

## NPN SILICON LOW POWER TRANSISTOR

Qualified per MIL-PRF-19500/376

### Devices

**2N2484**

### Qualified Level

**JANTX  
JANTXV**

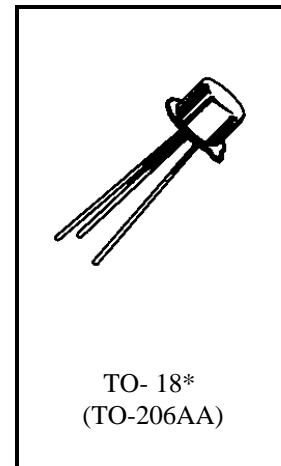
### MAXIMUM RATINGS

Ratings	Symbol	2N2484	Unit
Collector-Emitter Voltage	$V_{CEO}$	60	Vdc
Collector-Base Voltage	$V_{CBO}$	60	Vdc
Emitter-Base Voltage	$V_{EBO}$	6.0	Vdc
Collector Current	$I_C$	50	mAdc
Total Power Dissipation	$P_T$	@ $T_A = +25^{\circ}\text{C}^{(1)}$	360
		@ $T_C = +25^{\circ}\text{C}^{(2)}$	1.2
Operating & Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200	$^{\circ}\text{C}$

### THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	146	$^{\circ}\text{C}/\text{W}$

- 1) Derate linearly 2.06 mW/ $^{\circ}\text{C}$  above  $T_A = +25^{\circ}\text{C}$   
 2) Derate linearly 6.85 mW/ $^{\circ}\text{C}$  above  $T_C = +25^{\circ}\text{C}$



\*See appendix A for package outline

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^{\circ}\text{C}$ unless otherwise noted)

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

### OFF CHARACTERISTICS

Collector-Emitter Breakdown Current $I_C = 10 \text{ mAdc}$	$V_{(BR)CEO}$	60		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 45 \text{ Vdc}$	$I_{CES}$		5.0	$\eta\text{Adc}$
Collector-Base Cutoff Current $V_{CB} = 45 \text{ Vdc}$ $V_{CB} = 60 \text{ Vdc}$	$I_{CBO}$		5.0	$\eta\text{Adc}$
			10	$\mu\text{Adc}$
Collector-Emitter Cutoff Current $V_{CE} = 5.0 \text{ Vdc}$	$I_{CEO}$		2.0	$\eta\text{Adc}$
Emitter-Base Cutoff Current $V_{EB} = 5.0 \text{ Vdc}$ $V_{EB} = 6.0 \text{ Vdc}$	$I_{EBO}$		2.0	$\eta\text{Adc}$
			10	$\mu\text{Adc}$

**ELECTRICAL CHARACTERISTICS (con't)**

Characteristics	Symbol	Min.	Max.	Unit
<b>ON CHARACTERISTICS (3)</b>				
Forward-Current Transfer Ratio I <sub>C</sub> = 1.0 $\mu$ A <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> I <sub>C</sub> = 10 $\mu$ A <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> I <sub>C</sub> = 100 $\mu$ A <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> I <sub>C</sub> = 500 $\mu$ A <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> I <sub>C</sub> = 1.0 mA <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> I <sub>C</sub> = 10 mA <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub>	h <sub>FE</sub>	45 200 225 250 250 225	500 675 800 800	
Collector-Emitter Saturation Voltage I <sub>C</sub> = 1.0 mA <sub>dc</sub> , I <sub>B</sub> = 100 $\mu$ A <sub>dc</sub>	V <sub>CE(sat)</sub>		0.3	V <sub>dc</sub>
Base-Emitter Voltage V <sub>CE</sub> = 5.0 V <sub>dc</sub> , I <sub>C</sub> = 100 $\mu$ A <sub>dc</sub>	V <sub>BE</sub>	0.5	0.7	V <sub>dc</sub>

**DYNAMIC CHARACTERISTICS**

Forward Current Transfer Ratio I <sub>C</sub> = 50 $\mu$ A <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> , f = 5.0 MHz I <sub>C</sub> = 500 $\mu$ A <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> , f = 30 MHz	h <sub>fe</sub>	3.0 2.0	7.0	
Open Circuit Output Admittance I <sub>C</sub> = 1.0 mA <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> , f = 1.0 kHz	h <sub>oe</sub>		40	$\mu$ mhos
Open Circuit Reverse-Voltage Transfer Ratio I <sub>C</sub> = 1.0 mA <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> , f = 1.0 kHz	h <sub>re</sub>		8.0x10 <sup>-4</sup>	
Input Impedance I <sub>C</sub> = 1.0 mA <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> , f = 1.0 kHz	h <sub>ie</sub>	3.5	24	k $\Omega$
Small-Signal Short-Circuit Forward Current Transfer Ratio I <sub>C</sub> = 1.0 mA <sub>dc</sub> , V <sub>CE</sub> = 5.0 V <sub>dc</sub> , f = 1.0 kHz	h <sub>fe</sub>	250	900	
Output Capacitance V <sub>CB</sub> = 5.0 V <sub>dc</sub> , I <sub>E</sub> = 0, 100 kHz $\leq$ f $\leq$ 1.0 MHz	C <sub>obo</sub>		5.0	pF
Input Capacitance V <sub>EB</sub> = 0.5 V <sub>dc</sub> , I <sub>C</sub> = 0, 100 kHz $\leq$ f $\leq$ 1.0 MHz	C <sub>ibo</sub>		6.0	pF

(3) Pulse Test: Pulse Width = 300 $\mu$ s, Duty Cycle  $\leq$  2.0%.