



TC4426A/TC4427A/TC4428A

1.5A Dual High-Speed Power MOSFET Drivers

Features

- High Peak Output Current – 1.5A
- Wide Operating Range
 - 4.5V to 18V
- High Capacitive Load Drive Capability – 1000pF in 25nsec Typ.
- Short Delay Times – 30nsec Typ.
- Matched Rise, Fall and Delay Times
- Low Supply Current:
 - With Logic "1" Input – 1mA
 - With Logic "0" Input – 100 μ A
- Low Output Impedance – 7 Ω
- Latch-Up Protected: Will Withstand 0.5A Reverse Current
- Input Will Withstand Negative Inputs Up to 5V
- ESD Protected – 4kV
- Pinouts Same as TC426/TC427/TC428

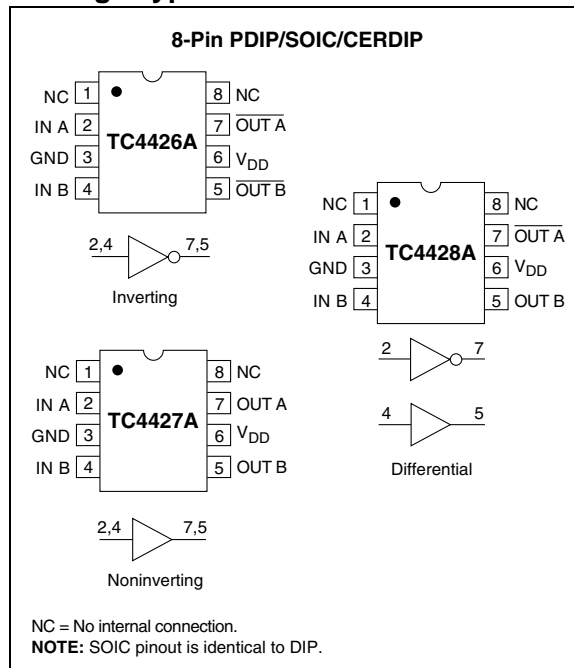
Applications

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Device Selection Table

Part Number	Package	Temp. Range
TC4426ACOA	8-Pin SOIC	0°C to +70°C
TC4426ACPA	8-Pin PDIP	0°C to +70°C
TC4426AEOA	8-Pin SOIC	-40°C to +85°C
TC4426AEPA	8-Pin PDIP	-40°C to +85°C
TC4426AMJA	8-Pin Cerdip	-55°C to +125°C
TC4427ACOA	8-Pin SOIC	0°C to +70°C
TC4427ACPA	8-Pin PDIP	0°C to +70°C
TC4427AEOA	8-Pin SOIC	-40°C to +85°C
TC4427AEPA	8-Pin PDIP	-40°C to +85°C
TC4427AMJA	8-Pin Cerdip	-55°C to +125°C
TC4428ACOA	8-Pin SOIC	0°C to +70°C
TC4428ACPA	8-Pin PDIP	0°C to +70°C
TC4428AEOA	8-Pin SOIC	-40°C to +85°C
TC4428AEPA	8-Pin PDIP	-40°C to +85°C
TC4428AMJA	8-Pin Cerdip	-55°C to +125°C

Package Type



General Description

The TC4426A/TC4427A/TC4428A are improved versions of the earlier TC426/TC427/TC428 family of buffer/drivers (with which they are pin compatible). They will not latch up under any conditions within their power and voltage ratings. They are not subject to damage when up to 5V of noise spiking (of either polarity) occurs on the ground pin. They can accept, without damage or logic upset, up to 500mA of reverse current (of either polarity) being forced back into their outputs. All terminals are fully protected against up to 4kV of electrostatic discharge.

As MOSFET drivers, the TC4426A/TC4427A/TC4428A can easily switch 1000pF gate capacitances in under 30nsec, and provide low enough impedances in both the ON and OFF states to ensure the MOSFET's intended state will not be affected, even by large transients.

TC4426A/TC4427A/TC4428A

1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings*

Supply Voltage.....	+22V
Input Voltage, IN A or IN B($V_{DD} + 0.3V$) to (GND – 5V)	
Package Power Dissipation ($T_A \leq 70^\circ\text{C}$)	
PDIP	730mW
CERDIP	800mW
SOIC	470mW
Package Thermal Resistance	
CERDIP $R_{\theta J-A}$	150°C/W
CERDIP $R_{\theta J-C}$	50°C/W
PDIP $R_{\theta J-A}$	125°C/W
PDIP $R_{\theta J-C}$	42°C/W
SOIC $R_{\theta J-A}$	155°C/W
SOIC $R_{\theta J-C}$	45°C/W
Operating Temperature Range	
C Version	0°C to +70°C
E Version	-40°C to +85°C
M Version.....	-55°C to +125°C
Storage Temperature Range	-65°C to +150°C

*Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operation sections of the specifications is not implied. Exposure to Absolute Maximum Rating conditions for extended periods may affect device reliability.

TC4426A/TC4427A/TC4428A ELECTRICAL SPECIFICATIONS

Electrical Characteristics: Over operating temperature range with $4.5V \leq V_{DD} \leq 18V$, unless otherwise noted.						
Symbol	Parameter	Min	Typ	Max	Units	Test Conditions
Input						
V_{IH}	Logic 1, High Input Voltage	2.4	—	—	V	
V_{IL}	Logic 0, Low Input Voltage	—	—	0.8	V	
I_{IN}	Input Current	-1 -10	— —	1 10	μA	$0V \leq V_{IN} \leq V_{DD}$
Output						
V_{OH}	High Output Voltage	$V_{DD} - 0.025$	—	—	V	DC Test
V_{OL}	Low Output Voltage	—	—	0.025	V	DC Test
R_O	Output Resistance	— — —	7 7 8	9 10 11	Ω	$I_{OUT} = 10\text{mA}$, $V_{DD} = 18V$, $T_A = +25^\circ\text{C}$ $0^\circ\text{C} \leq T_A \leq +70^\circ\text{C}$ $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$
I_{PK}	Peak Output Current	—	1.5	—	A	$V_{DD} = 18V$
I_{REV}	Latch-Up Protection Withstand Reverse Current	0.5	—	—	A	Duty cycle $\leq 2\%$, $t \leq 300\mu\text{sec}$ $V_{DD} = 18V$

Note 1: Switching times ensured by design.

TC4426A/TC4427A/TC4428A

Symbol	Parameter	Min	Typ	Max	Units	Test Conditions
Switching Time (Note 1)						
t_R	Rise Time	— — —	25 27 29	35 40 40	nsec	$T_A = +25^\circ\text{C}$ $0^\circ\text{C} \leq T_A \leq +70^\circ\text{C}$ $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$, Figure 3-1
t_F	Fall Time	— — —	25 27 29	35 40 40	nsec	$T_A = +25^\circ\text{C}$ $0^\circ\text{C} \leq T_A \leq +70^\circ\text{C}$ $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$, Figure 3-1
t_{D1}	Delay Time	— — —	30 33 35	35 40 45	nsec	$T_A = +25^\circ\text{C}$ $0^\circ\text{C} \leq T_A \leq +70^\circ\text{C}$ $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$, Figure 3-1
t_{D2}	Delay Time	— — —	30 33 35	35 40 45	nsec	$T_A = +25^\circ\text{C}$ $0^\circ\text{C} \leq T_A \leq +70^\circ\text{C}$ $-40^\circ\text{C} \leq T_A \leq +85^\circ\text{C}$, Figure 3-1
Power Supply						
I_S	Power Supply Current	— —	1.0 0.1	2.0 0.2	mA	$V_{IN} = 3V$ (Both inputs) $V_{IN} = 0V$ (Both inputs), $V_{DD} = 18V$

Note 1: Switching times ensured by design.

TC4426A/TC4427A/TC4428A

2.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in Table 2-1.

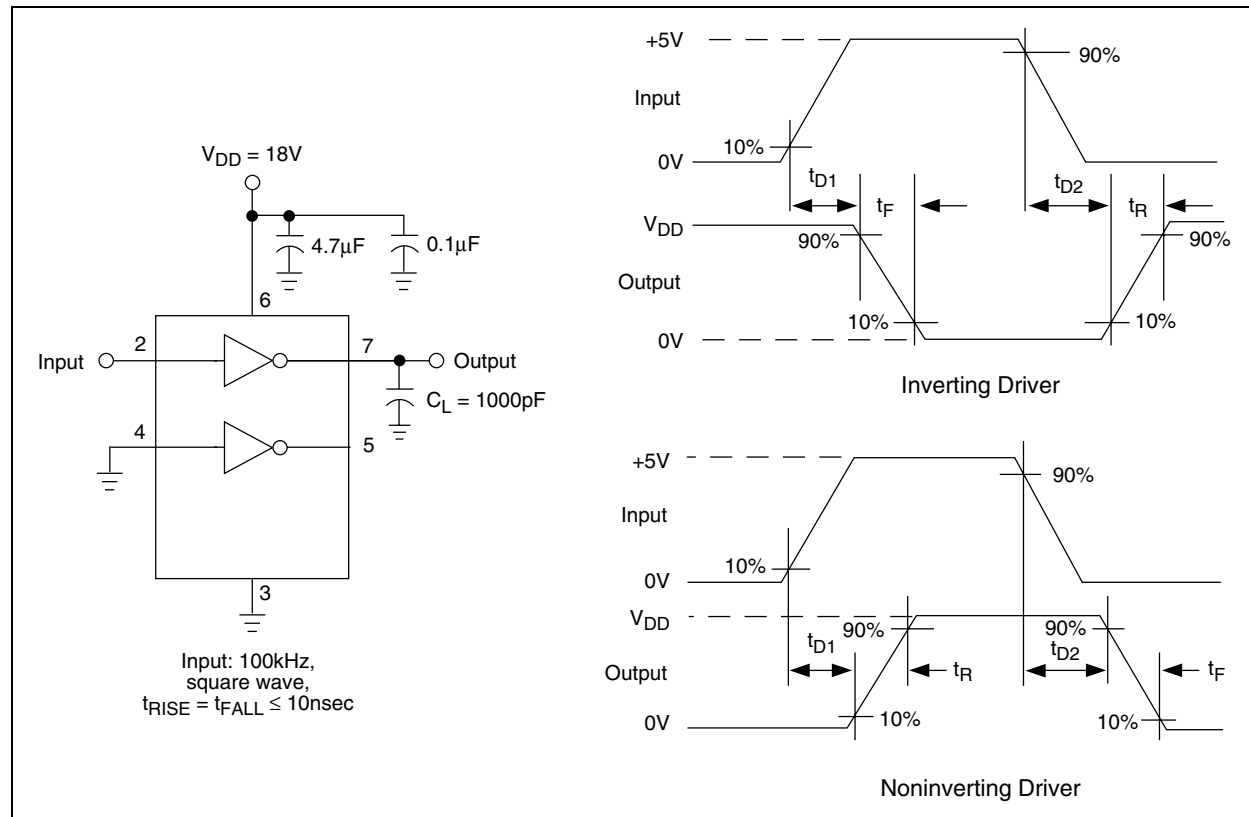
TABLE 2-1: PIN FUNCTION TABLE

Pin No. (8-Pin PDIP, SOIC, CERDIP)	Symbol	Description
1	NC	No connect.
2	IN A	
3	GND	Ground.
4	IN B	
5	OUT B	
6	V _{DD}	
7	OUT A	
8	NC	No connect.

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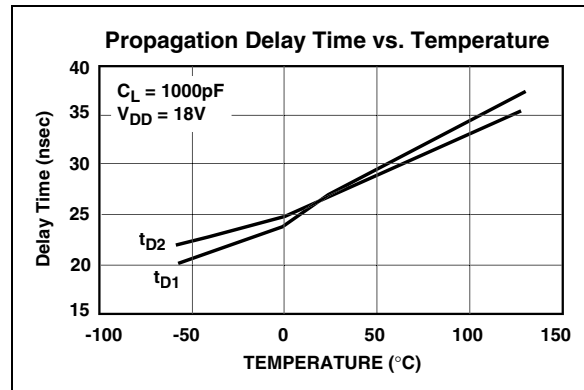
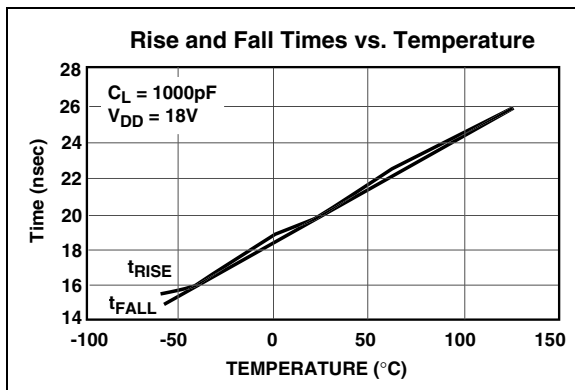
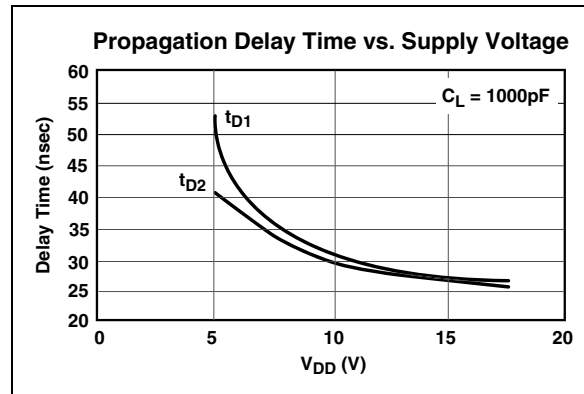
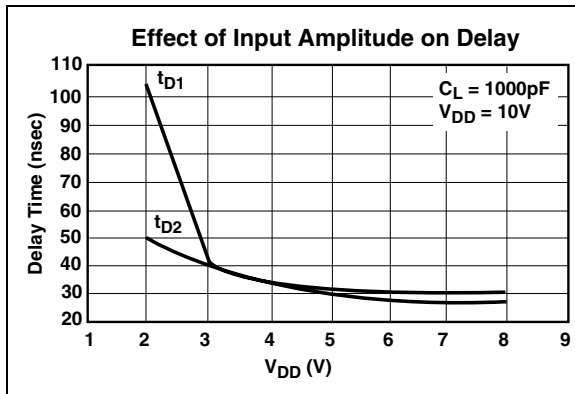
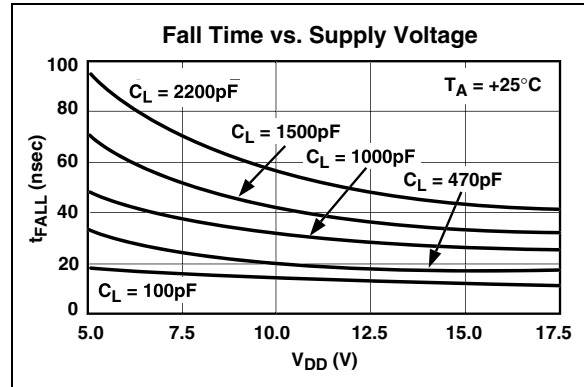
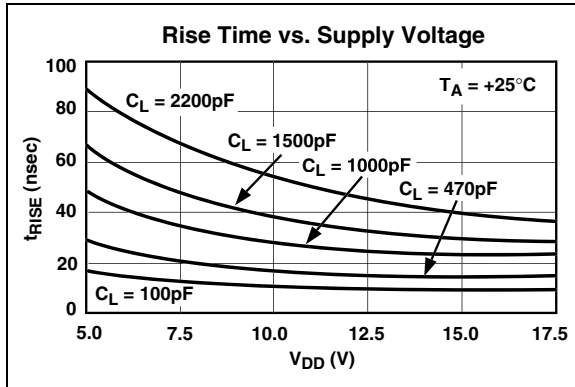
3.0 APPLICATIONS INFORMATION

FIGURE 3-1: SWITCHING TIME TEST CIRCUIT



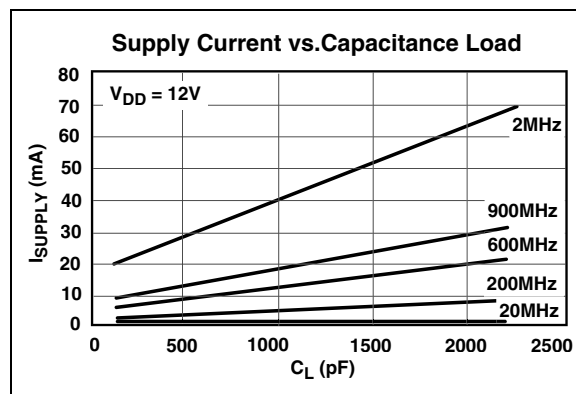
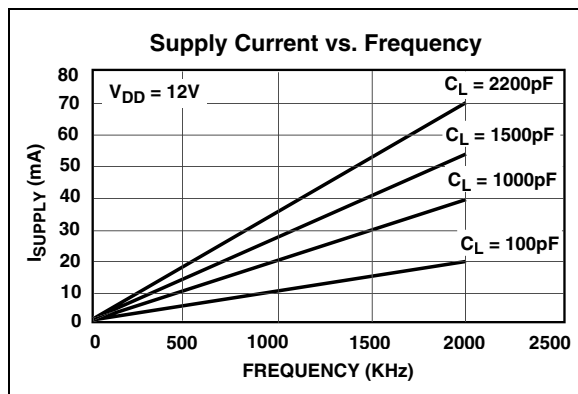
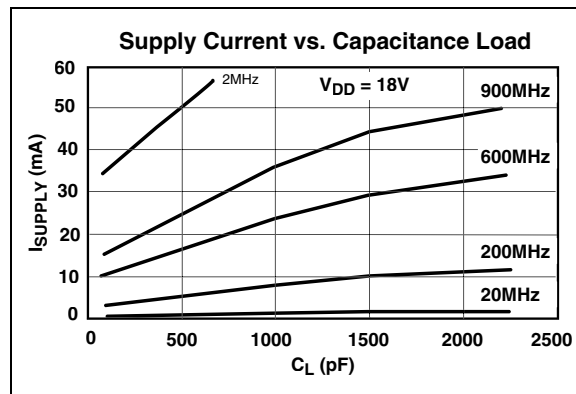
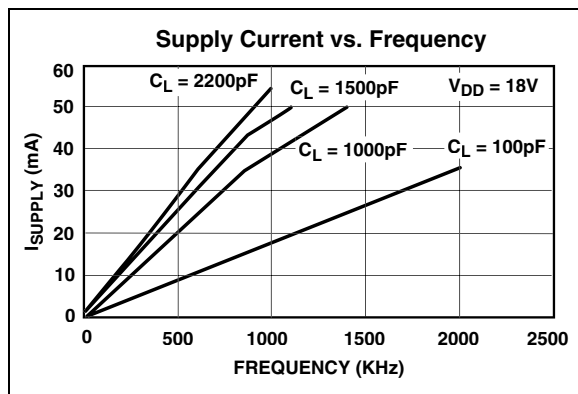
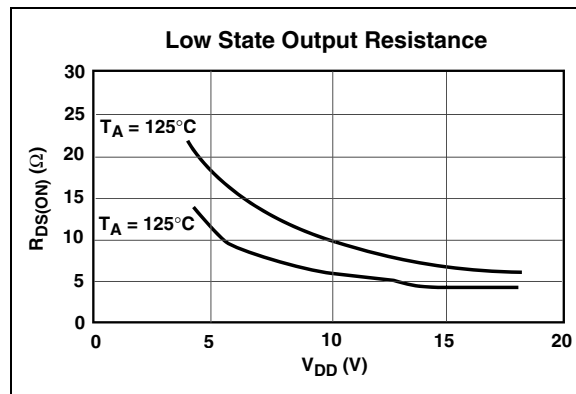
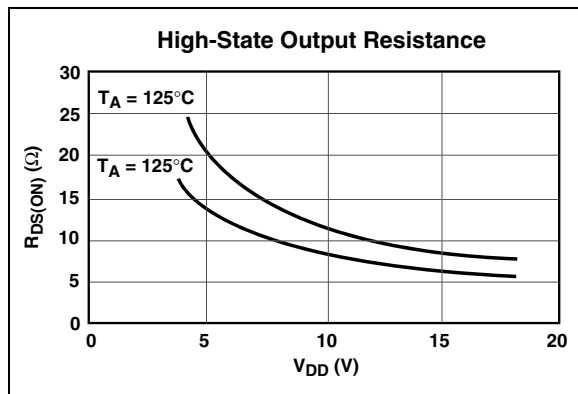
4.0 TYPICAL CHARACTERISTICS

Note: The graphs and tables provided following this note are a statistical summary based on a limited number of samples and are provided for informational purposes only. The performance characteristics listed herein are not tested or guaranteed. In some graphs or tables, the data presented may be outside the specified operating range (e.g., outside specified power supply range) and therefore outside the warranted range.



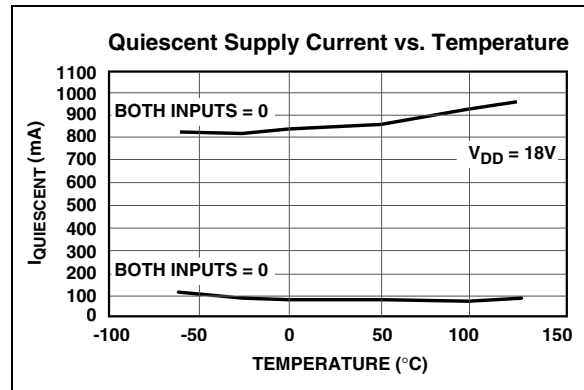
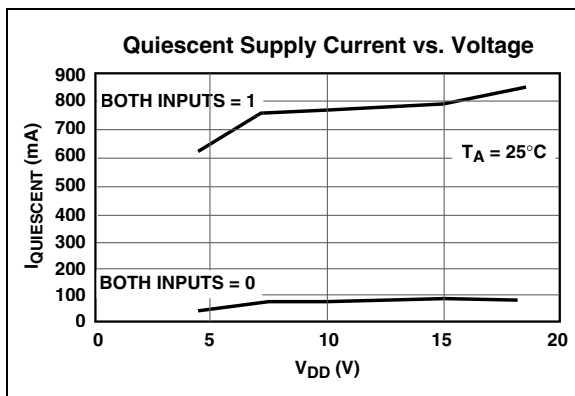
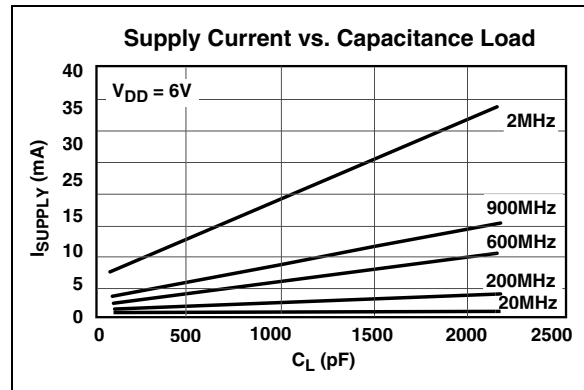
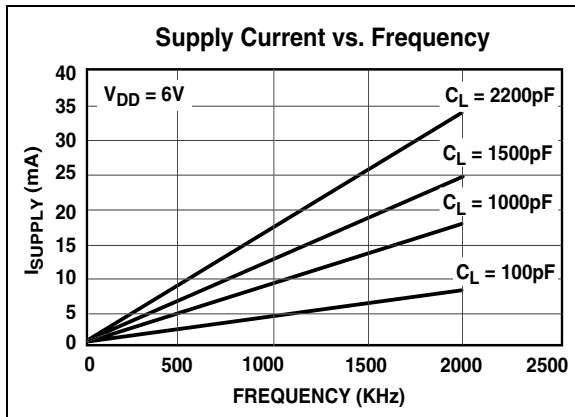
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TYPICAL CHARACTERISTICS (CONTINUED)



TC4426A/TC4427A/TC4428A

TYPICAL CHARACTERISTICS (CONTINUED)



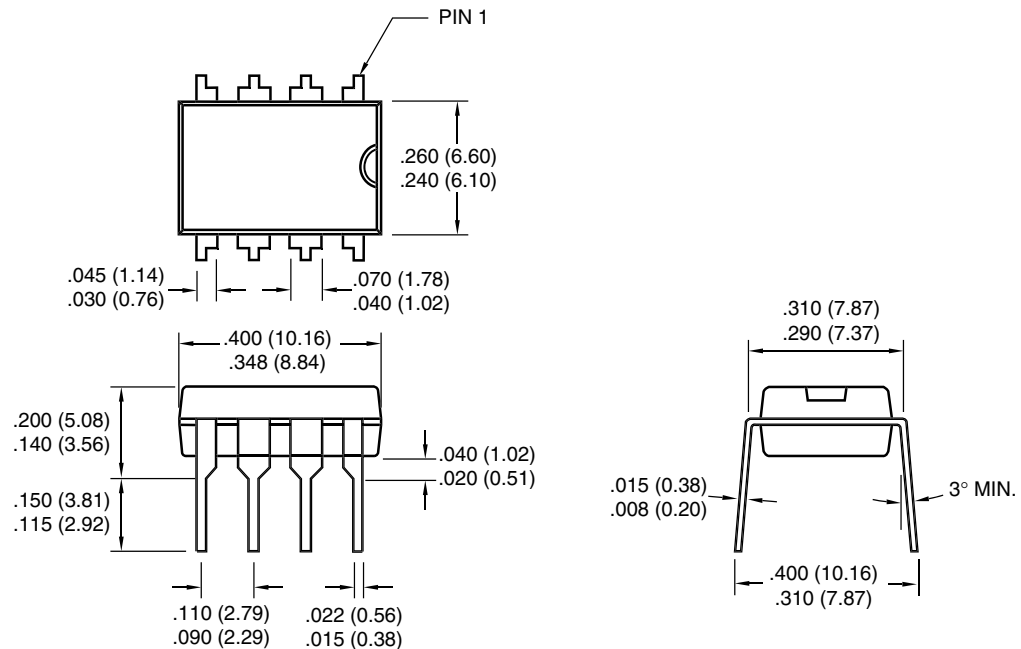
TC4426A/TC4427A/TC4428A

5.0 PACKAGING INFORMATION

Package marking data not available at this time.

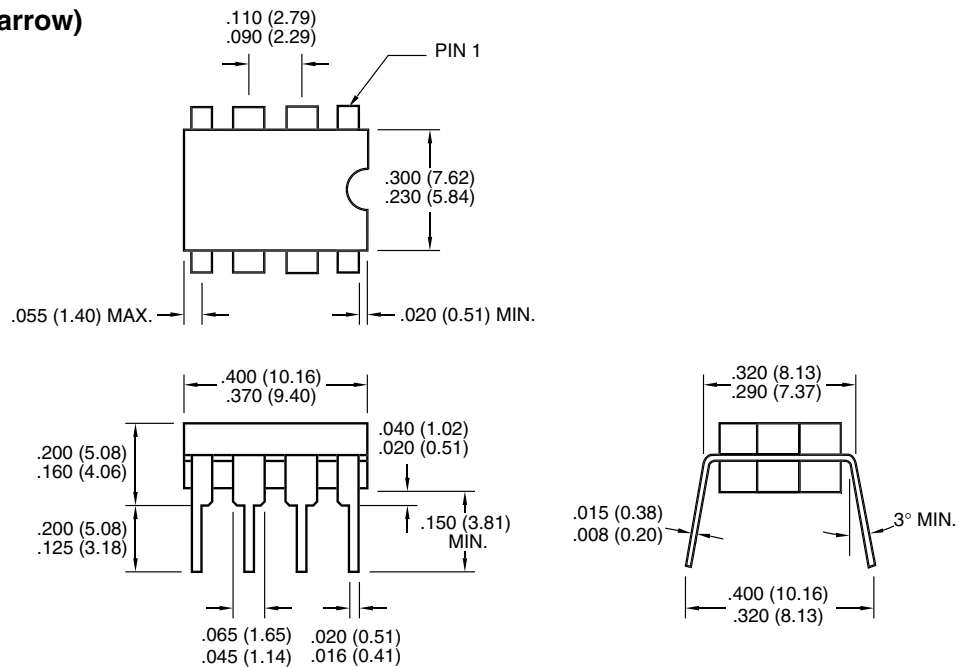
5.1 Package Dimensions

8-Pin Plastic DIP



Dimensions: inches (mm)

8-Pin CDIP (Narrow)

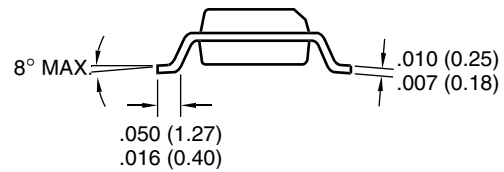
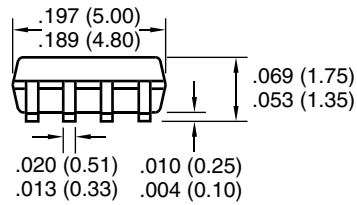
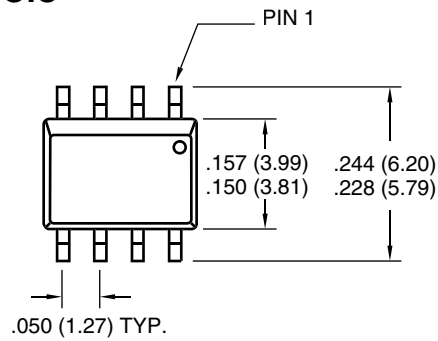


Dimensions: inches (mm)

TC4426A/TC4427A/TC4428A

Package Dimensions (Continued)

8-Pin SOIC



Dimensions: inches (mm)

TC4426A/TC4427A/TC4428A

NOTES:

TC4426A/TC4427A/TC4428A

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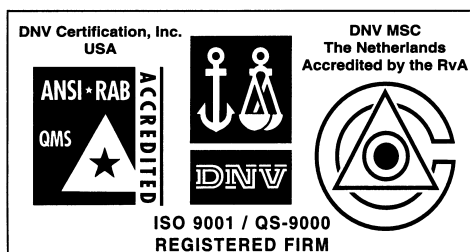
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Corporate Office

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Detroit

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Tel: 248-538-2250 Fax: 248-538-2260

Kokomo

2767 S. Albright Road
Kokomo, Indiana 46902
Tel: 765-864-8360 Fax: 765-864-8387

Los Angeles

18201 Von Karman, Suite 1090
Irvine, CA 92612
Tel: 949-263-1888 Fax: 949-263-1338

New York

150 Motor Parkway, Suite 202
Hauppauge, NY 11788
Tel: 631-273-5305 Fax: 631-273-5335

San Jose

Microchip Technology Inc.
2107 North First Street, Suite 590
San Jose, CA 95131
Tel: 408-436-7950 Fax: 408-436-7955

Toronto

6285 Northam Drive, Suite 108
Mississauga, Ontario L4V 1X5, Canada
Tel: 905-673-0699 Fax: 905-673-6509

ASIA/PACIFIC

Australia

Microchip Technology Australia Pty Ltd
Suite 22, 41 Rawson Street
Epping 2121, NSW
Australia
Tel: 61-2-9868-6733 Fax: 61-2-9868-6755

China - Beijing

Microchip Technology Consulting (Shanghai)
Co., Ltd., Beijing Liaison Office
Unit 915
Bei Hai Wan Tai Bldg.
No. 6 Chaoyangmen Beidajie
Beijing, 100027, No. China
Tel: 86-10-85282100 Fax: 86-10-85282104

China - Chengdu

Microchip Technology Consulting (Shanghai)
Co., Ltd., Chengdu Liaison Office
Rm. 2401, 24th Floor,
Ming Xing Financial Tower
No. 88 TIDU Street
Chengdu 610016, China
Tel: 86-28-6766200 Fax: 86-28-6766599

China - Fuzhou

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Co., Ltd., Fuzhou Liaison Office
Unit 28F, World Trade Plaza
No. 71 Wusi Road
Fuzhou 350001, China
Tel: 86-591-7503506 Fax: 86-591-7503521

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Co., Ltd.
Room 701, Bldg. B
Far East International Plaza
No. 317 Xian Xia Road
Shanghai, 200051
Tel: 86-21-6275-5700 Fax: 86-21-6275-5060

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Microchip Technology Consulting (Shanghai)
Co., Ltd., Shenzhen Liaison Office
Rm. 1315, 13/F, Shenzhen Kerry Centre,
Renminnan Lu
Shenzhen 518001, China
Tel: 86-755-2350361 Fax: 86-755-2366086

Hong Kong

Microchip Technology Hongkong Ltd.
Unit 901-6, Tower 2, Metroplaza
223 Hing Fong Road
Kwai Fong, N.T., Hong Kong
Tel: 852-2401-1200 Fax: 852-2401-3431

India

Microchip Technology Inc.
India Liaison Office
Divyasree Chambers
1 Floor, Wing A (A3/A4)
No. 11, O'Shaugnessey Road
Bangalore, 560 025, India
Tel: 91-80-2290061 Fax: 91-80-2290062

Japan

Microchip Technology Japan K.K.
Benex S-1 6F
3-18-20, Shinyokohama
Kohoku-Ku, Yokohama-shi
Kanagawa, 222-0033, Japan
Tel: 81-45-471- 6166 Fax: 81-45-471-6122

Korea

Microchip Technology Korea
168-1, Youngbo Bldg. 3 Floor
Samsung-Dong, Kangnam-Ku
Seoul, Korea 135-882
Tel: 82-2-554-7200 Fax: 82-2-558-5934

Singapore

Microchip Technology Singapore Pte Ltd.
200 Middle Road
#07-02 Prime Centre
Singapore, 188980
Tel: 65-6334-8870 Fax: 65-6334-8850

Taiwan

Microchip Technology Taiwan
11F-3, No. 207
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Taipei, 105, Taiwan
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EUROPE

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Germany

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Gustav-Heinemann Ring 125
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Tel: 49-89-627-144 0 Fax: 49-89-627-144-44

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Microchip Technology SRL
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United Kingdom

Arizona Microchip Technology Ltd.
505 Eskdale Road
Winnersh Triangle
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