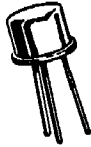


2N4928 thru 2N4931 (SILICON)



High-voltage PNP silicon annular transistors for use in general-purpose high-voltage applications.

(TO-39)

Collector connected to case

MAXIMUM RATINGS

Rating	Symbol	2N4928	2N4929	2N4930	2N4931	Unit
Collector-Emitter Voltage	V_{CEO}	100	150	200	250	Vdc
Collector-Base Voltage	V_{CB}	100	150	200	250	Vdc
Emitter-Base Voltage	V_{EB}	4.0	4.0	4.0	4.0	Vdc
Collector Current – Continuous	I_C	100	500	500	500	mA dc
Total Device Dissipation @ $T_A = 25^\circ C$ Derate above $25^\circ C$	P_D	0.6	1.0	1.0	1.0	Watt
		3.4	5.71	5.71	5.71	mW/ $^\circ C$
Total Device Dissipation @ $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	3.0	5.0	5.0	5.0	Watt
		17.2	28.6	28.6	28.6	mW/ $^\circ C$
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200				$^\circ C$



NJ Semi-Conductors reserves the right to change test conditions, parameters limits and package dimensions without notice information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

2N4928 thru 2N4931 (continued)

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ⁽¹⁾ ($I_C = 10 \text{ mAdc}$, $I_B = 0$)	2N4928 2N4929 2N4930 2N4931	BV_{CEO}	100 150 200 250	- - - -	Vdc
Collector-Base Breakdown Voltage ($I_E = 0$, $I_C = 100 \mu\text{A}$)	2N4928 2N4929 2N4930 2N4931	BV_{CBO}	100 150 200 250	- - - -	Vdc
Emitter-Base Breakdown Voltage ($I_E = 100 \mu\text{A}$, $I_C = 0$)		BV_{EBO}	4.0	-	Vdc
Collector Cutoff Current ($V_{CB} = 50 \text{ Vdc}$, $I_E = 0$)	2N4928	I_{CBO}	-	0.5	μA
($V_{CB} = 75 \text{ Vdc}$, $I_E = 0$)	2N4929		-	0.5	
($V_{CB} = 150 \text{ Vdc}$, $I_E = 0$)	2N4930, 2N4931		-	1.0	
Emitter Cutoff Current ($V_{BE} = 3.0 \text{ Vdc}$, $I_C = 0$)	2N4928, 2N4929	I_{EBO}	-	0.5	μA
($V_{BE} = 3.0 \text{ Vdc}$, $I_C = 0$)	2N4930, 2N4931		-	1.0	

ON CHARACTERISTICS

DC Current Gain ($I_C = 1.0 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	All Types	h_{FE}	20	-	
($I_C = 10 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$) ⁽¹⁾	2N4928, 2N4929		25	200	
($I_C = 10 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$) ⁽¹⁾	2N4930, 2N4931		20	200	
($I_C = 50 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$) ⁽¹⁾	2N4928, 2N4929		20	-	
($I_C = 30 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$) ⁽¹⁾	2N4930, 2N4931		20	-	
Collector-Emitter Saturation Voltage ⁽¹⁾ ($I_C = 10 \text{ mAdc}$, $I_B = 1.0 \text{ mAdc}$)	2N4928, 2N4929 2N4930, 2N4931	$V_{CE(sat)}$	- -	0.5 5.0	Vdc
Base-Emitter On Voltage ($I_C = 10 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)		$V_{BE(on)}$	-	1.0	Vdc

DYNAMIC CHARACTERISTICS

Current-Gain-Bandwidth Product ($I_C = 20 \text{ mAdc}$, $V_{CE} = 20 \text{ Vdc}$, $f = 100 \text{ MHz}$)	2N4928, 2N4929	f_T	100	1,000	MHz
($I_C = 20 \text{ mAdc}$, $V_{CE} = 20 \text{ Vdc}$, $f = 20 \text{ MHz}$)	2N4930, 2N4931		20	200	
Collector-Base Capacitance ($V_{CB} = 20 \text{ Vdc}$, $I_E = 0$, $f = 140 \text{ kHz}$)	2N4928	C_{cb}	-	6.0	pF
($V_{CB} = 20 \text{ Vdc}$, $I_E = 0$, $f = 140 \text{ kHz}$)	2N4929		-	10	
($V_{CB} = 20 \text{ Vdc}$, $I_E = 0$, $f = 140 \text{ kHz}$)	2N4930, 2N4931		-	20	
Emitter-Base Capacitance ($V_{BE} = 2.0 \text{ Vdc}$, $I_C = 0$, $f = 140 \text{ kHz}$)	2N4928	C_{eb}	-	40	pF
($V_{BE} = 1.0 \text{ Vdc}$, $I_C = 0$, $f = 140 \text{ kHz}$)	2N4929		-	80	
($V_{BE} = 0.5 \text{ Vdc}$, $I_C = 0$, $f = 140 \text{ kHz}$)	2N4930, 2N4931		-	400	