

## MULTIPLE (QUAD) PNP SILICON SWITCHING TRANSISTOR

Qualified per MIL-PRF-19500/558

### Devices

2N6987  
2N6987U

2N6988

### Qualified Level

JAN  
JANTX  
JANTXV  
JANS

### MAXIMUM RATINGS <sup>(1)</sup>

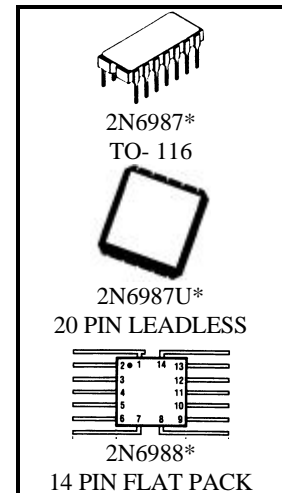
| Ratings   | Symbol                             | Value                  | Units          |
|---|------------------------------------|------------------------|----------------|
| Collector-Emitter Voltage <sup>(4)</sup>                      | V <sub>CEO</sub>                   | 60                     | Vdc            |
| Collector-Base Voltage <sup>(4)</sup>                         | V <sub>CBO</sub>                   | 60                     | Vdc            |
| Emitter-Base Voltage <sup>(4)</sup>                           | V <sub>EBO</sub>                   | 5.0                    | Vdc            |
| Collector Current   | I <sub>C</sub>                     | 600                    | mAdc           |
| Total Power Dissipation @ T <sub>A</sub> = +25 <sup>0</sup> C | P <sub>T</sub>                     | 2N6987 <sup>(2)</sup>  | 1.5            |
|   |                                    | 2N6987U <sup>(2)</sup> | 1.0            |
|   |                                    | 2N6988 <sup>(3)</sup>  | 0.4            |
|   |                                    |                        |                |
| Operating & Storage Junction Temperature Range                | T <sub>op</sub> , T <sub>stg</sub> | -65 to +200            | <sup>0</sup> C |

1) Maximum voltage between transistors shall be ≥ 500 Vdc

2) Derate linearly 8.57 mW/<sup>0</sup>C above T<sub>A</sub> = +25<sup>0</sup>C

3) Derate linearly 2.286 mW/<sup>0</sup>C above T<sub>A</sub> = +25<sup>0</sup>C.

4) Ratings apply to each transistor in the array.



\*See appendix A for package outline

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25<sup>0</sup>C unless otherwise noted)

| Characteristics | Symbol | Min. | Max. | Unit |
|-----------------|--------|------|------|------|
|-----------------|--------|------|------|------|

#### OFF CHARACTERISTICS

|   |                      |    |          |              |
|---|----------------------|----|----------|--------------|
| Collector-Emitter Breakdown Voltage<br>I <sub>C</sub> = 10 mAdc                       | V <sub>(BR)CEO</sub> | 60 |          | Vdc          |
| Collector-Base Cutoff Current<br>V <sub>CB</sub> = 60 Vdc<br>V <sub>CB</sub> = 50 Vdc | I <sub>CBO</sub>     |    | 10<br>10 | μAdc<br>ηAdc |
| Emitter-Base Cutoff Current<br>V <sub>BE</sub> = 5.0 Vdc<br>V <sub>EB</sub> = 3.5 Vdc | I <sub>EBO</sub>     |    | 10<br>50 | μAdc<br>ηAdc |

**ELECTRICAL CHARACTERISTICS (con't)**

| Characteristics | Symbol | Min. | Max. | Unit |
|-----------------|--------|------|------|------|
|-----------------|--------|------|------|------|

**DC CHARACTERISTICS**

|   |                      |                               |            |                 |
|---|----------------------|-------------------------------|------------|-----------------|
| Forward-Current Transfer Ratio<br>I <sub>C</sub> = 0.1 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub><br>I <sub>C</sub> = 1.0 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub><br>I <sub>C</sub> = 10 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub><br>I <sub>C</sub> = 150 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub><br>I <sub>C</sub> = 500 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> | h <sub>FE</sub>      | 75<br>100<br>100<br>100<br>50 | 450<br>300 |                 |
| Collector-Emitter Saturation Voltage<br>I <sub>C</sub> = 150 mA <sub>dc</sub> , I <sub>B</sub> = 15 mA <sub>dc</sub><br>I <sub>C</sub> = 500 mA <sub>dc</sub> , I <sub>B</sub> = 50 mA <sub>dc</sub>  | V <sub>CE(sat)</sub> |                               | 0.4<br>1.6 | V <sub>dc</sub> |
| Base-Emitter Voltage<br>I <sub>C</sub> = 150 mA <sub>dc</sub> , I <sub>B</sub> = 15 mA <sub>dc</sub><br>I <sub>C</sub> = 500 mA <sub>dc</sub> , I <sub>B</sub> = 50 mA <sub>dc</sub>  | V <sub>BE(sat)</sub> |                               | 1.3<br>2.6 | V <sub>dc</sub> |

**DYNAMIC CHARACTERISTICS**

|   |                  |     |     |    |
|---|------------------|-----|-----|----|
| Magnitude of Small-Signal Short-Circuit Forward-Current Transfer Ratio<br>I <sub>C</sub> = 50 mA <sub>dc</sub> , V <sub>CE</sub> = 20 V <sub>dc</sub> , f = 100 MHz | h <sub>fe</sub>  | 2.0 | 8.0 |    |
| Small-Signal Short-Circuit Forward Current Transfer Ratio<br>I <sub>C</sub> = 1.0 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> , f = 1.0 kHz             | h <sub>fe</sub>  | 100 |     |    |
| Output Capacitance<br>V <sub>CB</sub> = 10 V <sub>dc</sub> , I <sub>E</sub> = 0, 100 kHz ≤ f ≤ 1.0 MHz  | C <sub>obo</sub> |     | 8.0 | pF |
| Input Capacitance<br>V <sub>EB</sub> = 2.0 V <sub>dc</sub> , I <sub>C</sub> = 0, 100 kHz ≤ f ≤ 1.0 MHz  | C <sub>ibo</sub> |     | 30  | pF |