



**ELECTRONICS, INC.**  
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## NTE2418 (NPN) & NTE2419 (PNP) Silicon Complementary Transistors Digital <sup>w/2</sup> Built-In Bias 47k Resistors (Surface Mount)

**Features:**

- Built-In Bias Resistors
- Small SOT-23 Surface Mount Package

**Applications:**

- Switching Circuits
- Inverters
- Interface Circuits
- Driver

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

|   |                |
|---|----------------|
| Collector-Base Voltage, $V_{CBO}$ .....     | 50V            |
| Collector-Emitter Voltage, $V_{CEO}$ .....  | 50V            |
| Emitter-Base Voltage, $V_{EBO}$ .....       | 10V            |
| Collector Current, $I_C$                    |                |
| Continuous .....                            | 100mA          |
| Peak .....                                  | 200mA          |
| Collector Dissipation, $P_C$ .....          | 200mW          |
| Operating Junction Temperature, $T_J$ ..... | +150°C         |
| Storage Temperature Range, $T_{stg}$ .....  | -55° to +150°C |

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

| Parameter                            | Symbol        | Test Conditions                         | Min     | Typ | Max | Unit          |     |
|--------------------------------------|---------------|---|---------|-----|-----|---------------|-----|
| Collector Cutoff Current             | $I_{CBO}$     | $V_{CB} = 40V, I_E = 0$                 | -       | -   | 0.1 | $\mu\text{A}$ |     |
|                                      | $I_{CEO}$     | $V_{CE} = 40V, I_B = 0$                 | -       | -   | 0.5 | $\mu\text{A}$ |     |
| Emitter Cutoff Current               | $I_{EBO}$     | $V_{EB} = 5V, I_C = 0$                  | 30      | 53  | 80  | $\mu\text{A}$ |     |
| DC Current Gain                      | $h_{FE}$      | $V_{CE} = 5V, I_C = 10\text{mA}$        | 50      | -   | -   |               |     |
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | $I_C = 10\mu\text{A}, I_E = 0$          | 50      | -   | -   | V             |     |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = 100\mu\text{A}, R_{BE} = \infty$ | 50      | -   | -   | V             |     |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 5\text{mA}, I_B = 0.25\text{mA}$ | -       | 0.1 | 0.3 | V             |     |
| Current Gain-Bandwidth Product       | $f_T$         | $V_{CE} = 10V, I_C = 5\text{mA}$        | NTE2418 | -   | 250 | -             | MHz |
|                                      |               |   | NTE2419 | -   | 200 | -             | MHz |

**Electrical Characteristics (Cont'd):** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

| Parameter                     | Symbol       | Test Conditions                            | Min | Typ | Max | Unit       |
|-------------------------------|--------------|--|-----|-----|-----|------------|
| Output Capacitance<br>NTE2418 | $C_{ob}$     | $V_{CB} = 10\text{V}, f = 1\text{MHz}$     | -   | 3.5 | -   | pF         |
| NTE2419                       |              |  | -   | 5.3 | -   | pF         |
| Input OFF Voltage             | $V_{I(off)}$ | $V_{CE} = 5\text{V}, I_C = 100\mu\text{A}$ | 0.8 | 1.1 | 1.5 | V          |
| Input ON Voltage              | $V_{I(on)}$  | $V_{CE} = 0.2\text{V}, I_C = 10\text{mA}$  | 1.0 | 2.5 | 5.0 | V          |
| Input Resistance              | $R_1$        |  | 32  | 47  | 62  | k $\Omega$ |
| Input Resistance Ratio        | $R_1/R_2$    |  | 0.9 | 1.0 | 1.1 |            |

