバは、RCA ADVANCED CMOS テクノロジを使用しています。

#### 製品情報

| 部品番号          | パッケージ <sup>(1)</sup> | パッケージサイズ <sup>(2)</sup> | 本体サイズ <sup>(3)</sup> |
|---------------|----------------------|-------------------------|----------------------|
| CDx4AC/ACT24x | DW (SOIC, 20)        | 12.8mm × 10.3mm         | 12.8mm × 7.5mm       |
|               | N (PDIP, 20)         | 24.33mm × 9.4mm         | 24.33mm × 6.35mm     |

- (1) 詳細については、[セクション 10](#) を参照してください。
- (2) パッケージ サイズ (長さ × 幅) は公称値であり、該当する場合はピンも含まれます。
- (3) 本体サイズ (長さ × 幅) は公称値であり、ピンは含まれません。



概略回路図

\*FAST は Fairchild Semiconductor Corp. の登録商標です。



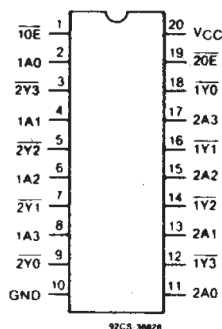
このリソースの元の言語は英語です。翻訳は概要を便宜的に提供するもので、自動化ツール (機械翻訳) を使用していることがあり、TI では翻訳の正確性および妥当性につきましては一切保証いたしません。実際の設計などの前には、[ti.com](http://ti.com) で必ず最新の英語版をご参照くださいますようお願いいたします。

English Data Sheet: [SCHS287](#)

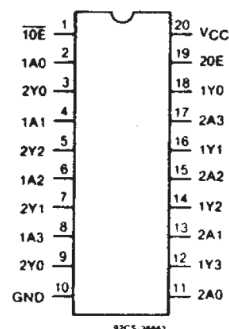
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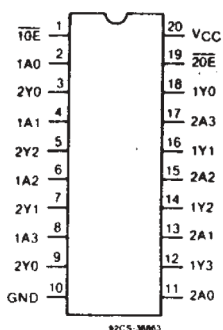
## 3 Pin Configuration and Functions



3-1. CD54/74AC, ACT240 Types Terminal Assignment



3-2. CD54/74AC, ACT241 Types Terminal Assignment



3-3. CD54/74AC, ACT244 Types Terminal Assignment

表 3-1. Pin Functions

| PIN                        |      | TYPE <sup>(1)</sup> | DESCRIPTION                                                                                            |
|----------------------------|------|---------------------|--------------------------------------------------------------------------------------------------------|
| NO.                        | NAME |                     |                                                                                                        |
| 1OE                        | 1    | I                   | Bank 1, output enable, active low                                                                      |
| 1A0                        | 2    | I                   | Bank 1, channel 1 input                                                                                |
| 2Y3                        | 3    | O                   | Bank 2, channel 4 output                                                                               |
| 1A1                        | 4    | I                   | Bank 1, channel 2 input                                                                                |
| 2Y2                        | 5    | O                   | Bank 2, channel 3 output                                                                               |
| 1A2                        | 6    | I                   | Bank 1, channel 3 input                                                                                |
| 2Y1                        | 7    | O                   | Bank 2, channel 2 output                                                                               |
| 1A3                        | 8    | I                   | Bank 1, channel 4 input                                                                                |
| 2Y0                        | 9    | O                   | Bank 2, channel 1 output                                                                               |
| GND                        | 10   | G                   | Ground                                                                                                 |
| 2A0                        | 11   | I                   | Bank 2, channel 1 input                                                                                |
| 1Y3                        | 12   | O                   | Bank 1, channel 4 output                                                                               |
| 2A1                        | 13   | I                   | Bank 2, channel 2 input                                                                                |
| 1Y2                        | 14   | O                   | Bank 1, channel 3 output                                                                               |
| 2A2                        | 15   | I                   | Bank 2, channel 3 input                                                                                |
| 1Y1                        | 16   | O                   | Bank 1, channel 2 output                                                                               |
| 2A3                        | 17   | I                   | Bank 2, channel 4 input                                                                                |
| 1Y0                        | 18   | O                   | Bank 1, channel 1 output                                                                               |
| 2OE                        | 19   | I                   | Bank 2, output enable, active low                                                                      |
| V <sub>CC</sub>            | 20   | P                   | Positive supply                                                                                        |
| Thermal pad <sup>(2)</sup> |      | —                   | The thermal pad can be connected to GND or left floating. Do not connect to any other signal or supply |

(1) I = input, O = output, I/O = input or output, G = ground, P = power.

(2) RKS package only.

## 4 Specifications

### 4.1 Absolute Maximum Ratings

over operating free-air temperature range (unless otherwise noted)<sup>(1)</sup>

|                  |                                                                           | MIN                                                                   | MAX  | UNIT              |
|------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------|------|-------------------|
| V <sub>CC</sub>  | Supply voltage                                                            | -0.5                                                                  | 6    | V                 |
| I <sub>IK</sub>  | Input diode current                                                       | (V <sub>I</sub> < -0.5 V or V <sub>I</sub> > V <sub>CC</sub> + 0.5 V) | ±20  | mA                |
| I <sub>OK</sub>  | Output diode current                                                      | (V <sub>O</sub> < -0.5 V or V <sub>O</sub> > V <sub>CC</sub> + 0.5 V) | ±50  | mA                |
| I <sub>O</sub>   | Output source or sink current per output pin                              | (V <sub>O</sub> > -0.5 V or V <sub>O</sub> < V <sub>CC</sub> + 0.5 V) | ±50  | mA                |
|                  | V <sub>CC</sub> or ground current, (I <sub>CC</sub> or I <sub>GND</sub> ) |                                                                       | ±100 | mA <sup>(2)</sup> |
| T <sub>stg</sub> | Storage temperature                                                       | -65                                                                   | +150 | °C                |

- (1) Operation outside the Absolute Maximum Ratings may cause permanent device damage. Absolute Maximum Ratings do not imply functional operation of the device at these or any other conditions beyond those listed under Recommended Operating Conditions. If used outside the Recommended Operating Conditions but within the Absolute Maximum Ratings, the device may not be fully functional, and this may affect device reliability, functionality, performance, and shorten the device lifetime.
- (2) For up to 4 outputs per device: add ± 25 mA for each additional output.

### 4.2 Recommended Operating Conditions

For maximum reliability, normal operating conditions should be selected so that operation is always within the following ranges:

|                                 | CHARACTERISTIC                | MIN         | MAX             | UNIT |
|---------------------------------|-------------------------------|-------------|-----------------|------|
| V <sub>CC</sub> <sup>(1)</sup>  | Supply voltage                |             |                 |      |
|                                 | AC Types                      | 1.5         | 5.5             | V    |
|                                 | ACT Types                     | 4.5         | 5.5             | V    |
| V <sub>I</sub> , V <sub>O</sub> | Input or Output Voltage       | 0           | V <sub>CC</sub> | V    |
| T <sub>A</sub>                  | Operating Temperature         | CD54<br>-55 | +125            | °C   |
|                                 |                               | CD74<br>-40 | +85             |      |
| dt/dv                           | Input Rise and Fall Slew Rate |             |                 |      |
|                                 | at 1.5 V to 3 V (AC Types)    | 0           | 50              | ns/V |
|                                 | at 3.6 v to 5.5 V (AC Types)  | 0           | 20              | ns/V |
|                                 | at 4.5 V to 5.5 V (ACT Types) | 0           | 10              | ns/V |

- (1) Unless otherwise specified, all voltages are referenced to ground.

### 4.3 Thermal Information

| THERMAL METRIC <sup>(1)</sup> |                                        | CDx4AC/ACT24x |          | UNIT |
|-------------------------------|----------------------------------------|---------------|----------|------|
|                               |                                        | DW (SOIC)     | N (PDIP) |      |
|                               |                                        | 20 PINS       |          |      |
| R <sub>θJA</sub>              | Junction-to-ambient thermal resistance | 101.2         | 40       | °C/W |

- (1) For more information about traditional and new thermal metrics, see the *Semiconductor and IC Package Thermal Metrics* application report, [SPRA953](#).

#### 4.4 Static Electrical Characteristics: AC Series

| CHARACTERISTICS |                               | TEST CONDITIONS                                                            |                     | V <sub>CC</sub> (V) | AMBIENT TEMPERATURE (T <sub>A</sub> ) - °C |      |            |      |             |      | UNIT |
|-----------------|-------------------------------|----------------------------------------------------------------------------|---------------------|---------------------|--------------------------------------------|------|------------|------|-------------|------|------|
|                 |                               |                                                                            |                     |                     | +25                                        |      | -40 to +85 |      | -55 to +125 |      |      |
|                 |                               | V <sub>I</sub> (V)                                                         | I <sub>O</sub> (mA) |                     | MIN                                        | MAX  | MIN        | MAX  | MIN         | MAX  |      |
| V <sub>IH</sub> | High-Level Input Voltage      |                                                                            |                     | 1.5                 | 1.2                                        | —    | 1.2        | —    | 1.2         | —    | V    |
|                 |                               |                                                                            |                     | 3                   | 2.1                                        | —    | 2.1        | —    | 2.1         | —    |      |
|                 |                               |                                                                            |                     | 5.5                 | 3.85                                       | —    | 3.85       | —    | 3.85        | —    |      |
| V <sub>IL</sub> | Low-Level Input Voltage       |                                                                            |                     | 1.5                 | —                                          | 0.3  | —          | 0.3  | —           | 0.3  | V    |
|                 |                               |                                                                            |                     | 3                   | —                                          | 0.9  | —          | 0.9  | —           | 0.9  |      |
|                 |                               |                                                                            |                     | 5.5                 | —                                          | 1.65 | —          | 1.65 | —           | 1.65 |      |
| V <sub>OH</sub> | High-Level Output Voltage     | V <sub>IH</sub> or V <sub>IL</sub>                                         | -0.05               | 1.5                 | 1.4                                        | —    | 1.4        | —    | 1.4         | —    | V    |
|                 |                               |                                                                            | -0.05               | 3                   | 2.9                                        | —    | 2.9        | —    | 2.9         | —    |      |
|                 |                               |                                                                            | -0.05               | 4.5                 | 4.4                                        | —    | 4.4        | —    | 4.4         | —    |      |
|                 |                               |                                                                            | -4                  | 3                   | 2.58                                       | —    | 2.48       | —    | 2.4         | —    |      |
|                 |                               |                                                                            | -24                 | 4.5                 | 3.94                                       | —    | 3.8        | —    | 3.7         | —    |      |
|                 |                               | (1) , (2)                                                                  | -75                 | 5.5                 | —                                          | —    | 3.85       | —    | —           | —    |      |
|                 |                               |                                                                            | -50                 | 5.5                 | —                                          | —    | —          | —    | 3.85        | —    |      |
| V <sub>OL</sub> | Low-Level Output Voltage      | V <sub>IH</sub> or V <sub>IL</sub>                                         | 0.05                | 1.5                 | —                                          | 0.1  | —          | 0.1  | —           | 0.1  | V    |
|                 |                               |                                                                            | 0.05                | 3                   | —                                          | 0.1  | —          | 0.1  | —           | 0.1  |      |
|                 |                               |                                                                            | 0.05                | 4.5                 | —                                          | 0.1  | —          | 0.1  | —           | 0.1  |      |
|                 |                               |                                                                            | 12                  | 3                   | —                                          | 0.36 | —          | 0.44 | —           | 0.5  |      |
|                 |                               |                                                                            | 24                  | 4.5                 | —                                          | 0.36 | —          | 0.44 | —           | 0.5  |      |
|                 |                               | (1) , (2)                                                                  | 75                  | 5.5                 | —                                          | —    | —          | 1.65 | —           | —    |      |
|                 |                               |                                                                            | 50                  | 5.5                 | —                                          | —    | —          | —    | —           | 1.65 |      |
| I <sub>I</sub>  | Input Leakage Current         | V <sub>CC</sub> or GND                                                     |                     | 5.5                 | —                                          | ±0.1 | —          | ±1   | —           | ±1   | μA   |
| I <sub>oz</sub> | 3-State Leakage Current       | V <sub>IH</sub> or V <sub>IL</sub> V <sub>O</sub> = V <sub>CC</sub> or GND |                     | 5.5                 | —                                          | ±0.5 | —          | ±5   | —           | ±10  | μA   |
| I <sub>CC</sub> | Quiescent Supply Current, MSI | V <sub>CC</sub> or GND                                                     | 0                   | 5.5                 | —                                          | 8    | —          | 80   | —           | 160  | μA   |

- (1) Test one output at a time for a 1-second maximum duration. Measurement is made by forcing current and measuring voltage to minimize power dissipation.
- (2) Test verifies a minimum 50-ohm transmission-line-drive capability at +85°C, 75 ohms at +125°C.

## 4.5 Electrical Characteristics: ACT Series

| CHARACTERISTICS  |                                                   | TEST CONDITIONS                                                            |                     | V <sub>CC</sub> (V) | AMBIENT TEMPERATURE (T <sub>A</sub> ) - °C |      |            |      |             |      | UNIT |
|------------------|---------------------------------------------------|----------------------------------------------------------------------------|---------------------|---------------------|--------------------------------------------|------|------------|------|-------------|------|------|
|                  |                                                   |                                                                            |                     |                     | +25                                        |      | -40 to +85 |      | -55 to +125 |      |      |
|                  |                                                   | V <sub>I</sub> (V)                                                         | I <sub>O</sub> (mA) |                     | MIN                                        | MAX  | MIN        | MAX  | MIN         | MAX  |      |
| V <sub>IH</sub>  | High-Level Input Voltage                          |                                                                            |                     | 4.5 to 5.5          | 2                                          | —    | 2          | —    | 2           | —    | V    |
| V <sub>IL</sub>  | Low-Level Input Voltage                           |                                                                            |                     | 4.5 to 5.5          | —                                          | 0.8  | —          | 0.8  | —           | 0.8  | V    |
| V <sub>OH</sub>  | High-Level Output Voltage                         | V <sub>IH</sub> or V <sub>IL</sub>                                         | -0.05               | 4.5                 | 4.4                                        | —    | 4.4        | —    | 4.4         | —    | V    |
|                  |                                                   |                                                                            | -24                 | 4.5                 | 3.94                                       | —    | 3.8        | —    | 3.7         | —    |      |
|                  |                                                   | (1), (2)                                                                   | -75                 | 5.5                 | —                                          | —    | 3.85       | —    | —           | —    |      |
|                  |                                                   |                                                                            | -50                 | 5.5                 | —                                          | —    | —          | —    | 3.85        | —    |      |
| V <sub>OL</sub>  | Low-Level Output Voltage                          | V <sub>IH</sub> or V <sub>IL</sub>                                         | 0.05                | 4.5                 | —                                          | 0.1  | —          | 0.1  | —           | 0.1  | V    |
|                  |                                                   |                                                                            | 24                  | 4.5                 | —                                          | 0.36 | —          | 0.44 | —           | 0.5  |      |
|                  |                                                   | (1), (2)                                                                   | 75                  | 5.5                 | —                                          | —    | —          | 1.65 | —           | —    |      |
|                  |                                                   |                                                                            | 50                  | 5.5                 | —                                          | —    | —          | —    | —           | 1.65 |      |
| I <sub>I</sub>   | Input Leakage Current                             | V <sub>CC</sub> or GND                                                     |                     | 5.5                 | —                                          | ±0.1 | —          | ±1   | —           | ±1   | μA   |
| I <sub>OZ</sub>  | 3-State Leakage Current                           | V <sub>IH</sub> or V <sub>IL</sub> V <sub>O</sub> = V <sub>CC</sub> or GND |                     | 5.5                 | —                                          | ±0.5 | —          | ±5   | —           | ±10  | μA   |
| I <sub>CC</sub>  | Quiescent Supply Current, MSI                     | V <sub>CC</sub> or GND                                                     | 0                   | 5.5                 | —                                          | 8    | —          | 80   | —           | 160  | μA   |
|                  | Additional Quiescent Supply Current per Input Pin | V <sub>CC</sub> -2.1                                                       |                     | 4.5 to 5.5          | —                                          | 2.4  | —          | 2.8  | —           | 3    | mA   |
| ΔI <sub>CC</sub> | TTL Inputs High                                   |                                                                            |                     |                     |                                            |      |            |      |             |      |      |
|                  | 1 Unit Load                                       |                                                                            |                     |                     |                                            |      |            |      |             |      |      |

- (1) Test one output at a time for a 1-second maximum duration. Measurement is made by forcing current and measuring voltage to minimize power dissipation.  
(2) Test verifies a minimum 50-ohm transmission-line-drive capability at +85°C. 75 ohms at +125°C.

**表 4-1. Act Input Loading Tables**

| CD54/74ACT240 |                           |
|---------------|---------------------------|
| INPUT         | UNIT LOADS <sup>(1)</sup> |
| nA0 - A3      | 1.42                      |
| 10E           | 0.83                      |
| 20E           | 0.83                      |

| CD54/74ACT241 |                           |
|---------------|---------------------------|
| INPUT         | UNIT LOADS <sup>(1)</sup> |
| nA0 - A3      | 0.5                       |
| 10E           | 0.83                      |
| 20E           | 1.67                      |

| CD54/74ACT244 |                           |
|---------------|---------------------------|
| INPUT         | UNIT LOADS <sup>(1)</sup> |
| nA0 - A3      | 0.5                       |
| 10E           | 0.83                      |
| 20E           | 0.83                      |

## 4.6 Switching Characteristics: AC Series

$t_r, t_f$  3 ns,  $C_L = 50$  pF

| PARAMETER                           | CHARACTERISTICS                                                     | V <sub>CC</sub> (V) | AMBIENT TEMPERATURE (T <sub>A</sub> ) - °C |      |             |      | UNIT |
|-------------------------------------|---------------------------------------------------------------------|---------------------|--------------------------------------------|------|-------------|------|------|
|                                     |                                                                     |                     | -40 to +85                                 |      | -55 to +125 |      |      |
|                                     |                                                                     |                     | MIN                                        | MAX  | MIN         | MAX  |      |
| Propagation Delays: Data to Outputs |                                                                     |                     |                                            |      |             |      |      |
| t <sub>PLH</sub>                    | AC 240                                                              | 1.5                 | —                                          | 82   | —           | 90   | ns   |
|                                     |                                                                     | 3.3 <sup>(1)</sup>  | 2.6                                        | 9.2  | 2.5         | 10.1 |      |
| t <sub>PHL</sub>                    |                                                                     | 5                   | 1.9                                        | 6.5  | 1.8         | 7.2  |      |
| t <sub>PLH</sub>                    | AC 241, 244                                                         | 1.5                 | —                                          | 93   | —           | 103  | ns   |
|                                     |                                                                     | 3.3                 | 3                                          | 10.5 | 2.9         | 11.5 |      |
| t <sub>PHL</sub>                    |                                                                     | 5                   | 2.2                                        | 7.5  | 2.1         | 8.2  |      |
| t <sub>PZL</sub>                    | Output Enable Times                                                 | 1.5                 | —                                          | 136  | —           | —    | ns   |
|                                     |                                                                     | 3.3                 | 4.6                                        | 16.4 | 4.5         | 18   |      |
| t <sub>PZH</sub>                    |                                                                     | 5                   | 3.1                                        | 10.9 | 3           | 12   |      |
| t <sub>PLZ</sub>                    | Output Disable Times                                                | 1.5                 | —                                          | 136  | —           | 150  | ns   |
|                                     |                                                                     | 3.3                 | 3.9                                        | 13.6 | 3.8         | 15   |      |
| t <sub>PHZ</sub>                    |                                                                     | 5                   | 3.1                                        | 10.9 | 3           | 12   |      |
| Power Dissipation Capacitance       |                                                                     |                     |                                            |      |             |      |      |
| C <sub>PD</sub> §                   | AC240                                                               | —                   | 65 Typ.                                    |      | 65 Typ.     |      | pF   |
|                                     | AC241, 244                                                          | —                   | 71 Typ.                                    |      | 71 Typ.     |      |      |
| Min. (Valley) V <sub>oh</sub>       |                                                                     |                     |                                            |      |             |      |      |
| V <sub>OHV</sub>                    | During Switching of Other Outputs (Output Under Test Not Switching) | 5                   | 4 Typ @25°C                                |      |             |      | V    |
| Max. (Peak) V <sub>OL</sub>         |                                                                     |                     |                                            |      |             |      |      |
| V <sub>OLP</sub>                    | During Switching of Other Outputs (Output Under Test Not Switching) | 5                   | 1 Typ. @ 25°C                              |      |             |      | V    |
| C <sub>I</sub>                      | Input Capacitance                                                   | —                   | —                                          | 10   | —           | 10   | pF   |
| C <sub>O</sub>                      | 3-State Output Capacitance                                          | —                   | —                                          | 15   | —           | 15   | pF   |

## 4.7 Switching Characteristics: ACT Series

$t_r, t_f = 3$  ns,  $C_L = 50$  pF

| PARAMETER                           |                      | CHARACTERISTICS  | V <sub>CC</sub> (V) | AMBIENT TEMPERATURE (T <sub>A</sub> ) - °C |        |             |     | UNIT |
|-------------------------------------|----------------------|------------------|---------------------|--------------------------------------------|--------|-------------|-----|------|
|                                     |                      |                  |                     | -40 to +85                                 |        | -55 to +125 |     |      |
|                                     |                      |                  |                     | MIN                                        | MAX    | MIN         | MAX |      |
| Propagation Delays: Data to Outputs |                      |                  |                     |                                            |        |             |     |      |
| t <sub>PLH</sub>                    | ACT240               | 5 <sup>(2)</sup> | 2.3                 | 7.8                                        | 2.2    | 8.6         | ns  |      |
| t <sub>PHL</sub>                    |                      |                  |                     |                                            |        |             |     |      |
| t <sub>PLH</sub>                    | ACT241, 244          | 5                | 2.5                 | 8.7                                        | 2.4    | 9.6         | ns  |      |
| t <sub>PHL</sub>                    |                      |                  |                     |                                            |        |             |     |      |
| t <sub>PZL</sub>                    | Output Enable Times  | 5                | 3.5                 | 12.2                                       | 3.4    | 13.4        | ns  |      |
| t <sub>PZH</sub>                    |                      |                  |                     |                                            |        |             |     |      |
| t <sub>PLZ</sub>                    | Output Disable Times | 5                | 3.5                 | 12.2                                       | 3.4    | 13.4        | ns  |      |
| t <sub>PHZ</sub>                    |                      |                  |                     |                                            |        |             |     |      |
| Power Dissipation Capacitance       |                      |                  |                     |                                            |        |             |     |      |
| C <sub>PD</sub> <sup>(3)</sup>      | ACT240               | —                | 65 Typ              |                                            | 65 Typ |             | pF  |      |
|                                     | ACT241, 244          | —                | 71 Typ              |                                            | 71 Typ |             | pF  |      |



$t_r, t_f = 3 \text{ ns}$ ,  $C_L = 50 \text{ pF}$

| PARAMETER                                                           |                                                                     | CHARACTERISTICS | V <sub>CC</sub> (V) | AMBIENT TEMPERATURE (T <sub>A</sub> ) - °C |     |             |     | UNIT |
|---------------------------------------------------------------------|---------------------------------------------------------------------|-----------------|---------------------|--------------------------------------------|-----|-------------|-----|------|
|                                                                     |                                                                     |                 |                     | -40 to +85                                 |     | -55 to +125 |     |      |
|                                                                     |                                                                     |                 |                     | MIN                                        | MAX | MIN         | MAX |      |
| Min. (Valley)<br>V <sub>oh</sub><br>V <sub>OHV</sub> <sup>(1)</sup> | During Switching of Other Outputs (Output Under Test Not Switching) | 5               | 4 Typ @25°C         |                                            |     |             | V   |      |
| Max. (Peak) V <sub>OL</sub><br>V <sub>OLP</sub> <sup>(1)</sup>      | During Switching of Other Outputs (Output Under Test Not Switching) | 5               | 1 Typ. @ 25°C       |                                            |     |             | V   |      |
| C <sub>I</sub>                                                      | Input Capacitance                                                   | —               | —                   | 10                                         | —   | 10          | pF  |      |
| C <sub>O</sub>                                                      | 3-State Output Capacitance                                          | —               | —                   | 15                                         | —   | 15          | pF  |      |

(1) 3.3 V: min. is @ 3.6 V; max. is @ 3 V

(2) 5 V: min. is @ 5.5 V; max. is @ 4.5 V

(3)  $C_{PD}$  is used to determine the dynamic power consumption, per package.

a. For AC series:  $P_D = V_{CC}^2 f_i (C_{PD} + C_L)$

b. For ACT series:  $P_D = V_{CC}^2 f_i (C_{PD} + C_L) + V_{CC} \Delta I_{CC}$  where  $f_i$  = input frequency

i.  $C_L$  = output load capacitance

ii.  $V_{CC}$  = supply voltage.

- ### 5-1. Simultaneous Switching Transient Waveforms.



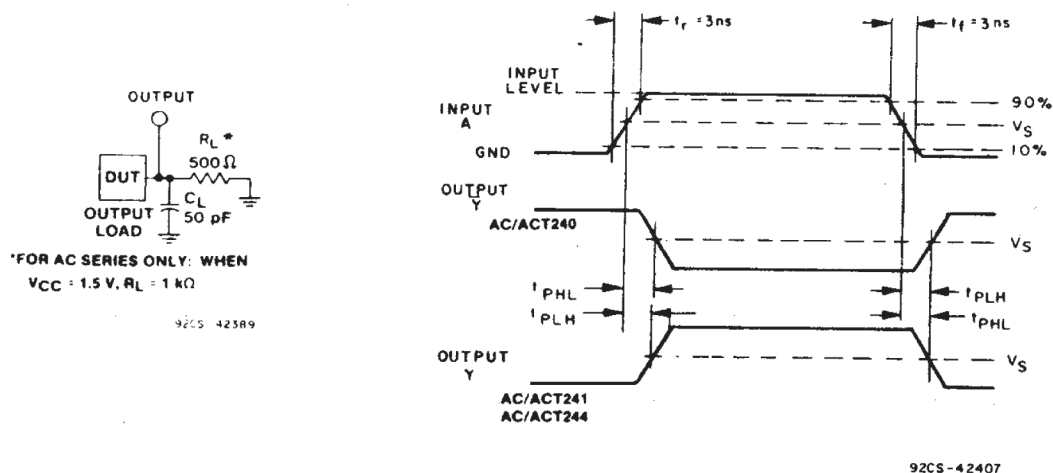


図 5-3. Propagation Delay Times and Test Circuit.

|                                 | CDX4AC       | CDX4ACT      |
|---------------------------------|--------------|--------------|
| Input Level                     | $V_{CC}$     | 3 V          |
| Input Switching Voltage, $V_S$  | $0.5 V_{CC}$ | 1.5 V        |
| Output Switching Voltage, $V_S$ | $0.5 V_{CC}$ | $0.5 V_{CC}$ |

6 Detailed Description

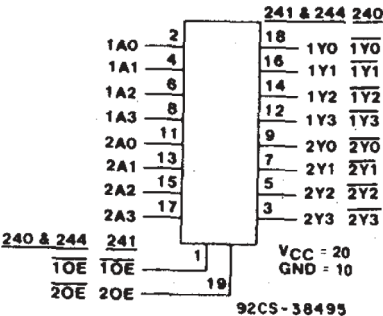
6.1 Overview

The RCA CD54/74AC240, CD54/74AC241, and CD54/74AC244 and the CD54/74ACT240, CD54/74ACT241, and CD54/74ACT244 3-state octal buffer/line drivers use the RCA ADVANCED CMOS technology. The CD54/74AC/ACT240 and CD54/74AC/ACT244 have active-LOW output enables ( $\overline{1OE}$ ,  $\overline{2OE}$ ). The CD54/74AC/ACT241 has one active-LOW ( $\overline{1OE}$ ) and one active-HIGH (2OE) output enable.

The CD74AC240 and CD74ACT240 are supplied in 20-lead dual-in-line plastic packages (E suffix) and 20-lead small-outline packages (M and M96 suffixes). The CD74AC241 is supplied in 20-lead dual-in-line plastic packages (E suffix) and the CD74ACT241 is supplied in 20-lead dual-in-line plastic packages (E suffix) and 20-lead small-outline packages (M96 suffix). The CD74AC244 and CD74ACT244 are supplied in 20-lead dual-in-line plastic packages (E suffix), 20-lead small-outline packages (M and M96 suffixes), and 20-lead shrink small-outline packages (SM96 suffix). These package types are operable over the following temperature ranges: Commercial (0 to 70\u0001C); Industrial (–40 to +85\u0001C); and Extended Industrial/Military (–55 to +125\u0001C).

The CD54AC240 and CD54AC244 and the CD54ACT240, CD54ACT241, and CD54ACT244 are supplied in 20-lead hermetic dual-in-line ceramic packages (F3A suffix) and are operable over the –55 to +125\u0001C temperature range.

6.2 Functional Block Diagram



6.3 Device Functional Modes

表 6-1. Truth Tables

| INPUTS                              |   | OUTP<br>UT |
|-------------------------------------|---|------------|
| $\overline{1OE}$ , $\overline{2OE}$ | A | Y          |
| L                                   | L | H          |
| L                                   | H | L          |
| H                                   | X | Z          |
| (AC/ACT240)                         |   |            |

| INPUTS                              |   | OUT<br>PUT |
|-------------------------------------|---|------------|
| $\overline{1OE}$ , $\overline{2OE}$ | A | Y          |
| L                                   | L | L          |
| L                                   | H | H          |
| H                                   | X | Z          |

| INPUTS      |   | OUT<br>PUT |
|-------------|---|------------|
| 10E, 20E    | A | Y          |
| (AC/ACT244) |   |            |

| INPUTS      |    | OUTPUT | INPUTS |    | OUTPUT |
|-------------|----|--------|--------|----|--------|
| 10E         | 1A | 1Y     | 20E    | 2A | 2Y     |
| L           | L  | L      | L      | X  | Z      |
| L           | H  | H      | H      | L  | L      |
| H           | X  | Z      | H      | H  | H      |
| (AC/ACT241) |    |        |        |    |        |

## 7 Application and Implementation

### 注

以下のアプリケーション情報は、TI の製品仕様に含まれるものではなく、TI ではその正確性または完全性を保証いたしません。個々の目的に対する製品の適合性については、お客様の責任で判断していただくことになります。お客様は自身の設計実装を検証しテストすることで、システムの機能を確認する必要があります。

### 7.1 Power Supply Recommendations

The power supply can be any voltage between the min and max supply voltage rating located in [セクション 4.2](#).

Each  $V_{CC}$  terminal should have a good bypass capacitor to prevent power disturbance. For devices with a single supply, TI recommends 0.1  $\mu\text{F}$  and if there are multiple  $V_{CC}$  terminals, then TI recommends .01  $\mu\text{F}$  or .022  $\mu\text{F}$  for each power terminal. It is okay to parallel multiple bypass capacitors to reject different frequencies of noise. A 0.1  $\mu\text{F}$  and 1  $\mu\text{F}$  are commonly used in parallel. The bypass capacitor should be installed as close to the power terminal as possible for best results.

### 7.2 Layout

#### 7.2.1 Layout Guidelines

When using multiple bit logic devices inputs should not ever float.

In many cases, functions or parts of functions of digital logic devices are unused, for example, when only two inputs of a triple-input AND gate are used or only 3 of the 4 buffer gates are used. Such input pins should not be left unconnected because the undefined voltages at the outside connections result in undefined operational states. Specified below are the rules that must be observed under all circumstances. All unused inputs of digital logic devices must be connected to a high or low bias to prevent them from floating. The logic level that should be applied to any particular unused input depends on the function of the device. Generally they will be tied to GND or  $V_{CC}$  whichever make more sense or is more convenient. It is generally okay to float outputs unless the part is a transceiver. If the transceiver has an output enable pin it will disable the outputs section of the part when asserted. This does not disable the input section of the IOs so they cannot float when disabled.

## 8 Device and Documentation Support

### 8.1 Documentation Support (Analog)

#### 8.1.1 Related Documentation

The table below lists quick access links. Categories include technical documents, support and community resources, tools and software, and quick access to sample or buy.

表 8-1. Related Links

| PARTS      | PRODUCT FOLDER             | SAMPLE & BUY               | TECHNICAL DOCUMENTS        | TOOLS & SOFTWARE           | SUPPORT & COMMUNITY        |
|------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| CD74AC240  | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> |
| CD74AC244  | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> |
| CD74ACT240 | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> |
| CD74ACT241 | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> |
| CD74ACT244 | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> | <a href="#">Click here</a> |

### 8.2 ドキュメントの更新通知を受け取る方法

ドキュメントの更新についての通知を受け取るには、[www.tij.co.jp](http://www.tij.co.jp) のデバイス製品フォルダを開いてください。[通知] をクリックして登録すると、変更されたすべての製品情報に関するダイジェストを毎週受け取ることができます。変更の詳細については、改訂されたドキュメントに含まれている改訂履歴をご覧ください。

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### 8.6 用語集

テキサス・インスツルメンツ用語集

この用語集には、用語や略語の一覧および定義が記載されています。

## 9 Revision History

資料番号末尾の英字は改訂を表しています。その改訂履歴は英語版に準じています。

| Changes from Revision B (January 2004) to Revision C (May 2024)                                                                                                                | Page |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| <ul style="list-style-type: none"> <li>「製品情報」表、「ピンの機能」表、「熱に関する情報」表、「デバイスの機能モード」、「アプリケーションと実装」セクション、「デバイスおよびドキュメントのサポート」セクション、および「メカニカル、パッケージ、および注文情報」セクションを追加 .....</li> </ul> | 1    |

- Updated R $\theta$ JA value: DW = 50 to 101.2, all values in °C/W ..... [5](#)

## 10 Mechanical, Packaging, and Orderable Information

The following pages include mechanical, packaging, and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document. For browser-based versions of this data sheet, refer to the left-hand navigation.



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## PACKAGING INFORMATION

| Orderable part number         | Status<br>(1) | Material type<br>(2) | Package   Pins | Package qty   Carrier | RoHS<br>(3) | Lead finish/<br>Ball material<br>(4) | MSL rating/<br>Peak reflow<br>(5) | Op temp (°C) | Part marking<br>(6) |
|-------------------------------|---------------|----------------------|----------------|-----------------------|-------------|--------------------------------------|-----------------------------------|--------------|---------------------|
| <a href="#">CD54AC240F3A</a>  | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | CD54AC240F3A        |
| CD54AC240F3A.A                | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | CD54AC240F3A        |
| <a href="#">CD54AC244F3A</a>  | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | CD54AC244F3A        |
| CD54AC244F3A.A                | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | CD54AC244F3A        |
| <a href="#">CD54ACT240F3A</a> | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | CD54ACT240F3A       |
| CD54ACT240F3A.A               | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | CD54ACT240F3A       |
| <a href="#">CD54ACT241F3A</a> | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | CD54ACT241F3A       |
| CD54ACT241F3A.A               | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | CD54ACT241F3A       |
| <a href="#">CD54ACT244F3A</a> | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | CD54ACT244F3A       |
| CD54ACT244F3A.A               | Active        | Production           | CDIP (J)   20  | 20   TUBE             | No          | SNPB                                 | N/A for Pkg Type                  | -55 to 125   | CD54ACT244F3A       |
| <a href="#">CD74AC240E</a>    | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74AC240E          |
| CD74AC240E.A                  | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74AC240E          |
| CD74AC240EE4                  | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74AC240E          |
| <a href="#">CD74AC240M</a>    | Obsolete      | Production           | SOIC (DW)   20 | -                     | -           | Call TI                              | Call TI                           | -55 to 125   | AC240M              |
| <a href="#">CD74AC240M96</a>  | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | AC240M              |
| CD74AC240M96.A                | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | AC240M              |
| <a href="#">CD74AC244E</a>    | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74AC244E          |
| CD74AC244E.A                  | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74AC244E          |
| <a href="#">CD74AC244M</a>    | Obsolete      | Production           | SOIC (DW)   20 | -                     | -           | Call TI                              | Call TI                           | -55 to 125   | AC244M              |
| <a href="#">CD74AC244M96</a>  | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | (AC244, AC244M)     |
| CD74AC244M96.A                | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | (AC244, AC244M)     |
| <a href="#">CD74ACT240E</a>   | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74ACT240E         |
| CD74ACT240E.A                 | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74ACT240E         |
| <a href="#">CD74ACT240M</a>   | Obsolete      | Production           | SOIC (DW)   20 | -                     | -           | Call TI                              | Call TI                           | -55 to 125   | ACT240M             |
| <a href="#">CD74ACT240M96</a> | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | ACT240M             |
| CD74ACT240M96.A               | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | ACT240M             |
| CD74ACT240M96E4               | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | ACT240M             |
| <a href="#">CD74ACT241E</a>   | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74ACT241E         |
| CD74ACT241E.A                 | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74ACT241E         |

| Orderable part number         | Status<br>(1) | Material type<br>(2) | Package   Pins | Package qty   Carrier | RoHS<br>(3) | Lead finish/<br>Ball material<br>(4) | MSL rating/<br>Peak reflow<br>(5) | Op temp (°C) | Part marking<br>(6) |
|-------------------------------|---------------|----------------------|----------------|-----------------------|-------------|--------------------------------------|-----------------------------------|--------------|---------------------|
| <a href="#">CD74ACT241M96</a> | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | ACT241M             |
| CD74ACT241M96.A               | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | ACT241M             |
| <a href="#">CD74ACT244E</a>   | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74ACT244E         |
| CD74ACT244E.A                 | Active        | Production           | PDIP (N)   20  | 20   TUBE             | Yes         | NIPDAU                               | N/A for Pkg Type                  | -55 to 125   | CD74ACT244E         |
| <a href="#">CD74ACT244M96</a> | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | (ACT244, ACT244M)   |
| CD74ACT244M96.A               | Active        | Production           | SOIC (DW)   20 | 2000   LARGE T&R      | Yes         | NIPDAU                               | Level-1-260C-UNLIM                | -55 to 125   | (ACT244, ACT244M)   |

<sup>(1)</sup> **Status:** For more details on status, see our [product life cycle](#).

<sup>(2)</sup> **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

<sup>(3)</sup> **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.

<sup>(4)</sup> **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

<sup>(5)</sup> **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

<sup>(6)</sup> **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "-" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

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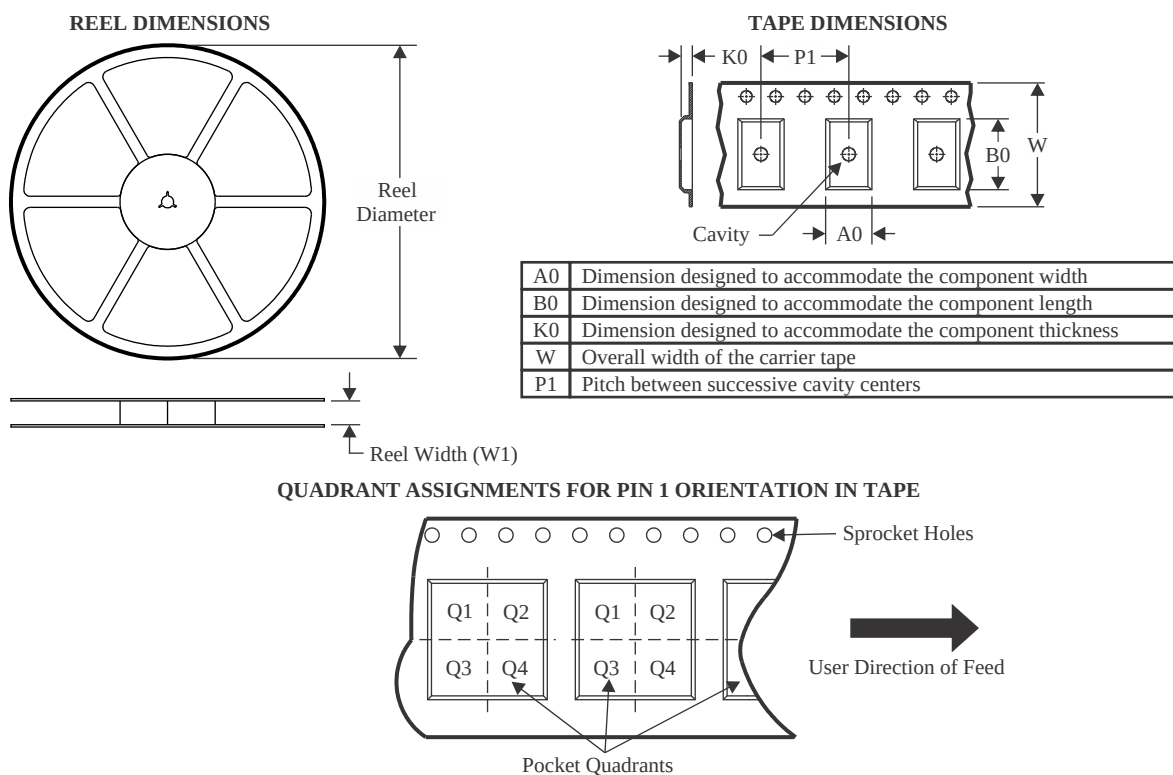
**OTHER QUALIFIED VERSIONS OF CD54AC240, CD54AC244, CD54ACT240, CD54ACT241, CD54ACT244, CD74AC240, CD74AC244, CD74ACT240, CD74ACT241, CD74ACT244 :**

- Catalog : [CD74AC240](#), [CD74AC244](#), [CD74ACT240](#), [CD74ACT241](#), [CD74ACT244](#)
- Military : [CD54AC240](#), [CD54AC244](#), [CD54ACT240](#), [CD54ACT241](#), [CD54ACT244](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

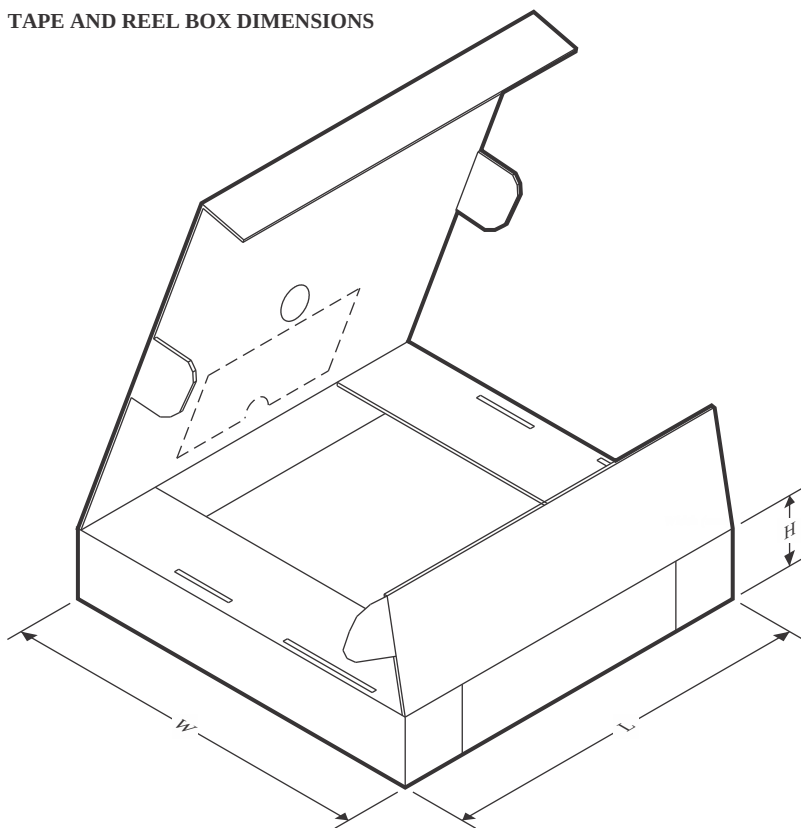
## TAPE AND REEL INFORMATION



\*All dimensions are nominal

| Device        | Package Type | Package Drawing | Pins | SPQ  | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|---------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| CD74AC240M96  | SOIC         | DW              | 20   | 2000 | 330.0              | 24.4               | 10.8    | 13.3    | 2.7     | 12.0    | 24.0   | Q1            |
| CD74AC244M96  | SOIC         | DW              | 20   | 2000 | 330.0              | 24.4               | 10.8    | 13.3    | 2.7     | 12.0    | 24.0   | Q1            |
| CD74AC244M96  | SOIC         | DW              | 20   | 2000 | 330.0              | 24.4               | 10.9    | 13.3    | 2.7     | 12.0    | 24.0   | Q1            |
| CD74ACT240M96 | SOIC         | DW              | 20   | 2000 | 330.0              | 24.4               | 10.8    | 13.3    | 2.7     | 12.0    | 24.0   | Q1            |
| CD74ACT241M96 | SOIC         | DW              | 20   | 2000 | 330.0              | 24.4               | 10.8    | 13.3    | 2.7     | 12.0    | 24.0   | Q1            |
| CD74ACT244M96 | SOIC         | DW              | 20   | 2000 | 330.0              | 24.4               | 10.8    | 13.3    | 2.7     | 12.0    | 24.0   | Q1            |
| CD74ACT244M96 | SOIC         | DW              | 20   | 2000 | 330.0              | 24.4               | 10.9    | 13.3    | 2.7     | 12.0    | 24.0   | Q1            |

## TAPE AND REEL BOX DIMENSIONS



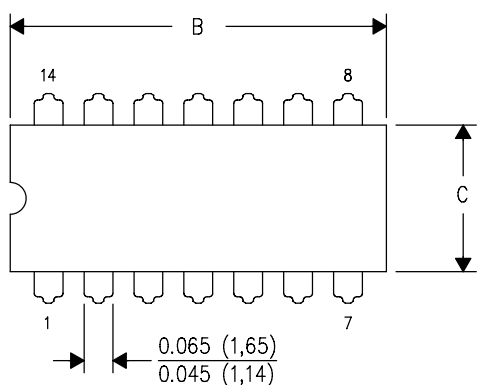
\*All dimensions are nominal

| Device        | Package Type | Package Drawing | Pins | SPQ  | Length (mm) | Width (mm) | Height (mm) |
|---------------|--------------|-----------------|------|------|-------------|------------|-------------|
| CD74AC240M96  | SOIC         | DW              | 20   | 2000 | 356.0       | 356.0      | 45.0        |
| CD74AC244M96  | SOIC         | DW              | 20   | 2000 | 356.0       | 356.0      | 45.0        |
| CD74AC244M96  | SOIC         | DW              | 20   | 2000 | 356.0       | 356.0      | 45.0        |
| CD74ACT240M96 | SOIC         | DW              | 20   | 2000 | 356.0       | 356.0      | 45.0        |
| CD74ACT241M96 | SOIC         | DW              | 20   | 2000 | 356.0       | 356.0      | 45.0        |
| CD74ACT244M96 | SOIC         | DW              | 20   | 2000 | 356.0       | 356.0      | 45.0        |
| CD74ACT244M96 | SOIC         | DW              | 20   | 2000 | 356.0       | 356.0      | 45.0        |

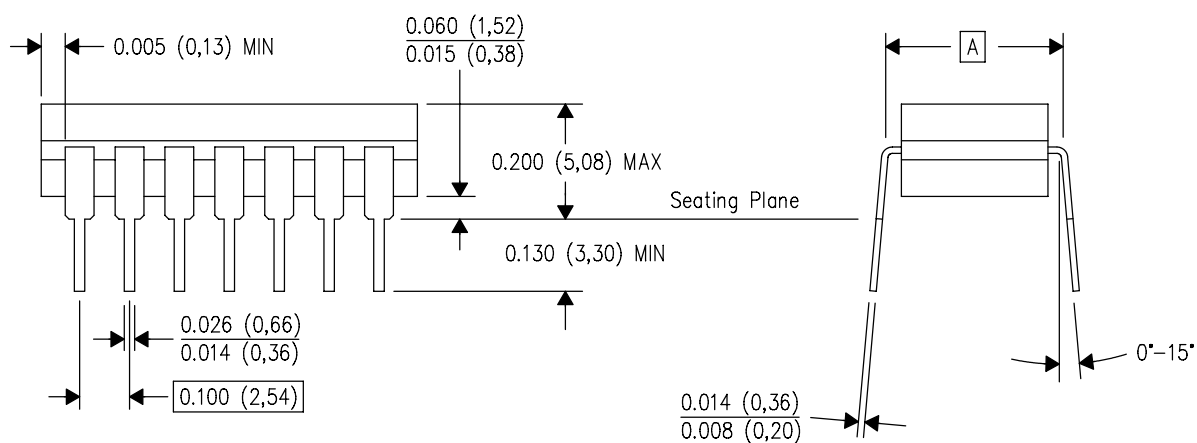
J (R-GDIP-T\*\*)

14 LEADS SHOWN

# CERAMIC DUAL IN-LINE PACKAGE



| PINS **<br>DIM | 14                     | 16                     | 18                     | 20                     |
|----------------|------------------------|------------------------|------------------------|------------------------|
| A              | 0.300<br>(7,62)<br>BSC | 0.300<br>(7,62)<br>BSC | 0.300<br>(7,62)<br>BSC | 0.300<br>(7,62)<br>BSC |
| B MAX          | 0.785<br>(19,94)       | .840<br>(21,34)        | 0.960<br>(24,38)       | 1.060<br>(26,92)       |
| B MIN          | —                      | —                      | —                      | —                      |
| C MAX          | 0.300<br>(7,62)        | 0.300<br>(7,62)        | 0.310<br>(7,87)        | 0.300<br>(7,62)        |
| C MIN          | 0.245<br>(6,22)        | 0.245<br>(6,22)        | 0.220<br>(5,59)        | 0.245<br>(6,22)        |



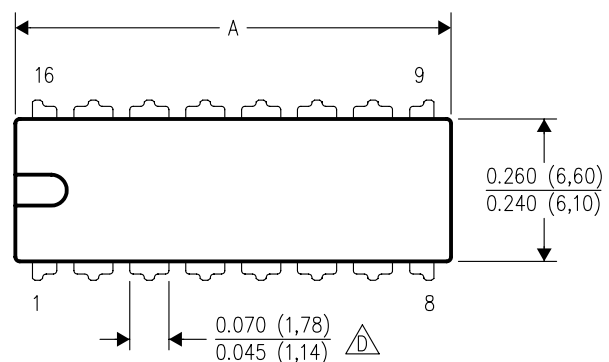
4040083/F 03/03

- NOTES:
- A. All linear dimensions are in inches (millimeters).
  - B. This drawing is subject to change without notice.
  - C. This package is hermetically sealed with a ceramic lid using glass frit.
  - D. Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
  - E. Falls within MIL STD 1835 GDIP1-T14, GDIP1-T16, GDIP1-T18 and GDIP1-T20.

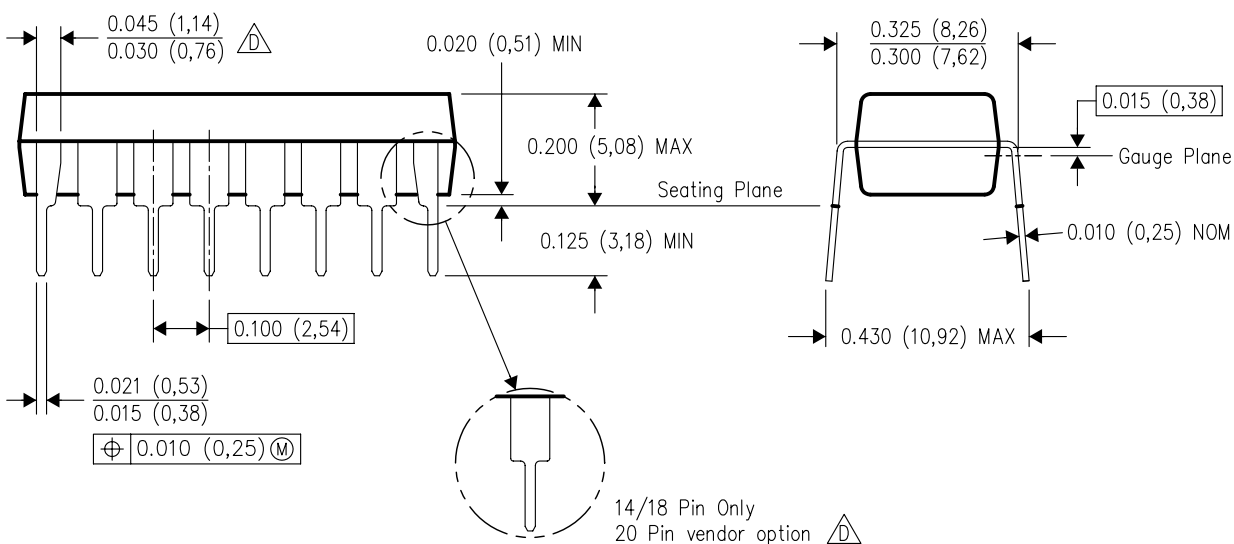
N (R-PDIP-T\*\*)

16 PINS SHOWN

## PLASTIC DUAL-IN-LINE PACKAGE



| PINS **<br>DIM      | 14               | 16               | 18               | 20               |
|---------------------|------------------|------------------|------------------|------------------|
| A MAX               | 0.775<br>(19,69) | 0.775<br>(19,69) | 0.920<br>(23,37) | 1.060<br>(26,92) |
| A MIN               | 0.745<br>(18,92) | 0.745<br>(18,92) | 0.850<br>(21,59) | 0.940<br>(23,88) |
| MS-001<br>VARIATION | AA               | BB               | AC               | AD               |

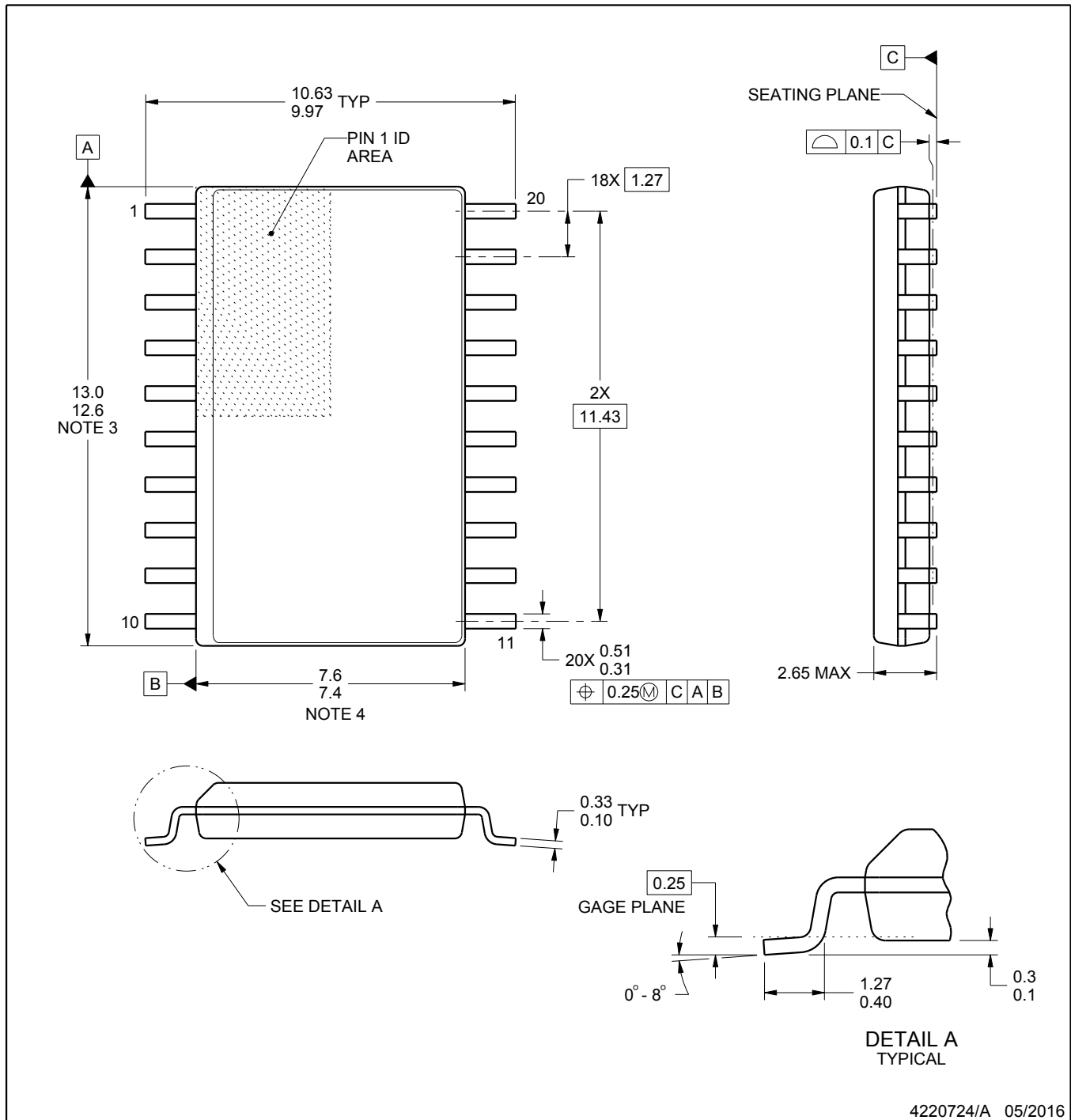


4040049/E 12/2002

NOTES:

- A. All linear dimensions are in inches (millimeters).  
B. This drawing is subject to change without notice.
-  Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).  
 The 20 pin end lead shoulder width is a vendor option, either half or full width.





4220724/A 05/2016

## NOTES:

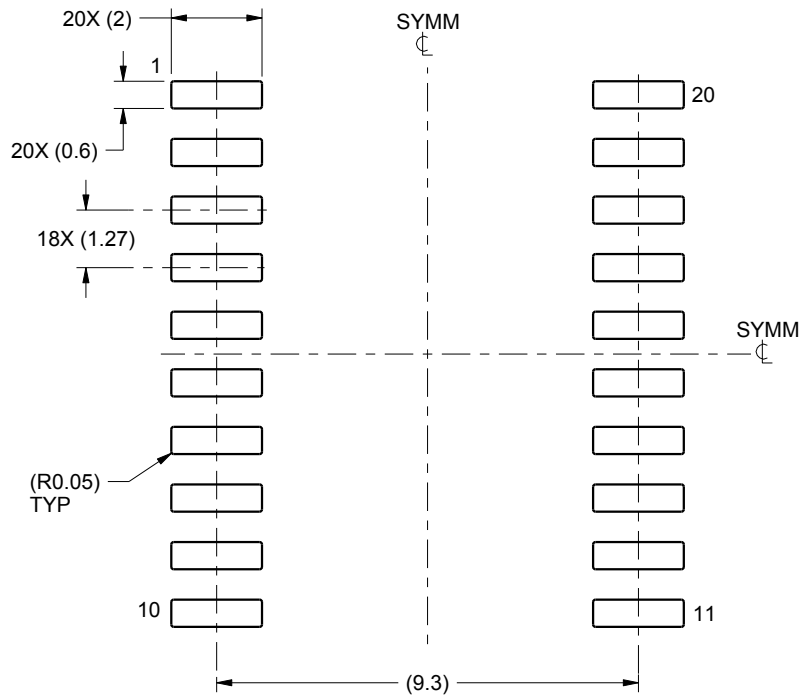
1. All linear dimensions are in millimeters. Dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.43 mm per side.
5. Reference JEDEC registration MS-013.

# EXAMPLE BOARD LAYOUT

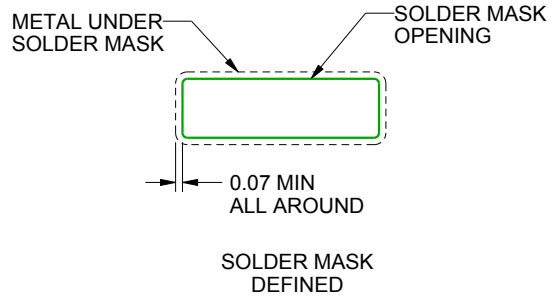
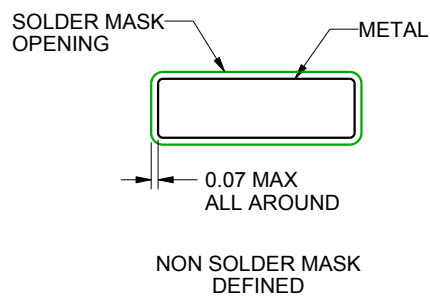
DW0020A

SOIC - 2.65 mm max height

SOIC



LAND PATTERN EXAMPLE  
SCALE:6X



SOLDER MASK DETAILS

4220724/A 05/2016

NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.

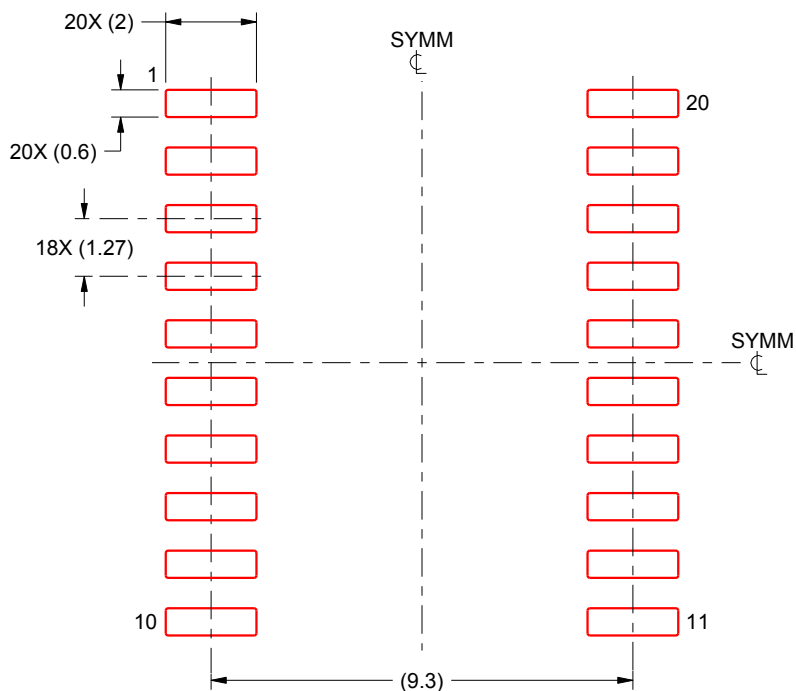
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

## EXAMPLE STENCIL DESIGN

DW0020A

SOIC - 2.65 mm max height

SOIC



SOLDER PASTE EXAMPLE  
BASED ON 0.125 mm THICK STENCIL  
SCALE:6X

4220724/A 05/2016

NOTES: (continued)

8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

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最終更新日：2025 年 10 月