## MC14106B

## Hex Schmitt Trigger

The MC14106B hex Schmitt Trigger is constructed with MOS P -channel and N -channel enhancement mode devices in a single monolithic structure. These devices find primary use where low power dissipation and/or high noise immunity is desired. The MC14106B may be used in place of the MC14069UB hex inverter for enhanced noise immunity or to "square up" slowly changing waveforms.

This device contains protection circuitry to guard against damage due to high static voltages or electric fields. However, precautions must be taken to avoid applications of any voltage higher than maximum rated voltages to this high-impedance circuit. For proper operation, $\mathrm{V}_{\text {in }}$ and $\mathrm{V}_{\text {out }}$ should be constrained to the range $\mathrm{V}_{\mathrm{SS}} \leq\left(\mathrm{V}_{\text {in }}\right.$ or $\left.\mathrm{V}_{\text {out }}\right) \leq \mathrm{V}_{\text {DD }}$.

Unused inputs must always be tied to an appropriate logic voltage level (e.g., either $\mathrm{V}_{\mathrm{SS}}$ or $\mathrm{V}_{\mathrm{DD}}$ ). Unused outputs must be left open.

## Features

- Increased Hysteresis Voltage Over the MC14584B
- Supply Voltage Range = 3.0 Vdc to 18 Vdc
- Capable of Driving Two Low-power TTL Loads or One Low-power Schottky TTL Load Over the Rated Temperature Range
- Pin-for-Pin Replacement for CD40106B and MM74C14
- Can Be Used to Replace the MC14584B or MC14069UB
- NLV Prefix for Automotive and Other Applications Requiring

Unique Site and Control Change Requirements; AEC-Q100
Qualified and PPAP Capable

- These Devices are $\mathrm{Pb}-$ Free and are RoHS Compliant

MAXIMUM RATINGS (Voltages Referenced to $\mathrm{V}_{\mathrm{SS}}$ )

| Symbol | Parameter | Value | Unit |
| :---: | :---: | :---: | :---: |
| $\mathrm{V}_{\mathrm{DD}}$ | DC Supply Voltage Range | -0.5 to +18.0 | V |
| $\mathrm{~V}_{\text {in }}, \mathrm{V}_{\text {out }}$ | Input or Output Voltage Range <br> (DC or Transient) | -0.5 to $\mathrm{V}_{\mathrm{DD}}+0.5$ | V |
| $\mathrm{I}_{\text {in }}, \mathrm{I}_{\text {out }}$ | Input or Output Current <br> (DC or Transient) per Pin | $\pm 10$ | mA |
| $\mathrm{P}_{\mathrm{D}}$ | Power Dissipation, per Package <br> (Note 1) | 500 | mW |
| $\mathrm{~T}_{\mathrm{A}}$ | Ambient Temperature Range | -55 to +125 | ${ }^{\circ} \mathrm{C}$ |
| $\mathrm{T}_{\text {stg }}$ | Storage Temperature Range <br> $\mathrm{T}_{\mathrm{L}}$Lead Temperature <br> (8-Second Soldering) | -65 to +150 | ${ }^{\circ} \mathrm{C}$ |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Temperature Derating: "D/DW" Packages: $-7.0 \mathrm{~mW} /{ }^{\circ} \mathrm{C}$ From $65^{\circ} \mathrm{C}$ To $125^{\circ} \mathrm{C}$
ON Semiconductor ${ }^{\circledR}$
http://onsemi.com
SOIC-14 NB D SUFFIX
CASE 751A


TSSOP-14 DT SUFFIX
CASE 948G
MARKING DIAGRAMS


A = Assembly Location
WL, L = Wafer Lot
YY, Y = Year
WW, W = Work Week
G or • = Pb-Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION
See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.
1 ——O-2

$5 —$ - 6
$9 — 8$
11 ——O- 10


$$
\begin{gathered}
V_{D D}=\operatorname{PIN} 14 \\
V_{S S}=\operatorname{PIN} 7
\end{gathered}
$$

Figure 1. Logic Diagram


Figure 2. Equivalent Circuit Schematic (1/6 of Circuit Shown)

## ORDERING INFORMATION

| Device | Package | Shipping $^{\dagger}$ |
| :--- | :---: | :---: |
| MC14106BDG | SOIC-14 NB <br> (Pb-Free) | 55 Units / Rail |
| NLV14106BDG* | SOIC-14 NB <br> (Pb-Free) | 55 Units / Rail |
| MC14106BDR2G | SOIC-14 NB <br> (Pb-Free) | $2500 /$ Tape \& Reel |
| NLV14106BDR2G* | SOIC-14 NB <br> (Pb-Free) | $2500 /$ Tape \& Reel |
| MC14106BDTR2G | TSSOP-14 <br> (Pb-Free) | 2500 / Tape \& Reel |
| NLV14106BDTR2G* | TSSOP-14 <br> (Pb-Free) | 2500 / Tape \& Reel |

$\dagger$ For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.
*NLV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q100 Qualified and PPAP Capable.

ELECTRICAL CHARACTERISTICS (Voltages Referenced to $\mathrm{V}_{\mathrm{SS}}$ )

| Characteristic | Symbol | $V_{D D}$ <br> Vdc | $-55^{\circ} \mathrm{C}$ |  | $25^{\circ} \mathrm{C}$ |  |  | $125^{\circ} \mathrm{C}$ |  | Unit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Min | Max | Min | Typ (Note 2) | Max | Min | Max |  |
| Output Voltage "0" Level <br> $V_{\text {in }}=V_{D D}$  <br>  "1" Level <br> $V_{\text {in }}=0$  | $\mathrm{V}_{\text {OL }}$ | $\begin{aligned} & \hline 5.0 \\ & 10 \\ & 15 \end{aligned}$ | $\begin{aligned} & \text { - } \\ & \text { - } \end{aligned}$ | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.05 \end{aligned}$ | - | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.05 \end{aligned}$ | - | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.05 \end{aligned}$ | Vdc |
|  | $\mathrm{V}_{\mathrm{OH}}$ | $\begin{aligned} & 5.0 \\ & 10 \\ & 15 \end{aligned}$ | $\begin{aligned} & 4.95 \\ & 9.95 \\ & 14.95 \end{aligned}$ | - | $\begin{gathered} 4.95 \\ 9.95 \\ 14.95 \end{gathered}$ | $\begin{aligned} & 5.0 \\ & 10 \\ & 15 \end{aligned}$ | - | $\begin{gathered} \hline 4.95 \\ 9.95 \\ 14.95 \end{gathered}$ | - | Vdc |
| Hysteresis Voltage | $\mathrm{V}_{\mathrm{H}}{ }^{(5)}$ | $\begin{aligned} & 5.0 \\ & 10 \\ & 15 \end{aligned}$ | $\begin{aligned} & \hline 0.3 \\ & 1.2 \\ & 1.6 \end{aligned}$ | $\begin{aligned} & 2.0 \\ & 3.4 \\ & 5.0 \end{aligned}$ | $\begin{aligned} & \hline 0.3 \\ & 1.2 \\ & 1.6 \end{aligned}$ | $\begin{aligned} & \hline 1.1 \\ & 1.7 \\ & 2.1 \end{aligned}$ | $\begin{aligned} & \hline 2.0 \\ & 3.4 \\ & 5.0 \end{aligned}$ | $\begin{aligned} & \hline 0.3 \\ & 1.2 \\ & 1.6 \end{aligned}$ | $\begin{aligned} & \hline 2.0 \\ & 3.4 \\ & 5.0 \end{aligned}$ | Vdc |
| Threshold Voltage Positive-Going <br> Negative-Going | $\mathrm{V}_{\mathrm{T}+}$ | $\begin{aligned} & 5.0 \\ & 10 \\ & 15 \end{aligned}$ | $\begin{aligned} & 2.2 \\ & 4.6 \\ & 6.8 \end{aligned}$ | $\begin{gathered} 3.6 \\ 7.1 \\ 10.8 \end{gathered}$ | $\begin{aligned} & 2.2 \\ & 4.6 \\ & 6.8 \end{aligned}$ | $\begin{aligned} & 2.9 \\ & 5.9 \\ & 8.8 \end{aligned}$ | $\begin{gathered} 3.6 \\ 7.1 \\ 10.8 \end{gathered}$ | $\begin{aligned} & 2.2 \\ & 4.6 \\ & 6.8 \end{aligned}$ | $\begin{gathered} 3.6 \\ 7.1 \\ 10.8 \end{gathered}$ | Vdc |
|  | $\mathrm{V}_{\text {T- }}$ | $\begin{aligned} & 5.0 \\ & 10 \\ & 15 \end{aligned}$ | $\begin{aligned} & 0.9 \\ & 2.5 \\ & 4.0 \end{aligned}$ | $\begin{aligned} & 2.8 \\ & 5.2 \\ & 7.4 \end{aligned}$ | $\begin{aligned} & \hline 0.9 \\ & 2.5 \\ & 4.0 \end{aligned}$ | $\begin{aligned} & \hline 1.9 \\ & 3.9 \\ & 5.8 \end{aligned}$ | $\begin{aligned} & \hline 2.8 \\ & 5.2 \\ & 7.4 \end{aligned}$ | $\begin{aligned} & 0.9 \\ & 2.5 \\ & 4.0 \end{aligned}$ | $\begin{aligned} & \hline 2.8 \\ & 5.2 \\ & 7.4 \end{aligned}$ | Vdc |
| $\begin{array}{\|ll} \hline \text { Output Drive Current } & \\ \left(\mathrm{V}_{\mathrm{OH}}=2.5 \mathrm{Vdc}\right) & \text { Source } \\ \left(\mathrm{VOH}_{\mathrm{OH}}=4.6 \mathrm{Vdc}\right) & \\ \left(\mathrm{V}_{\mathrm{OH}}=9.5 \mathrm{Vdc}\right) \\ \left(\mathrm{V}_{\mathrm{OH}}=13.5 \mathrm{Vdc}\right) \end{array}$ | $\mathrm{IOH}^{\text {l }}$ | $\begin{aligned} & 5.0 \\ & 5.0 \\ & 10 \\ & 15 \end{aligned}$ | $\begin{gathered} -3.0 \\ -0.64 \\ -1.6 \\ -4.2 \end{gathered}$ | - | $\begin{aligned} & -2.4 \\ & -0.51 \\ & -1.3 \\ & -3.4 \end{aligned}$ | $\begin{aligned} & -4.2 \\ & -0.88 \\ & -2.25 \\ & -8.8 \end{aligned}$ | - | $\begin{gathered} -1.7 \\ -0.36 \\ -0.9 \\ -2.4 \end{gathered}$ | - | mAdc |
| $\begin{array}{ll} \left(\mathrm{V}_{\mathrm{OL}}=0.4 \mathrm{Vdc}\right) & \text { Sink } \\ \left(\mathrm{V}_{\mathrm{OL}}=0.5 \mathrm{Vdc}\right) & \\ \left(\mathrm{V}_{\mathrm{OL}}=1.5 \mathrm{Vdc}\right) & \end{array}$ | ${ }^{\text {OL }}$ | $\begin{aligned} & \hline 5.0 \\ & 10 \\ & 15 \end{aligned}$ | $\begin{gathered} \hline 0.64 \\ 1.6 \\ 4.2 \end{gathered}$ | - | $\begin{gathered} 0.51 \\ 1.3 \\ 3.4 \end{gathered}$ | $\begin{gathered} 0.88 \\ 2.25 \\ 8.8 \end{gathered}$ | - | $\begin{gathered} \hline 0.36 \\ 0.9 \\ 2.4 \end{gathered}$ | - | mAdc |
| Input Current | $\mathrm{l}_{\text {in }}$ | 15 | - | $\pm 0.1$ | - | $\pm 0.00001$ | $\pm 0.1$ | - | $\pm 1.0$ | $\mu \mathrm{Adc}$ |
| Input Capacitance $\left(\mathrm{V}_{\text {in }}=0\right)$ | $\mathrm{C}_{\text {in }}$ | - | - | - | - | 5.0 | 7.5 | - | - | pF |
| Quiescent Current (Per Package) | IDD | $\begin{aligned} & 5.0 \\ & 10 \\ & 15 \end{aligned}$ | - | $\begin{gathered} \hline 0.25 \\ 0.5 \\ 1.0 \end{gathered}$ | - | 0.0005 <br> 0.0010 <br> 0.0015 | $\begin{gathered} 0.25 \\ 0.5 \\ 1.0 \end{gathered}$ | - | $\begin{aligned} & 7.5 \\ & 15 \\ & 30 \end{aligned}$ | $\mu \mathrm{Adc}$ |
| Total Supply Current (Notes 3 \& 4) (Dynamic plus Quiescent, Per Package) ( $\mathrm{C}_{\mathrm{L}}=50 \mathrm{pF}$ on all outputs, all buffers switching) | $I_{T}$ | $\begin{aligned} & 5.0 \\ & 10 \\ & 15 \end{aligned}$ |  |  | $\begin{aligned} & \mathrm{I}_{\mathrm{T}}=(1.8 \mu \mathrm{~A} / \mathrm{kHz}) \mathrm{f}+\mathrm{I}_{\mathrm{DD}} \\ & \mathrm{I}_{\mathrm{T}}=(3.6 \mu \mathrm{~A} / \mathrm{kHz}) \mathrm{f}+\mathrm{I}_{\mathrm{DD}} \\ & \mathrm{I}_{\mathrm{T}}=(5.4 \mu \mathrm{AHzz}) \mathrm{f}+\mathrm{I}_{\mathrm{DD}} \end{aligned}$ |  |  |  |  | $\mu \mathrm{Adc}$ |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
2. Data labelled "Typ" is not to be used for design purposes but is intended as an indication of the IC's potential performance.
3. The formulas given are for the typical characteristics only at $25^{\circ} \mathrm{C}$.
4. To calculate total supply current at loads other than 50 pF :
$I_{T}\left(C_{L}\right)=I_{T}(50 \mathrm{pF})+\left(C_{L}-50\right)$ Vfk where $I_{T}$ is in $\mu \mathrm{A}$ (per package), $C_{L}$ in $p F, V=\left(V_{D D}-V_{S S}\right)$ in volts, $f$ in $k H z$ is input frequency, and $\mathrm{k}=0.001$.
5. $\mathrm{V}_{\mathrm{H}}=\mathrm{V}_{\mathrm{T}_{+}}-\mathrm{V}_{\mathrm{T}_{-}}$(But maximum variation of $\mathrm{V}_{\mathrm{H}}$ is specified as less that $\mathrm{V}_{\mathrm{T}_{+} \max }-\mathrm{V}_{\mathrm{T}-\min }$ ).

SWITCHING CHARACTERISTICS ( $\mathrm{C}_{\mathrm{L}}=50 \mathrm{pF}, \mathrm{T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ )

| Characteristic | Symbol | $\begin{aligned} & \hline \mathrm{V}_{\mathrm{DD}} \\ & \mathrm{Vdc} \end{aligned}$ | Min | $\begin{gathered} \text { Typ } \\ \text { (Note 6) } \end{gathered}$ | Max | Unit |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Output Rise Time | ${ }_{\text {t }}^{\text {tLH }}$ | $\begin{aligned} & 5.0 \\ & 10 \\ & 15 \end{aligned}$ | $\begin{aligned} & - \\ & - \\ & - \end{aligned}$ | $\begin{gathered} \hline 100 \\ 50 \\ 40 \end{gathered}$ | $\begin{gathered} 200 \\ 100 \\ 80 \end{gathered}$ | ns |
| Output Fall Time | ${ }_{\text {t }}$ HL | $\begin{aligned} & \hline 5.0 \\ & 10 \\ & 15 \end{aligned}$ | $\begin{aligned} & \text { - } \\ & \text { - } \end{aligned}$ | $\begin{gathered} \hline 100 \\ 50 \\ 40 \end{gathered}$ | $\begin{gathered} \hline 200 \\ 100 \\ 80 \end{gathered}$ | ns |
| Propagation Delay Time | $\mathrm{t}_{\text {PLH }}$, tPHL | $\begin{aligned} & \hline 5.0 \\ & 10 \\ & 15 \\ & \hline \end{aligned}$ |  | $\begin{gathered} \hline 125 \\ 50 \\ 40 \\ \hline \end{gathered}$ | $\begin{gathered} \hline 250 \\ 100 \\ 80 \\ \hline \end{gathered}$ | ns |

6. Data labelled "Typ" is not to be used for design purposes but is intended as an indication of the IC's potential performance.


Figure 1. Switching Time Test Circuit and Waveforms


Figure 2. Typical Transfer Characteristics

## APPLICATIONS



(a) Schmitt Triggers will square up inputs with slow rise and fall times.

(b) A Schmitt trigger offers maximum noise immunity in gate applications.

Figure 3.


Useful as Pushbutton/Keyboard Debounce Circuit.

Figure 4. Monostable Multivibrator


Figure 5. Astable Multivibrator


Figure 6. Integrator


Useful as an edge detector circuit.
Figure 7. Differentiator


Figure 8. Positive Edge Time Delay Circuit

## MC14106B

## PACKAGE DIMENSIONS

TSSOP-14
CASE 948G
ISSUE B


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982
2. CONTROLLING DIMENSION: MILLIMETER 3. DIMENSION A DOES NOT INCLUDE MOLD 3. DIMENSION A DOES NOT INCLUDE MOLD
FLASH, PROTRUSIONS OR GATE BURRS. FLASH, PROTRUSIONS OR GATE BURRS.
MOLD FLASH OR GATE BURRS SHALL NOT MOLD FLASH OR GATE BURRS
EXCEED $0.15(0.006)$ PER SIDE.
EXCEED $0.15(0.006)$ PER SIDE. 4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION.
INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 ( 0.010 ) PER SIDE.
3. DIMENSION K DOES NOT INCLUDE

DAMBAR PROTRUSION. ALLOWABLE
DAMBAR PROTRUSION SHALL BE 0.08
(0.003) TOTAL IN EXCESS OF THE K

DIMENSION AT MAXIMUM MATERIAL
CONDITION
CONDRMINA NUMBERS ARE SHOWN REFERENCE ONLY.
7. DIMENSION A AND B ARE TO BE
7. DIMENSION A AND B ARE TO BE
DETERMINED AT DATUM PLANE -W-

|  | MILLIMETERS |  | INCHES |  |
| :---: | :---: | :---: | :---: | :---: |
| DIM | MIN | MAX | MIN | MAX |
| A | 4.90 | 5.10 | 0.193 | 0.200 |
| B | 4.30 | 4.50 | 0.169 | 0.177 |
| C | --- | 1.20 | --- | 0.047 |
| D | 0.05 | 0.15 | 0.002 | 0.006 |
| F | 0.50 | 0.75 | 0.020 | 0.030 |
| G | 0.65 | BSC | 0.026 |  |
| BSC |  |  |  |  |
| H | 0.50 | 0.60 | 0.020 | 0.024 |
| J | 0.09 | 0.20 | 0.004 | 0.008 |
| J1 | 0.09 | 0.16 | 0.004 | 0.006 |
| K | 0.19 | 0.30 | 0.007 | 0.012 |
| K1 | 0.19 | 0.25 | 0.007 | 0.010 |
| L | 6.40 | BSC | 0.252 | BSC |
| M | 0 | $0^{\circ}$ | $8^{\circ}$ | $0^{\circ}$ |

SOLDERING FOOTPRINT*

*For additional information on our $\mathrm{Pb}-$ Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.


SOIC-14 NB
CASE 751A-03
ISSUE L
SCALE 1:1


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b DOES NOT INCLUDE DAMBAR

PROTRUSION. ALLOWABLE PROTRUSION SHALL BE 0.13 TOTAL IN EXCESS OF AT MAXIMUM MATERIAL CONDITION.
4. DIMENSIONS D AND E DO NOT INCLUDE

MOLD PROTRUSIONS.
5. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.

| DIM | MILLIMETERS |  | INCHES |  |
| :---: | :---: | :---: | :---: | :---: |
|  | MIN | MAX | MIN | MAX |
|  | 1.35 | 1.75 | 0.054 | 0.068 |
| A1 | 0.10 | 0.25 | 0.004 | 0.010 |
| A3 | 0.19 | 0.25 | 0.008 | 0.010 |
| b | 0.35 | 0.49 | 0.014 | 0.019 |
| D | 8.55 | 8.75 | 0.337 | 0.344 |
| E | 3.80 | 4.00 | 0.150 | 0.157 |
| e | 1.27 | BSC | 0.050 | BSC |
| H | 5.80 | 6.20 | 0.228 | 0.244 |
| h | 0.25 | 0.50 | 0.010 | 0.019 |
| L | 0.40 | 1.25 | 0.016 | 0.049 |
| M | $0^{\circ}$ | $7^{\circ}$ | $0^{\circ}$ | $7^{\circ}$ |

## SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS
*For additional information on our $\mathrm{Pb}-$ Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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STYLE 1:
PIN 1. COMMON CATHODE
2. ANODE/CATHODE
3. ANODE/CATHODE
4. NO CONNECTION
5. ANODE/CATHODE
6. NO CONNECTION
7. ANODE/CATHODE
8. ANODE/CATHODE
9. ANODE/CATHODE
10. NO CONNECTION
11. ANODE/CATHODE
12. ANODE/CATHODE
13. NO CONNECTION
4. COMMON ANODE
STYLE $5:$

PIN 1. COMMON CATHODE
2. ANODE/CATHODE
3. ANODE/CATHOD
4. ANODE/CATHOD
4. ANODE/CATHODE
5. ANODE/CATHODE
6. NO CONNECTION
7. COMMON ANODE
8. COMMON CATHOD
9. ANODE/CATHODE
10. ANODE/CATHODE
11. ANODE/CATHODE
12. ANODE/CATHODE
13. NO CONNECTION
14. COMMON ANODE

STYLE 2 :
CANCELLED

STYLE 3:
PIN 1. NO CONNECTION 2. ANODE 3. ANODE
4. NO CONNECTION 5. ANODE
6. NO CONNECTION
7. ANODE
8. ANODE
9. ANODE
10. NO CONNECTION
11. ANODE
12. ANODE
13. NO CONNECTION
14. COMMON CATHODE

## STYLE 6

PIN 1. CATHODE
2. CATHODE
3. CATHODE
4. CATHODE
5. CATHODE
5. CATHODE
6. CATHODE
7. CATHOD
8. ANODE
10. ANODE
11. ANODE
12. ANODE
13. ANODE
14. ANODE

STYLE 7:
PIN 1. ANODE/CATHODE
2. COMMON ANODE
3. COMMON CATHODE
4. ANODE/CATHODE
4. ANODE/CATHODE
5. ANODE/CATHODE
6. ANODE/CATHODE
7. ANODE/CATHODE
8. ANODE/CATHODE
9. ANODE/CATHODE
10. ANODE/CATHODE
11. COMMON CATHODE
11. COMMON CATHOD
13. ANODE/CATHODE
14. ANODE/CATHODE

STYLE 4:
PIN 1. NO CONNECTION 2. CATHODE
3. CATHODE
4. NO CONNECTION
5. CATHODE
6. NO CONNECTION
7. CATHODE
. CATHODE
9. CATHODE
10. NO CONNECTION
11. CATHODE
12. CATHODE
13. NO CONNECTION
14. COMMON ANODE

STYLE 8:
PIN 1. COMMON CATHODE
2. ANODE/CATHODE
3. ANODE/CATHODE
4. NO CONNECTION
4. NO CONNECTION
5. ANODE/CATHODE
6. ANODE/CATHODE
7. COMMON ANODE
8. COMMON ANODE
9. ANODE/CATHODE
10. ANODE/CATHODE
11. NO CONNECTION
11. NO CONNECTION
12. ANODE/CATHODE
12. ANODE/CATHODE
13. ANODE/CATHODE
13. ANODE/CATHODE
14. COMMON CATHODE

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