

## 1. DESCRIPTION

XD4518 Dual BCD Up Counter consist of two identical, internally synchronous 4-stage counters. The counter stages are D-type flip-flops having interchangeable CLOCK and ENABLE lines for incrementing on either the positive-going or negative-going transition. For single unit operation the ENABLE input is maintained high and the counter advances on each positive-going transition of the CLOCK. The counters are cleared by high levels on their RESET lines.

The counter can be cascaded in the ripple mode by connecting Q4 to the enable input of the subsequent counter while the CLOCK input of the latter is held low.

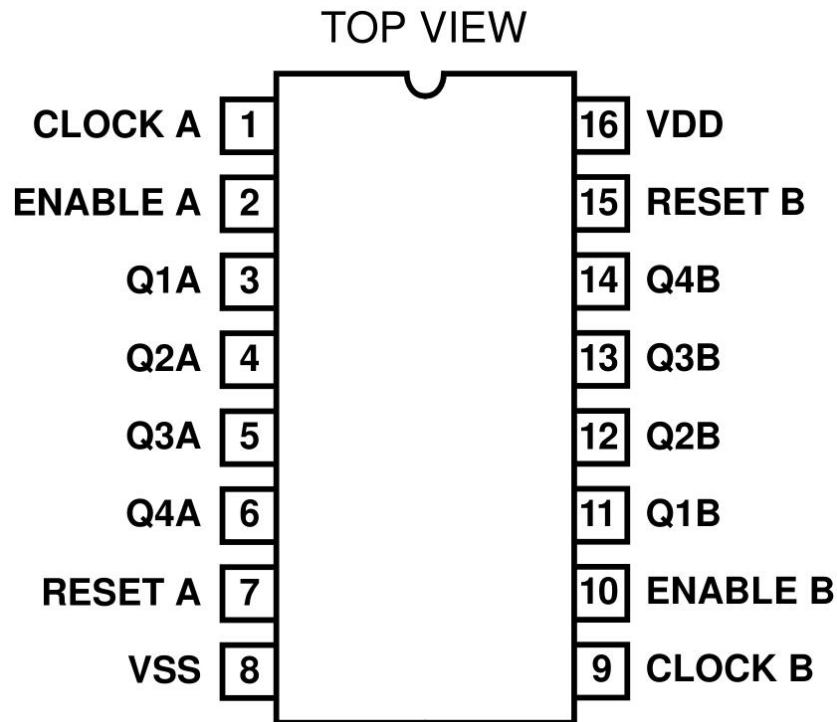
## 2. FEATURES

- High Voltage Types (20V Rating)
- XD4518 Dual BCD Up Counter
- Medium Speed Operation
  - 6MHz Typical Clock Frequency at 10V
- Positive or Negative Edge Triggering
- Synchronous Internal Carry Propagation
- 100% Tested for Quiescent Current at 20V
- 5V, 10V and 15V Parametric Ratings
- Maximum Input Current of 1 $\mu$ A at 18V Over Full Pack- age Temperature Range; 100nA at 18V and +25 $^{\circ}$ C
- Noise Margin (Over Full Package/Temperature Range)
  - 1V at VDD = 5V
  - 2V at VDD = 10V
  - 2.5V at VDD = 15V
- Standardized Symmetrical Output Characteristics

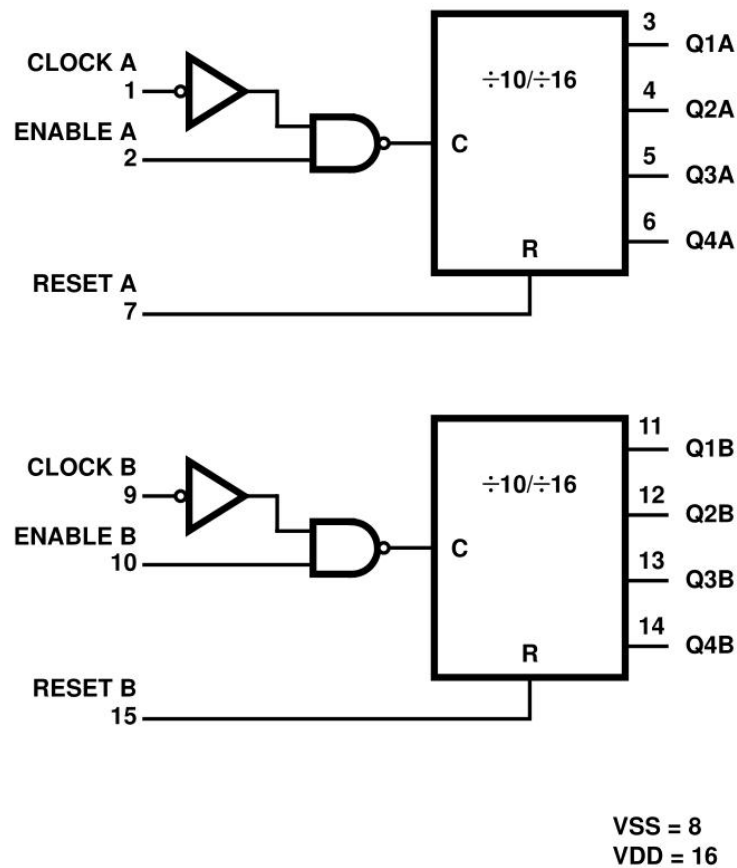
## 3. APPLICATION

- Multistage Synchronous Counting
- Multistage Ripple Counting
- Frequency Dividers

#### 4. PINOUT



#### 5. FUNCTIONAL DIAGRAM



## 6. ABSOLUTE MAXIMUM RATINGS

DC Supply Voltage Range, (VDD)..... V to +20V  
(Voltage Referenced to VSS Terminals)  
Input Voltage Range, All Inputs..... V to VDD +0.5V  
DC Input Current, Any One Input . . . . .  $\pm 10\text{mA}$  Operating Temperature  
Range..... -40°C to +85°C  
Package Types D, F, K, H  
Storage Temperature Range (TSTG)..... -65°C to +150°C  
Lead Temperature (During Soldering)..... +265°C  
At Distance 1/16  $\pm$  1/32 Inch (1.59mm  $\pm$  0.79mm) from case for 10s Maximum  
Thermal Resistance . . . . .  $\theta_{ja}$   $\theta_{jc}$   
Ceramic DIP and FRIT Package . . . . . 80°C/W 20°C/W  
Flatpack Package . . . . . 70°C/W 20°C/W  
Maximum Package Power Dissipation (PD) at +125°C  
For  $T_A = -55^\circ\text{C}$  to +100°C (Package Type D, F, K)... 500mW  
For  $T_A = +100^\circ\text{C}$  to +125°C (Package Type D, F, K).. Derate  
Linearity at 12mW/°C to 200mW  
Device Dissipation per Output Transistor..... 100mW  
For  $T_A =$  Full Package Temperature Range (All Package Types)  
Junction Temperature..... +175°C

**TABLE 1. DC ELECTRICAL PERFORMANCE CHARACTERISTICS**

| PARAMETER               | SYMBOL | CONDITIONS (NOTE 1)                |           | GROUP A<br>SUBGROUPS | TEMPERATURE         | LIMITS                |                    | UNITS         |
|-------------------------|--------|------------------------------------|-----------|----------------------|---------------------|-----------------------|--------------------|---------------|
|                         |        |                                    |           |                      |                     | MIN                   | MAX                |               |
| Supply Current          | IDD    | VDD = 20V, VIN = VDD or GND        |           | 1                    | +25°C               | -                     | 10                 | $\mu\text{A}$ |
|                         |        |                                    |           | 2                    | +85°C               | -                     | 1000               | $\mu\text{A}$ |
|                         |        | VDD = 18V, VIN = VDD or GND        |           | 3                    | -40°C               | -                     | 10                 | $\mu\text{A}$ |
| Input Leakage Current   | IIL    | VIN = VDD or GND                   | VDD = 20  | 1                    | +25°C               | -100                  | -                  | nA            |
|                         |        |                                    |           | 2                    | +85°C               | -                     | -                  | nA            |
|                         |        |                                    | VDD = 18V | 3                    | -40°C               | -100                  | -                  | nA            |
| Input Leakage Current   | IIH    | VIN = VDD or GND                   | VDD = 20  | 1                    | +25°C               | -                     | 100                | nA            |
|                         |        |                                    |           | 2                    | +85°C               | -                     | 1000               | nA            |
|                         |        |                                    | VDD = 18V | 3                    | -40°C               | -                     | 100                | nA            |
| Output Voltage          | VOL15  | VDD = 15V, No Load                 |           | 1, 2, 3              | +25°C, +85°C, -40°C | -                     | 50                 | mV            |
| Output Voltage          | VOH15  | VDD = 15V, No Load (Note 3)        |           | 1, 2, 3              | +25°C, +85°C, -40°C | 14.9<br>5             | -                  | V             |
| Output Current (Sink)   | IOL5   | VDD = 5V, VOUT = 0.4V              |           | 1                    | +25°C               | 0.53                  | -                  | mA            |
| Output Current (Sink)   | IOL10  | VDD = 10V, VOUT = 0.5V             |           | 1                    | +25°C               | 1.4                   | -                  | mA            |
| Output Current (Sink)   | IOL15  | VDD = 15V, VOUT = 1.5V             |           | 1                    | +25°C               | 3.5                   | -                  | mA            |
| Output Current (Source) | IOH5A  | VDD = 5V, VOUT = 4.6V              |           | 1                    | +25°C               | -                     | -0.53              | mA            |
| Output Current (Source) | IOH5B  | VDD = 5V, VOUT = 2.5V              |           | 1                    | +25°C               | -                     | -1.8               | mA            |
| Output Current (Source) | IOH10  | VDD = 10V, VOUT = 9.5V             |           | 1                    | +25°C               | -                     | -1.4               | mA            |
| Output Current (Source) | IOH15  | VDD = 15V, VOUT = 13.5V            |           | 1                    | +25°C               | -                     | -3.5               | mA            |
| N Threshold Voltage     | VNTH   | VDD = 10V, ISS = -10 $\mu\text{A}$ |           | 1                    | +25°C               | -2.8                  | -0.7               | V             |
| P Threshold Voltage     | VPTH   | VSS = 0V, IDD = 10 $\mu\text{A}$   |           | 1                    | +25°C               | 0.7                   | 2.8                | V             |
| Functional              | F      | VDD = 2.8V, VIN = VDD or GND       |           | 7                    | +25°C               | VOH<br>><br>VDD/<br>2 | VOL <<br>VDD/<br>2 | V             |
|                         |        | VDD = 20V, VIN = VDD or GND        |           | 7                    | +25°C               |                       |                    |               |
|                         |        | VDD = 18V, VIN = VDD or GND        |           | 8A                   | +85°C               |                       |                    |               |
|                         |        | VDD = 3V, VIN = VDD or GND         |           | 8B                   | -40°C               |                       |                    |               |

|                                |     |                                    |         |                     |     |     |   |
|--------------------------------|-----|------------------------------------|---------|---------------------|-----|-----|---|
| Input Voltage Low<br>(Note 2)  | VIL | VDD = 5V, VOH > 4.5V, VOL < 0.5V   | 1, 2, 3 | +25°C, +85°C, -40°C | -   | 1.5 | V |
| Input Voltage High<br>(Note 2) | VIH | VDD = 5V, VOH > 4.5V, VOL < 0.5V   | 1, 2, 3 | +25°C, +85°C, -40°C | 3.5 | -   | V |
| Input Voltage Low<br>(Note 2)  | VIL | VDD = 15V, VOH > 13.5V, VOL < 1.5V | 1, 2, 3 | +25°C, +85°C, -40°C | -   | 4   | V |
| Input Voltage High<br>(Note 2) | VIH | VDD = 15V, VOH > 13.5V, VOL < 1.5V | 1, 2, 3 | +25°C, +85°C, -40°C | 11  | -   | V |

NOTES:

1. All voltages referenced to device GND, 100% testing being implemented.
2. Go/No Go test with limits applied to inputs.
3. For accuracy, voltage is measured differentially to VDD. Limit is 0.050V max.

**TABLE 2. AC ELECTRICAL PERFORMANCE CHARACTERISTICS**

| PARAMETER                            | SYMBOL         | CONDITIONS (NOTE 1, 2)     | GROUP A<br>SUBGROUPS | TEMPERATURE  | LIMITS |     | UNITS |
|--------------------------------------|----------------|----------------------------|----------------------|--------------|--------|-----|-------|
|                                      |                |                            |                      |              | MIN    | MAX |       |
| Propagation Delay<br>Clock to Output | TPHL1<br>TPLH1 | VDD = 5V, VIN = VDD or GND | 9                    | +25°C        | -      | 560 | ns    |
|                                      |                |                            | 10, 11               | +85°C, -40°C | -      | 756 | ns    |
| Propagation Delay<br>Reset to Output | TPHL2          | VDD = 5V, VIN = VDD or GND | 9                    | +25°C        | -      | 650 | ns    |
|                                      |                |                            | 10, 11               | +85°C, -40°C | -      | 878 | ns    |
| Transition Time<br>(Note 2)          | TTHL<br>TTLH   | VDD = 5V, VIN = VDD or GND | 9                    | +25°C        | -      | 200 | ns    |
|                                      |                |                            | 10, 11               | +85°C, -40°C | -      | 270 | ns    |
| Maximum Clock Input<br>Frequency     | FCL            | VDD = 5V, VIN = VDD or GND | 9                    | +25°C        | 1.5    | -   | MHz   |
|                                      |                |                            | 10, 11               | +85°C, -40°C | 1.11   | -   | MHz   |

NOTES:

1. CL = 50pF, RL = 200K, Input TR, TF < 20ns.
2. -40°C and +85°C limits guaranteed, 100% testing being implemented.

**TABLE 3. ELECTRICAL PERFORMANCE CHARACTERISTICS**

| PARAMETER      | SYMBOL | CONDITIONS                  | NOTES | TEMPERATURE         | LIMITS |     | UNITS |
|----------------|--------|-----------------------------|-------|---------------------|--------|-----|-------|
|                |        |                             |       |                     | MIN    | MAX |       |
| Supply Current | IDD    | VDD = 5V, VIN = VDD or GND  | 1, 2  | -40°C, +25°C        | -      | 5   | μA    |
|                |        |                             |       | +85°C               | -      | 150 | μA    |
|                |        | VDD = 10V, VIN = VDD or GND | 1, 2  | -40°C, +25°C        | -      | 10  | μA    |
|                |        |                             |       | +85°C               | -      | 300 | μA    |
|                |        | VDD = 15V, VIN = VDD or GND | 1, 2  | -40°C, +25°C        | -      | 10  | μA    |
|                |        |                             |       | +85°C               | -      | 600 | μA    |
| Output Voltage | VOL    | VDD = 5V, No Load           | 1, 2  | +25°C, +85°C, -40°C | -      | 50  | mV    |
| Output Voltage | VOL    | VDD = 10V, No Load          | 1, 2  | +25°C, +85°C, -40°C | -      | 50  | mV    |
| Output Voltage | VOH    | VDD = 5V, No Load           | 1, 2  | +25°C, +85°C, -40°C | 4.95   | -   | V     |
| Output Voltage | VOH    | VDD = 10V, No Load          | 1, 2  | +25°C, +85°C, -40°C | 9.95   | -   | V     |

|                         |       |                               |      |                     |      |       |    |
|-------------------------|-------|-------------------------------|------|---------------------|------|-------|----|
| Output Current (Sink)   | IOL5  | VDD = 5V, VOUT = 0.4V         | 1, 2 | +85°C               | 0.36 | -     | mA |
|                         |       |                               |      | -40°C               | 0.64 | -     | mA |
| Output Current (Sink)   | IOL10 | VDD = 10V, VOUT = 0.5V        | 1, 2 | +85°C               | 0.9  | -     | mA |
|                         |       |                               |      | -40°C               | 1.6  | -     | mA |
| Output Current (Sink)   | IOL15 | VDD = 15V, VOUT = 1.5V        | 1, 2 | +85°C               | 2.4  | -     | mA |
|                         |       |                               |      | -40°C               | 4.2  | -     | mA |
| Output Current (Source) | IOH5A | VDD = 5V, VOUT = 4.6V         | 1, 2 | +85°C               | -    | -0.36 | mA |
|                         |       |                               |      | -40°C               | -    | -0.64 | mA |
| Output Current (Source) | IOH5B | VDD = 5V, VOUT = 2.5V         | 1, 2 | +85°C               | -    | -1.15 | mA |
|                         |       |                               |      | -40°C               | -    | -2.0  | mA |
| Output Current (Source) | IOH10 | VDD = 10V, VOUT = 9.5V        | 1, 2 | +85°C               | -    | -0.9  | mA |
|                         |       |                               |      | -40°C               | -    | -1.6  | mA |
| Output Current (Source) | IOH15 | VDD = 15V, VOUT = 13.5V       | 1, 2 | +85°C               | -    | -2.4  | mA |
|                         |       |                               |      | -40°C               | -    | -4.2  | mA |
| Input Voltage Low       | VIL   | VDD = 10V, VOH > 9V, VOL < 1V | 1, 2 | +25°C, +85°C, -40°C | -    | 3     | V  |
| Input Voltage High      | VIH   | VDD = 10V, VOH > 9V, VOL < 1V | 1, 2 | +25°C, +85°C, -40°C | +7   | -     | V  |

| PARAMETER                            | SYMBOL       | CONDITIONS | NOTES      | TEMPERATURE | LIMITS |     | UNITS |
|--------------------------------------|--------------|------------|------------|-------------|--------|-----|-------|
|                                      |              |            |            |             | MIN    | MAX |       |
| Propagation Delay<br>Clock to Output | TPHL1        | VDD = 10V  | 1, 2, 3    | +25°C       | -      | 230 | ns    |
|                                      | TPLH1        | VDD = 15V  | 1, 2, 3    | +25°C       | -      | 160 | ns    |
| Propagation Delay<br>Reset to Output | TPHL2        | VDD = 10V  | 1, 2, 3    | +25°C       | -      | 225 | ns    |
|                                      |              | VDD = 15V  | 1, 2, 3    | +25°C       | -      | 170 | ns    |
| Transition Time                      | TTHL         | VDD = 10V  | 1, 2, 3    | +25°C       | -      | 100 | ns    |
|                                      | TTLH         | VDD = 15V  | 1, 2, 3    | +25°C       | -      | 80  | ns    |
| Maximum Clock Input<br>Frequency     | FCL          | VDD = 10V  | 1, 2, 3    | +25°C       | 3      | -   | MHz   |
|                                      |              | VDD = 15V  | 1, 2, 3    | +25°C       | 4      | -   | MHz   |
| Maximum Clock Rise and<br>Fall Time  | TRCL<br>TFCL | VDD = 5V   | 1, 2, 3, 4 | +25°C       | -      | 15  | μs    |
|                                      |              | VDD = 10V  | 1, 2, 3, 4 | +25°C       | -      | 5   | μs    |
|                                      |              | VDD = 15V  | 1, 2, 3, 4 | +25°C       | -      | 5   | μs    |
| Minimum Enable Pulse<br>Width        | TW           | VDD = 5V   | 1, 2, 3    | +25°C       | -      | 400 | ns    |
|                                      |              | VDD = 10V  | 1, 2, 3    | +25°C       | -      | 200 | ns    |
|                                      |              | VDD = 15V  | 1, 2, 3    | +25°C       | -      | 140 | ns    |
| Minimum Reset Pulse<br>Width         | TW           | VDD = 5V   | 1, 2, 3    | +25°C       | -      | 250 | ns    |
|                                      |              | VDD = 10V  | 1, 2, 3    | +25°C       | -      | 110 | ns    |
|                                      |              | VDD = 15V  | 1, 2, 3    | +25°C       | -      | 80  | ns    |
| Minimum Clock Pulse<br>Width         | TW           | VDD = 5V   | 1, 2, 3    | +25°C       | -      | 200 | ns    |
|                                      |              | VDD = 10V  | 1, 2, 3    | +25°C       | -      | 100 | ns    |
|                                      |              | VDD = 15V  | 1, 2, 3    | +25°C       | -      | 70  | ns    |
| Input Capacitance                    | CIN          | Any Input  | 1, 2       | +25°C       | -      | 7.5 | pF    |

**NOTES:**

- All voltages referenced to device GND.
- The parameters listed on Table 3 are controlled via design or process and are not directly tested. These parameters are characterized on initial design release and upon design changes which would affect these characteristics.

- CL = 50pF, RL = 200K, Input TR, TF < 20ns.
- If more than one unit is cascaded, TRCL should be made less than or equal to the sum of the transition time and the fixed propagation delay of the output of the driving stage for the estimated capacitive load.

**TABLE 4. POST IRRADIATION ELECTRICAL PERFORMANCE CHARACTERISTICS**

| PARAMETER                 | SYMBOL               | CONDITIONS                  | NOTES      | TEMPERATURE | LIMITS      |                    | UNITS |
|---------------------------|----------------------|-----------------------------|------------|-------------|-------------|--------------------|-------|
|                           |                      |                             |            |             | MIN         | MAX                |       |
| Supply Current            | IDD                  | VDD = 20V, VIN = VDD or GND | 1, 4       | +25°C       | -           | 25                 | μA    |
| N Threshold Voltage       | VNTH                 | VDD = 10V, ISS = -10μA      | 1, 4       | +25°C       | -2.8        | -0.2               | V     |
| N Threshold Voltage Delta | ΔVTN                 | VDD = 10V, ISS = -10μA      | 1, 4       | +25°C       | -           | ±1                 | V     |
| P Threshold Voltage       | VTP                  | VSS = 0V, IDD = 10μA        | 1, 4       | +25°C       | 0.2         | 2.8                | V     |
| P Threshold Voltage Delta | ΔVTP                 | VSS = 0V, IDD = 10μA        | 1, 4       | +25°C       | -           | ±1                 | V     |
| Functional                | F                    | VDD = 18V, VIN = VDD or GND | 1          | +25°C       | VOH > VDD/2 | VOL < VDD/2        | V     |
|                           |                      | VDD = 3V, VIN = VDD or GND  |            |             |             |                    |       |
| Propagation Delay Time    | TPH<br>L<br>TPL<br>H | VDD = 5V                    | 1, 2, 3, 4 | +25°C       | -           | 1.35 x +25°C Limit | ns    |

NOTES: 1. All voltages referenced to device GND.

2. CL = 50pF, RL = 200K, Input TR, TF < 20ns.

3. See Table 2 for +25°C limit.

4. Read and Record

**TABLE 5. BURN-IN AND LIFE TEST DELTA PARAMETERS +25°C**

| PARAMETER               | SYMBOL | DELTA LIMIT              |
|-------------------------|--------|--------------------------|
| Supply Current - MSI-2  | IDD    | ± 1.0μA                  |
| Output Current (Sink)   | IOL5   | ± 20% x Pre-Test Reading |
| Output Current (Source) | IOH5A  | ± 20% x Pre-Test Reading |

**TABLE 6. APPLICABLE SUBGROUPS**

| CONFORMANCE GROUP             |              | MIL-STD-883 METHOD | GROUP A SUBGROUPS                     | READ AND RECORD              |
|-------------------------------|--------------|--------------------|---------------------------------------|------------------------------|
| Initial Test (Pre Burn-In)    |              | 100% 5004          | 1, 7, 9                               | IDD, IOL5, IOH5A             |
| Interim Test 1 (Post Burn-In) |              | 100% 5004          | 1, 7, 9                               | IDD, IOL5, IOH5A             |
| Interim Test 2 (Post Burn-In) |              | 100% 5004          | 1, 7, 9                               | IDD, IOL5, IOH5A             |
| PDA (Note 1)                  |              | 100% 5004          | 1, 7, 9, Deltas                       |                              |
| Interim Test 3 (Post Burn-In) |              | 100% 5004          | 1, 7, 9                               | IDD, IOL5, IOH5A             |
| PDA (Note 1)                  |              | 100% 5004          | 1, 7, 9, Deltas                       |                              |
| Final Test                    |              | 100% 5004          | 2, 3, 8A, 8B, 10, 11                  |                              |
| Group A                       |              | Sample 5005        | 1, 2, 3, 7, 8A, 8B, 9, 10, 11         |                              |
| Group B                       | Subgroup B-5 | Sample 5005        | 1, 2, 3, 7, 8A, 8B, 9, 10, 11, Deltas | Subgroups 1, 2, 3, 9, 10, 11 |
|                               | Subgroup B-6 | Sample 5005        | 1, 7, 9                               |                              |
| Group D                       |              | Sample 5005        | 1, 2, 3, 8A, 8B, 9                    | Subgroups 1, 2 3             |

NOTE: 1. 5% Parametric, 3% Functional; Cumulative for Static 1 and 2.

**TABLE 7. TOTAL DOSE IRRADIATION**

| CONFORMANCE GROUPS | MIL-STD-883 METHOD | TEST      |            | READ AND RECORD |            |
|--------------------|--------------------|-----------|------------|-----------------|------------|
|                    |                    | PRE-IRRAD | POST-IRRAD | PRE-IRRAD       | POST-IRRAD |
| Group E Subgroup 2 | 5005               | 1, 7, 9   | Table 4    | 1, 9            | Table 4    |

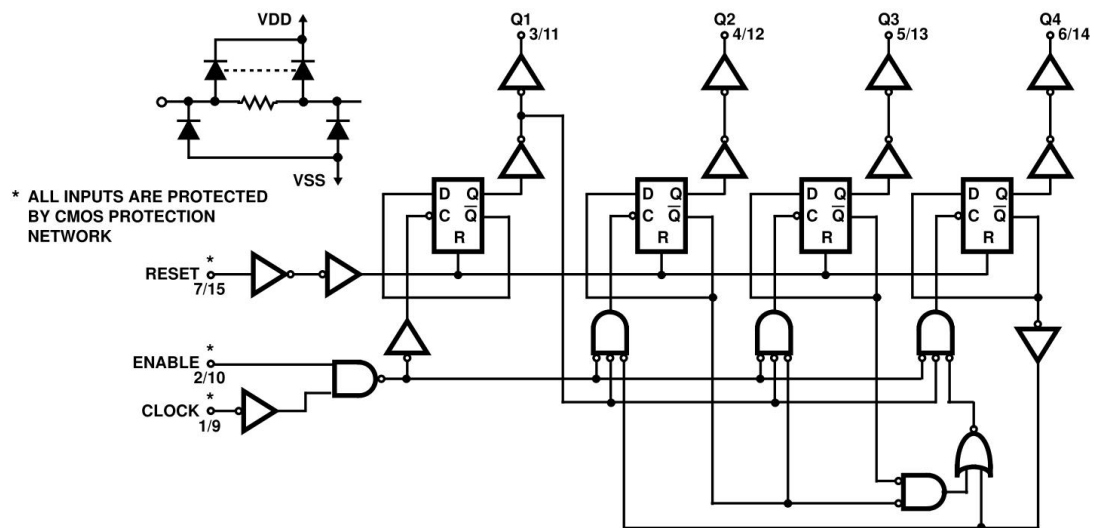
**TABLE 8. BURN-IN AND IRRADIATION TEST CONNECTIONS**

| FUNCTION                   | OPEN       | GROUND         | VDD                    | 9V ± -0.5V | OSCILLATOR |       |
|----------------------------|------------|----------------|------------------------|------------|------------|-------|
|                            |            |                |                        |            | 50kHz      | 25kHz |
| Static Burn-In 1<br>Note 1 | 3-6, 11-14 | 1, 2, 7-10, 15 | 16                     |            |            |       |
| Static Burn-In 2<br>Note 1 | 3-6, 11-14 | 8              | 1, 2, 7, 9, 10, 15, 16 |            |            |       |
| Dynamic Burn-In<br>Note 1  | -          | 7, 8, 15       | 2, 10, 16              | 3-6, 11-14 | 1, 9       |       |
| Irradiation Note 2         | 3-6, 11-14 | 8              | 1, 2, 7, 9, 10, 15, 16 |            |            |       |

NOTES:

- Each pin except VDD and GND will have a series resistor of  $10K \pm 5\%$ ,  $VDD = 18V \pm 0.5V$
- Each pin except VDD and GND will have a series resistor of  $47K \pm 5\%$ ; Group E, Subgroup 2, sample size is 4 dice/wafer, 0 failures,  $VDD = 10V \pm 0.5V$

## 7. LOGIC DIAGRAMS



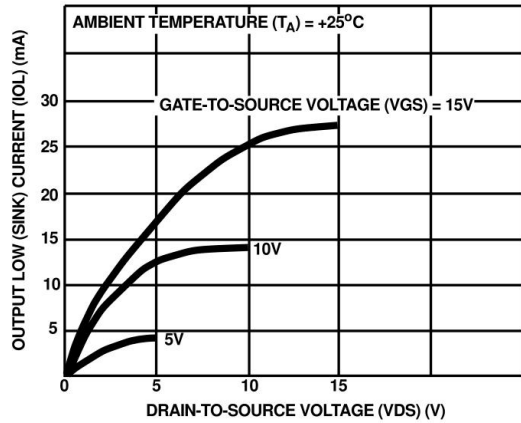
**FIGURE 1. DECADE COUNTER (XD4518) LOGIC DIAGRAM FOR ONE OF TWO IDENTICAL COUNTERS**

**TRUTH TABLE**

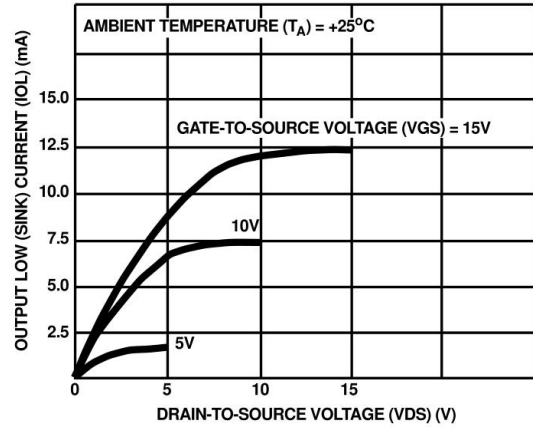
| CLOCK | ENABLE | RESET | ACTION            |
|-------|--------|-------|-------------------|
|       | 1      | 0     | Increment Counter |
| 0     |        | 0     | Increment Counter |
|       | X      | 0     | No Change         |
| X     |        | 0     | No Change         |
|       | 0      | 0     | No Change         |
| 1     |        | 0     | No Change         |
| X     | X      | 1     | Q1 thru Q4 = 0    |

X = Don't Care 1 ≡ High State 0 ≡ Low State

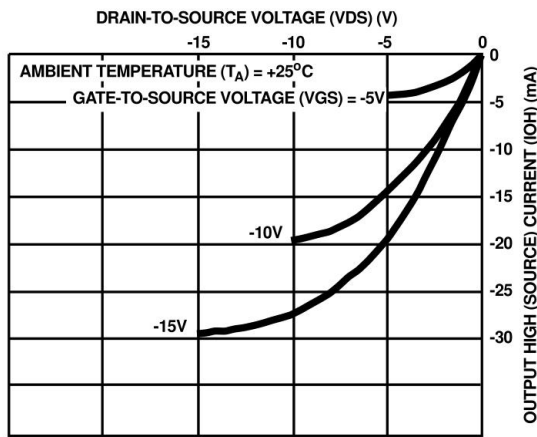
## 8. TYPICAL PERFORMANCE CURVES



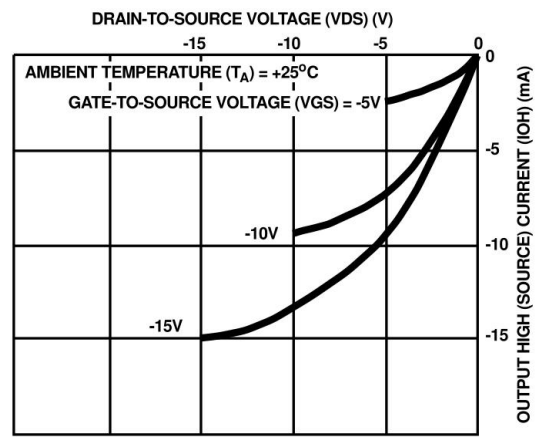
**FIGURE 2. TYPICAL OUTPUT LOW (SINK) CURRENT CHARACTERISTICS**



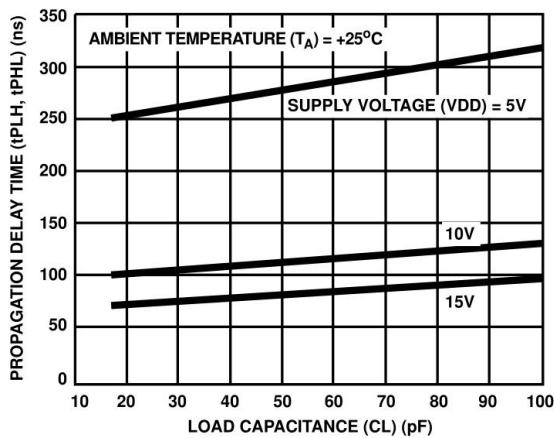
**FIGURE 3. MINIMUM OUTPUT LOW (SINK) CURRENT CHARACTERISTICS**



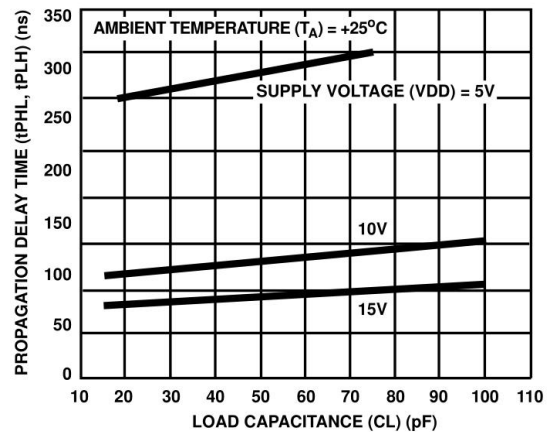
**FIGURE 4. TYPICAL OUTPUT HIGH (SOURCE) CURRENT CHARACTERISTICS**



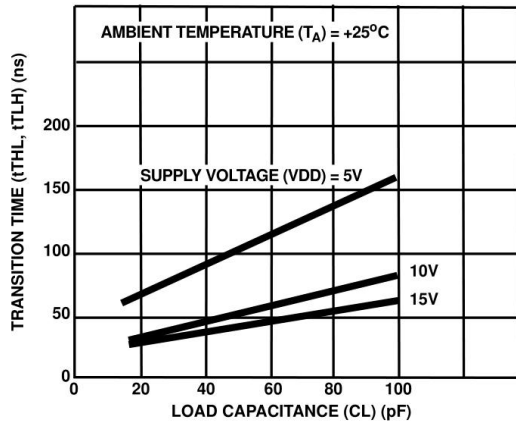
**FIGURE 5. MINIMUM OUTPUT HIGH (SOURCE) CURRENT CHARACTERISTICS**



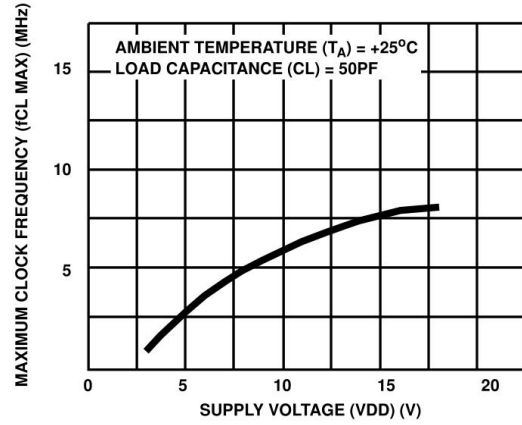
**FIGURE 6. TYPICAL PROPAGATION DELAY vs LOAD CAPACITANCE, CLOCK OR ENABLE TO OUTPUT**



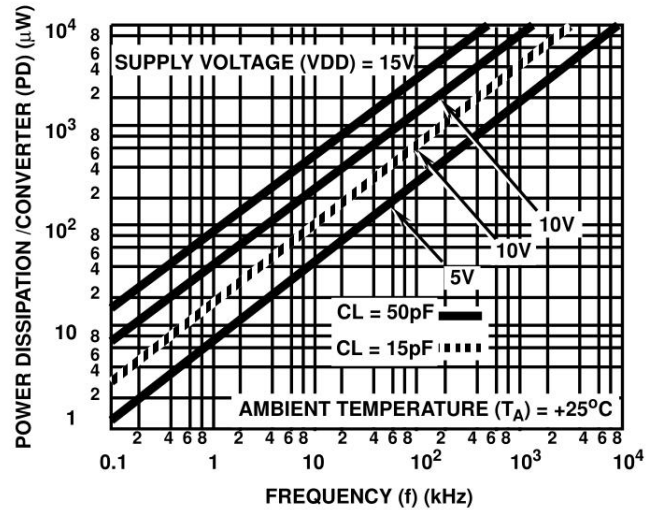
**FIGURE 7. TYPICAL PROPAGATION DELAY TIME vs LOAD CAPACITANCE, RESET TO**



**FIGURE 8. TYPICAL TRANSITION TIME vs LOAD CAPACITANCE**



**FIGURE 9. TYPICAL MAXIMUM CLOCK FREQUENCY vs SUPPLY VOLTAGE**



**FIGURE 10. TYPICAL POWER DISSIPATION CHARACTERISTICS**

## 9. TIMING DIAGRAMS

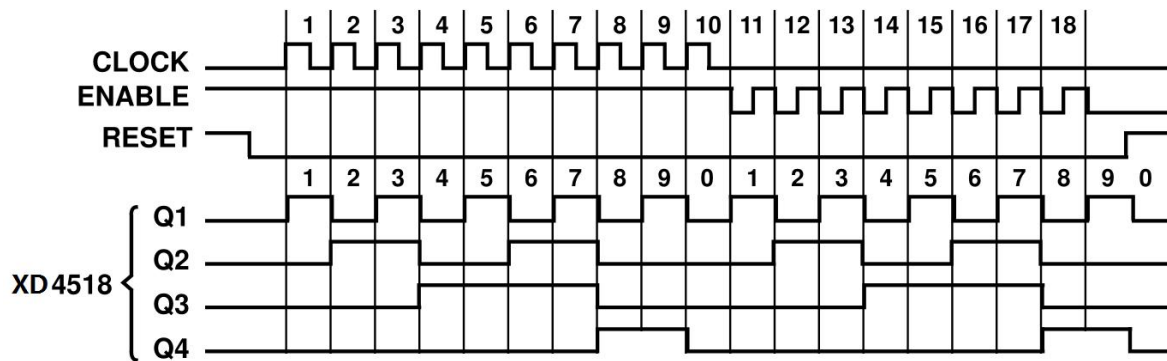


FIGURE 11. TIMING DIAGRAMS FOR XD4518

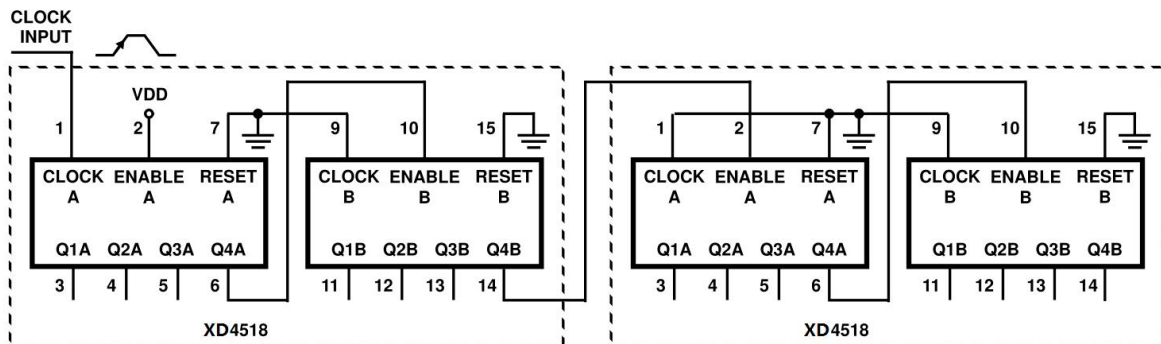


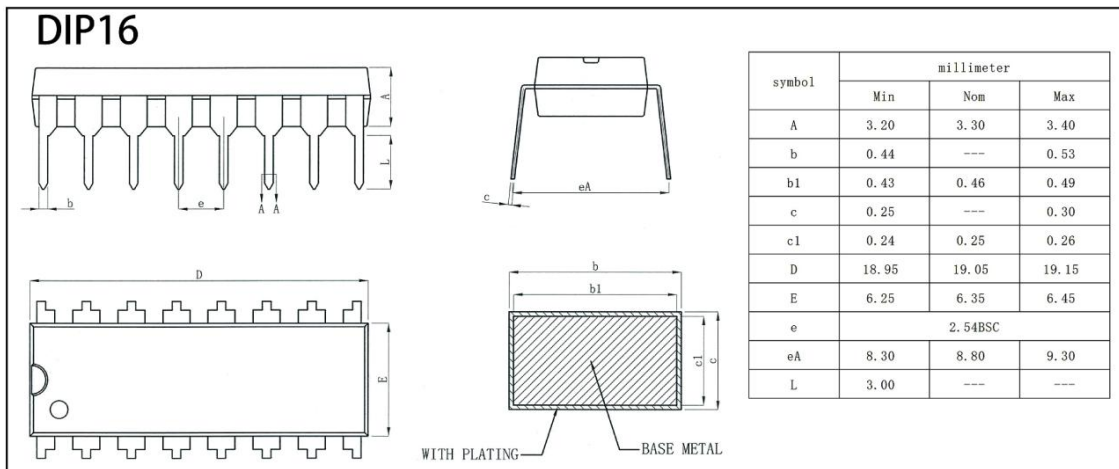
FIGURE 12. RIPPLE CASCADING OF FOUR COUNTERS WITH POSITIVE EDGE TRIGGERING

## 10. ORDERING INFORMATION

Ordering Information

| Part Number | Device Marking | Package Type | Body size (mm) | Temperature (°C) | MSL  | Transport Media | Package Quantity |
|-------------|----------------|--------------|----------------|------------------|------|-----------------|------------------|
| XD4518      | XD4518         | DIP16        | 19.05 * 6.35   | - 40 to 85       | MSL3 | Tube 25         | 1000             |

## 11. DIMENSIONAL DRAWINGS



[ if you need help contact us. Xinluda reserves the right to change the above information without prior notice ]