

## 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
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#### OFF CHARACTERISTICS

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

**ELECTRICAL CHARACTERISTICS (con't)**

Characteristics	Symbol	Min.	Max.	Unit
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**DC CHARACTERISTICS**

Forward-Current Transfer Ratio $I_C = 0.1 \text{ mA dc}, V_{CE} = 10 \text{ V dc}$ $I_C = 1.0 \text{ mA dc}, V_{CE} = 10 \text{ V dc}$ $I_C = 10 \text{ mA dc}, V_{CE} = 10 \text{ V dc}$ $I_C = 150 \text{ mA dc}, V_{CE} = 10 \text{ V dc}$ $I_C = 500 \text{ mA dc}, V_{CE} = 10 \text{ V dc}$	$h_{FE}$	75 100 100 100 50	450 300	
Collector-Emitter Saturation Voltage $I_C = 150 \text{ mA dc}, I_B = 15 \text{ mA dc}$ $I_C = 500 \text{ mA dc}, I_B = 50 \text{ mA dc}$	$V_{CE(sat)}$		0.4 1.6	Vdc
Base-Emitter Voltage $I_C = 150 \text{ mA dc}, I_B = 15 \text{ mA dc}$ $I_C = 500 \text{ mA dc}, I_B = 50 \text{ mA dc}$	$V_{BE(sat)}$		1.3 2.6	Vdc

**DYNAMIC CHARACTERISTICS**

Magnitude of Small-Signal Short-Circuit Forward-Current Transfer Ratio $I_C = 50 \text{ mA dc}, V_{CE} = 20 \text{ V dc}, f = 100 \text{ MHz}$	$ h_{fe} $	2.0	8.0	
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 1.0 \text{ mA dc}, V_{CE} = 10 \text{ V dc}, f = 1.0 \text{ kHz}$	$h_{fe}$	100		
Output Capacitance $V_{CB} = 10 \text{ V dc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{obo}$		8.0	pF
Input Capacitance $V_{EB} = 2.0 \text{ V dc}, I_C = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{ibo}$		30	pF

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