

## PNP HIGH VOLTAGE SILICON TRANSISTOR

Qualified per MIL-PRF-19500/397

### Devices

2N3743                      2N4930                      2N4931

### Qualified Level

JAN, JANTX  
JANTXV

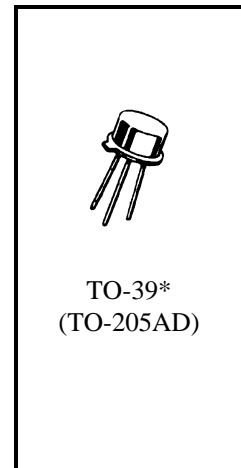
### MAXIMUM RATINGS

Ratings	Sym	2N3743	2N4930	2N4931	Unit
Collector-Emitter Voltage	$V_{CEO}$	300	200	250	Vdc
Collector-Base Voltage	$V_{CBO}$	300	200	250	Vdc
Emitter-Base Voltage	$V_{EBO}$	5.0			Vdc
Collector Current	$I_C$	200			mAdc
Total Power Dissipation	$P_T$	@ $T_A = +25^{\circ}C$ <sup>1</sup>	1.0		W
		@ $T_C = +25^{\circ}C$ <sup>2</sup>	5.0		W
Operating & Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200			$^{\circ}C$

### THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	35	$^{\circ}C/W$

- 1) Derate linearly 5.71 mW/ $^{\circ}C$  for  $T_A > +25^{\circ}C$
- 2) Derate linearly 28.6 mW/ $^{\circ}C$  for  $T_C > +25^{\circ}C$



\*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
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### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 1.0$ mAdc	2N3743 2N4930 2N4931	$V_{(BR)CEO}$	300 200 250	Vdc
Collector-Emitter Breakdown Voltage $I_C = 100$ $\mu$ Adc	2N3743 2N4930 2N4931	$V_{(BR)CBO}$	300 200 250	Vdc
Emitter-Base Breakdown Voltage $I_E = 100$ $\mu$ Adc		$V_{(BR)EBO}$	5.0	Vdc
Collector-Base Cutoff Current $V_{CB} = 250$ Vdc $V_{CB} = 150$ Vdc $V_{CB} = 200$ Vdc	2N3743 2N4930 2N4931	$I_{CBO}$	250 250 250	$\eta$ Adc

**ELECTRICAL CHARACTERISTICS (con't)**

Characteristics	Symbol	Min.	Max.	Unit
Emitter-Base Cutoff Current $V_{EB} = 4.0 \text{ Vdc}$	$I_{EBO}$		150	$\eta\text{Adc}$

**ON CHARACTERISTICS <sup>(3)</sup>**

Forward-Current Transfer Ratio $I_C = 0.1 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 1.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 30 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 50 \text{ mAdc}, V_{CE} = 20 \text{ Vdc}$	$h_{FE}$	30 40 40 50 30	200	
Collector-Emitter Saturation Voltage $I_C = 30 \text{ mAdc}, I_B = 3.0 \text{ mAdc}$ $I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ mAdc}$	$V_{CE(sat)}$		1.2 1.0	Vdc
Base-Emitter Saturation Voltage $I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ mAdc}$ $I_C = 30 \text{ mAdc}, I_B = 3.0 \text{ mAdc}$	$V_{BE(sat)}$		1.0 1.2	Vdc

**DYNAMIC CHARACTERISTICS**

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 10 \text{ mAdc}, V_{CE} = 20 \text{ Vdc}, f = 20 \text{ MHz}$	$ h_{fe} $	2.0	8.0	
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 1.0 \text{ kHz}$	$h_{fe}$	30	300	
Output Capacitance $V_{CB} = 20 \text{ Vdc}, I_E = 0, f \geq 0.1 \text{ MHz}$	$C_{obo}$		15	pF
Input Capacitance $V_{EB} = 1.0 \text{ Vdc}, I_C = 0, f \geq 0.1 \text{ MHz}$	$C_{ibo}$		400	pF

**SAFE OPERATING AREA**

<b>DC Tests</b>	
$T_C = +25^{\circ}\text{C}, 1 \text{ Cycle}, t \geq 1.0 \text{ s}$	
<b>Test 1</b>	
$V_{CE} = 20 \text{ Vdc}, I_C = 50 \text{ mAdc}$	All Types
<b>Test 2</b>	
$V_{CE} = 100 \text{ Vdc}, I_C = 10 \text{ mAdc}$	All Types
<b>Test 3</b>	
$V_{CE} = 300 \text{ Vdc}, I_C = 3.3 \text{ mAdc}$	2N3743
$V_{CE} = 200 \text{ Vdc}, I_C = 5.0 \text{ mAdc}$	2N4930
$V_{CE} = 250 \text{ Vdc}, I_C = 4.0 \text{ mAdc}$	2N4931

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

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