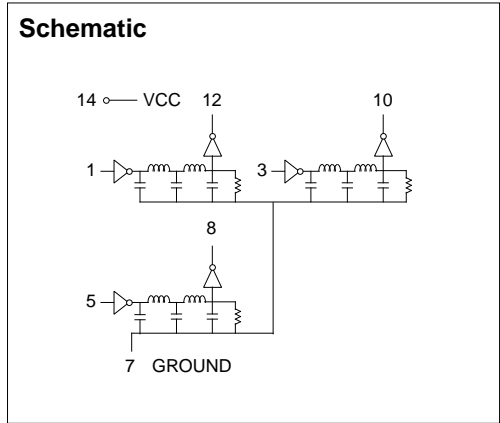


8 Pin SIL Triple TTL Compatible Active Delay Lines

| DELAY TIME ±5% or ±2 nS† | PART NUMBER | DELAY TIME ±5% or ±2 nS† | PART NUMBER | DELAY TIME ±5% or ±2 nS† | PART NUMBER |
|-----------------------------|----------------|-----------------------------|----------------|-----------------------------|----------------|
| 5 | EP9934-5 | 19 | EP9934-19 | 65 | EP9934-65 |
| 6 | EP9934-6 | 20 | EP9934-20 | 70 | EP9934-70 |
| 7 | EP9934-7 | 21 | EP9934-21 | 75 | EP9934-75 |
| 8 | EP9934-8 | 22 | EP9934-22 | 80 | EP9934-80 |
| 9 | EP9934-9 | 23 | EP9934-23 | 85 | EP9934-85 |
| 10 | EP9934-10 | 24 | EP9934-24 | 90 | EP9934-90 |
| 11 | EP9934-11 | 25 | EP9934-25 | 95 | EP9934-95 |
| 12 | EP9934-12 | 30 | EP9934-30 | 100 | EP9934-100 |
| 13 | EP9934-13 | 35 | EP9934-35 | 125 | EP9934-125 |
| 14 | EP9934-14 | 40 | EP9934-40 | 150 | EP9934-150 |
| 15 | EP9934-15 | 45 | EP9934-45 | 175 | EP9934-175 |
| 16 | EP9934-16 | 50 | EP9934-50 | 200 | EP9934-200 |
| 17 | EP9934-17 | 55 | EP9934-55 | 225 | EP9934-225 |
| 18 | EP9934-18 | 60 | EP9934-60 | 250 | EP9934-250 |

† Whichever is greater. Delay Times referenced from input to leading edges at 25°C, 5.0V, with no load.

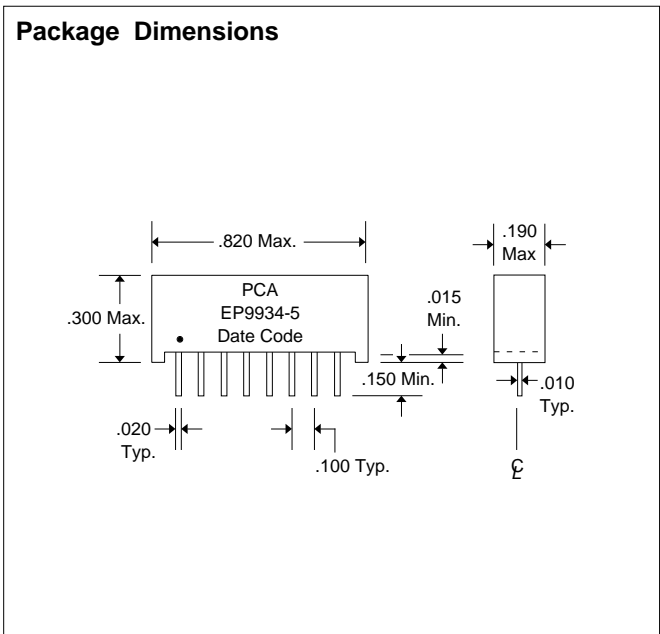
| DC Electrical Characteristics | | | | | |
|-------------------------------|------------------------------|--|-----|-------------|----|
| Parameter | Test Conditions | Min | Max | Unit | |
| V _{OH} | High-Level Output Voltage | V _{CC} = min. V _{IL} = max. I _{OH} = max | 2.7 | | V |
| V _{OL} | Low-Level Output Voltage | V _{CC} = min. V _{IH} = min. I _{OL} = max | | 0.5 | V |
| V _{IK} | Input Clamp Voltage | V _{CC} = min. I _I = I _{IK} | | -1.2V | V |
| I _{IH} | High-Level Input Current | V _{CC} = max. V _{IN} = 2.7V | | 50 | µA |
| | | V _{CC} = max. V _{IN} = 5.25V | | 1.0 | mA |
| I _{IL} | Low-Level Input Current | V _{CC} = max. V _{IN} = 0.5V | | -2 | mA |
| I _{OS} | Short Circuit Output Current | V _{CC} = max. V _{OUT} = 0. (One output at a time) | -40 | -100 | mA |
| I _{CCH} | High-Level Supply Current | V _{CC} = max. V _{IN} = OPEN | | 115 | mA |
| I _{CCL} | Low-Level Supply Current | V _{CC} = max. V _{IN} = 0 | | 115 | mA |
| T _{RO} | Output Rise Time | T _d ≤ 500 nS (0.75 to 2.4 Volts) | | 4 | nS |
| N _H | Fanout High-Level Output | V _{CC} = max. V _{OH} = 2.7V | | 20 TTL LOAD | |
| N _L | Fanout Low-Level Output | V _{CC} = max. V _{OL} = 0.5V | | 10 TTL LOAD | |



| Recommended Operating Conditions | | | | |
|----------------------------------|--------------------------------|------|------|------|
| | | Min | Max | Unit |
| V _{CC} | Supply Voltage | 4.75 | 5.25 | V |
| V _{IH} | High-Level Input Voltage | 2.0 | | V |
| V _{IL} | Low-Level Input Voltage | | 0.8 | V |
| I _{IK} | Input Clamp Current | | -18 | mA |
| I _{OH} | High-Level Output Current | | -1.0 | mA |
| I _{OL} | Low-Level Output Current | | 20 | mA |
| PW* | Pulse Width of Total Delay | 40 | | % |
| d* | Duty Cycle | | 40 | % |
| T _A | Operating Free-Air Temperature | 0 | +70 | °C |

*These two values are inter-dependent.

| Input Pulse Test Conditions @ 25° C | | | | Unit |
|-------------------------------------|---|--|-----|-------|
| E _{IN} | Pulse Input Voltage | | 3.2 | Volts |
| PW | Pulse Width % of Total Delay | | 110 | % |
| T _{RI} | Pulse Rise Time (0.75 - 2.4 Volts) | | 2.0 | nS |
| PRR | Pulse Repetition Rate @ T _d ≤ 200 nS | | 1.0 | MHz |
| | Pulse Repetition Rate @ T _d > 200 nS | | 100 | KHz |
| V _{CC} | Supply Voltage | | 5.0 | Volts |



DSD9934 Rev. A 2/5/96

QAF-CSO1 Rev. B 8/25/94

Unless Otherwise Noted Dimensions in Inches
Tolerances:

Fractional = ± 1/32
.XX = ± .030 .XXX = ± .010



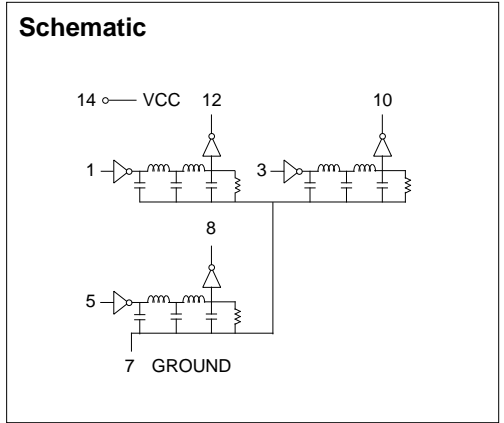
16799 SCHOENBORN ST.
NORTH HILLS, CA 91343
TEL: (818) 892-0761
FAX: (818) 894-5791

14 Pin DIL Triple TTL Compatible Active Delay Lines

| DELAY TIME ±5% or 2 nS† | PART NUMBER | DELAY TIME ±5 or 2 nS† | PART NUMBER | DELAY TIME ±5% or 2 nS† | PART NUMBER |
|----------------------------|----------------|---------------------------|----------------|----------------------------|----------------|
| 5 | EPA189-5 | 19 | EPA189-19 | 65 | EPA189-65 |
| 6 | EPA189-6 | 20 | EPA189-20 | 70 | EPA189-70 |
| 7 | EPA189-7 | 21 | EPA189-21 | 75 | EPA189-75 |
| 8 | EPA189-8 | 22 | EPA189-22 | 80 | EPA189-80 |
| 9 | EPA189-9 | 23 | EPA189-23 | 85 | EPA189-85 |
| 10 | EPA189-10 | 24 | EPA189-24 | 90 | EPA189-90 |
| 11 | EPA189-11 | 25 | EPA189-25 | 95 | EPA189-95 |
| 12 | EPA189-12 | 30 | EPA189-30 | 100 | EPA189-100 |
| 13 | EPA189-13 | 35 | EPA189-35 | 125 | EPA189-125 |
| 14 | EPA189-14 | 40 | EPA189-40 | 150 | EPA189-150 |
| 15 | EPA189-15 | 45 | EPA189-45 | 175 | EPA189-175 |
| 16 | EPA189-16 | 50 | EPA189-50 | 200 | EPA189-200 |
| 17 | EPA189-17 | 55 | EPA189-55 | 225 | EPA189-225 |
| 18 | EPA189-18 | 60 | EPA189-60 | 250 | EPA189-250 |

† Whichever is greater. Delay Times referenced from input to leading edges at 25°C, 5.0V, with no load.

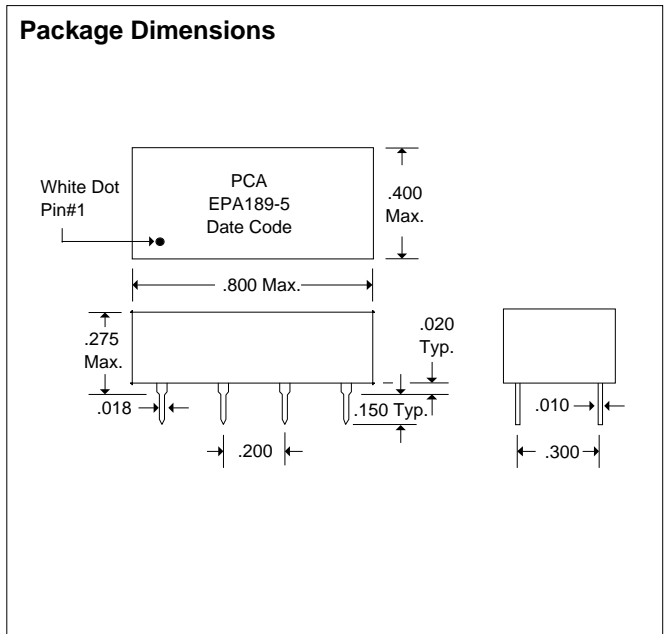
| DC Electrical Characteristics | | | | | |
|-------------------------------|------------------------------|---|-----|-------|----------|
| Parameter | Test Conditions | Min | Max | Unit | |
| V _{OH} | High-Level Output Voltage | V _{CC} = min. V _{IL} = max. I _{OH} = max | 2.7 | | V |
| V _{OL} | Low-Level Output Voltage | V _{CC} = min. V _{IH} = min. I _{OL} = max | | 0.5 | V |
| V _{IK} | Input Clamp Voltage | V _{CC} = min. I _I = I _{IK} | | -1.2V | V |
| I _{IH} | High-Level Input Current | V _{CC} = max. V _{IN} = 2.7V | | 50 | µA |
| | | V _{CC} = max. V _{IN} = 5.25V | | 1.0 | mA |
| I _{IL} | Low-Level Input Current | V _{CC} = max. V _{IN} = 0.5V | | -2 | mA |
| I _{OS} | Short Circuit Output Current | V _{CC} = max. V _{OUT} = 0. | -40 | -100 | mA |
| | | (One output at a time) | | | |
| I _{CCH} | High-Level Supply Current | V _{CC} = max. V _{IN} = OPEN | | 115 | mA |
| I _{CCL} | Low-Level Supply Current | V _{CC} = max. V _{IN} = 0 | | 115 | mA |
| T _{RO} | Output Rise Time | T _d ≤ 500 nS (0.75 to 2.4 Volts) | | 4 | nS |
| N _H | Fanout High-Level Output | V _{CC} = max. V _{OH} = 2.7V | | 20 | TTL LOAD |
| N _L | Fanout Low-Level Output | V _{CC} = max. V _{OL} = 0.5V | | 10 | TTL LOAD |



| Recommended Operating Conditions | | | | |
|----------------------------------|--------------------------------|------|------|------|
| | | Min | Max | Unit |
| V _{CC} | Supply Voltage | 4.75 | 5.25 | V |
| V _{IH} | High-Level Input Voltage | 2.0 | | V |
| V _{IL} | Low-Level Input Voltage | | 0.8 | V |
| I _{IK} | Input Clamp Current | | -18 | mA |
| I _{OH} | High-Level Output Current | | -1.0 | mA |
| I _{OL} | Low-Level Output Current | | 20 | mA |
| P _W * | Pulse Width of Total Delay | 40 | | % |
| d* | Duty Cycle | | 40 | % |
| T _A | Operating Free-Air Temperature | 0 | +70 | °C |

*These two values are inter-dependent.

| Input Pulse Test Conditions @ 25° C | | | | Unit |
|-------------------------------------|---|--|-----|-------|
| E _{IN} | Pulse Input Voltage | | 3.2 | Volts |
| P _W | Pulse Width % of Total Delay | | 110 | % |
| T _{RI} | Pulse Rise Time (0.75 - 2.4 Volts) | | 2.0 | nS |
| P _{RR} | Pulse Repetition Rate @ T _d ≤ 200 nS | | 1.0 | MHz |
| | Pulse Repetition Rate @ T _d > 200 nS | | 100 | KHz |
| V _{CC} | Supply Voltage | | 5.0 | Volts |



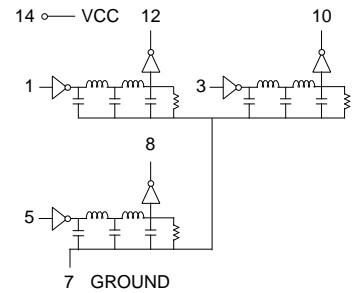
SMD 14-Pin Triple TTL Compatible Active Delay Lines

| DELAY TIME ±5% or ±2 nS† | PART NUMBER | DELAY TIME ±5% or ±2 nS† | PART NUMBER | DELAY TIME ±5% or ±2 nS† | PART NUMBER |
|-----------------------------|----------------|-----------------------------|----------------|-----------------------------|----------------|
| 5 | EPA280-5 | 19 | EPA280-19 | 65 | EPA280-65 |
| 6 | EPA280-6 | 20 | EPA280-20 | 70 | EPA280-70 |
| 7 | EPA280-7 | 21 | EPA280-21 | 75 | EPA280-75 |
| 8 | EPA280-8 | 22 | EPA280-22 | 80 | EPA280-80 |
| 9 | EPA280-9 | 23 | EPA280-23 | 85 | EPA280-85 |
| 10 | EPA280-10 | 24 | EPA280-24 | 90 | EPA280-90 |
| 11 | EPA280-11 | 25 | EPA280-25 | 95 | EPA280-95 |
| 12 | EPA280-12 | 30 | EPA280-30 | 100 | EPA280-100 |
| 13 | EPA280-13 | 35 | EPA280-35 | 125 | EPA280-125 |
| 14 | EPA280-14 | 40 | EPA280-40 | 150 | EPA280-150 |
| 15 | EPA280-15 | 45 | EPA280-45 | 175 | EPA280-175 |
| 16 | EPA280-16 | 50 | EPA280-50 | 200 | EPA280-200 |
| 17 | EPA280-17 | 55 | EPA280-55 | 225 | EPA280-225 |
| 18 | EPA280-18 | 60 | EPA280-60 | 250 | EPA280-250 |

† Whichever is greater. Delay Times referenced from input to leading edges at 25°C, 5.0V, with no load.

| DC Electrical Characteristics | | Test Conditions | Min | Max | Unit |
|-------------------------------|------------------------------|---|-----|-------------|------|
| V _{OH} | High-Level Output Voltage | V _{CC} = min. V _{IL} = max. I _{OH} = max | 2.7 | | V |
| V _{OL} | Low-Level Output Voltage | V _{CC} = min. V _{IH} = min. I _{OL} = max | | 0.5 | V |
| V _{IK} | Input Clamp Voltage | V _{CC} = min. I _I = I _{IK} | | -1.2V | V |
| I _{IH} | High-Level Input Current | V _{CC} = max. V _{IN} = 2.7V | | 50 | µA |
| | | V _{CC} = max. V _{IN} = 5.25V | | 1.0 | mA |
| I _{IL} | Low-Level Input Current | V _{CC} = max. V _{IN} = 0.5V | | -2 | mA |
| I _{OS} | Short Circuit Output Current | V _{CC} = max. V _{OUT} = 0. | -40 | -100 | mA |
| | | (One output at a time) | | | |
| I _{CCH} | High-Level Supply Current | V _{CC} = max. V _{IN} = OPEN | | 115 | mA |
| I _{CCL} | Low-Level Supply Current | V _{CC} = max. V _{IN} = 0 | | 115 | mA |
| T _{RO} | Output Rise Time | T _d ≤ 500 nS (0.75 to 2.4 Volts) | | 4 | nS |
| N _H | Fanout High-Level Output | V _{CC} = max. V _{OH} = 2.7V | | 20 TTL LOAD | |
| N _L | Fanout Low-Level Output | V _{CC} = max. V _{OL} = 0.5V | | 10 TTL LOAD | |

Schematic

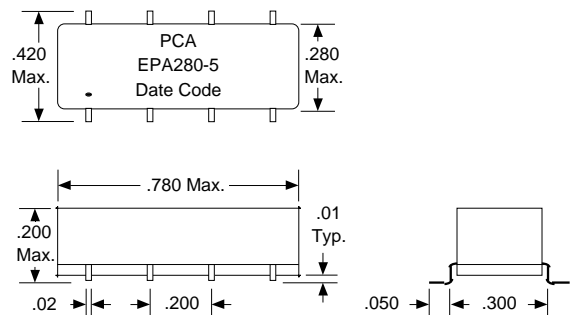


| Recommended Operating Conditions | | Min | Max | Unit |
|----------------------------------|--------------------------------|------|------|------|
| V _{CC} | Supply Voltage | 4.75 | 5.25 | V |
| V _{IH} | High-Level Input Voltage | 2.0 | | V |
| V _{IL} | Low-Level Input Voltage | | 0.8 | V |
| I _{IK} | Input Clamp Current | | -18 | mA |
| I _{OH} | High-Level Output Current | | -1.0 | mA |
| I _{OL} | Low-Level Output Current | | 20 | mA |
| PW* | Pulse Width of Total Delay | 40 | | % |
| d* | Duty Cycle | | 40 | % |
| T _A | Operating Free-Air Temperature | 0 | +70 | °C |

*These two values are inter-dependent.

| Input Pulse Test Conditions @ 25° C | | Unit |
|-------------------------------------|---|-----------|
| E _{IN} | Pulse Input Voltage | 3.2 Volts |
| PW | Pulse Width % of Total Delay | 110 % |
| T _{RI} | Pulse Rise Time (0.75 - 2.4 Volts) | 2.0 nS |
| P _{RR} | Pulse Repetition Rate @ T _d ≤ 200 nS | 1.0 MHz |
| | Pulse Repetition Rate @ T _d > 200 nS | 100 KHz |
| V _{CC} | Supply Voltage | 5.0 Volts |

Package Dimensions



DSA280 Rev. A 2/5/96

Unless Otherwise Noted Dimensions in Inches

Tolerances:

Fractional = ± 1/32

.XX = ± .030 .XXX = ± .010



ELECTRONICS INC.

QAF-CSO1 Rev. B 8/25/94

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