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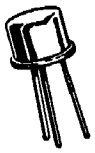
2N4928 thru 2N4931 (SILICON)



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	mAdc
Total Device Dissipation @ T_A = 25°C	P_D	0.6	1.0	1.0	1.0	Watt
Derate above 25°C		3.4	5.71	5.71	5.71	mW/°C
Total Device Dissipation @ T_C = 25°C	P_D	3.0	5.0	5.0	5.0	Watt
Derate above 25°C		17.2	28.6	28.6	28.6	mW/°C
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200				°C

2N4928 thru 2N4931 (continued)

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage [1] (I_C = 10 mAdc, I_B = 0)	2N4928	BV_{CEO}	100	-	Vdc
	2N4929		150	-	
	2N4930		200	-	
	2N4931		250	-	
Collector-Base Breakdown Voltage (I_E = 0, I_C = 100 μAdc)	2N4928	BV_{CBO}	100	-	Vdc
	2N4929		150	-	
	2N4930		200	-	
	2N4931		250	-	
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)		BV_{EBO}	4.0	-	Vdc
Collector Cutoff Current		I_{CBO}			μAdc
(V_{CB} = 50 Vdc, I_E = 0)	2N4928		-	0.5	
(V_{CB} = 75 Vdc, I_E = 0)	2N4929		-	0.5	
(V_{CB} = 150 Vdc, I_E = 0)	2N4930, 2N4931		-	1.0	
Emitter Cutoff Current		I_{EBO}			μAdc
(V_{BE} = 3.0 Vdc, I_C = 0)	2N4928, 2N4929		-	0.5	
(V_{BE} = 3.0 Vdc, I_C = 0)	2N4930, 2N4931		-	1.0	
ON CHARACTERISTICS					
DC Current Gain		h_{FE}			
(I_C = 1.0 mAdc, V_{CE} = 10 Vdc)	All Types		20	-	
(I_C = 10 mAdc, V_{CE} = 10 Vdc) [1]	2N4928, 2N4929		25	200	
(I_C = 10 mAdc, V_{CE} = 10 Vdc) [1]	2N4930, 2N4931		20	200	
(I_C = 50 mAdc, V_{CE} = 10 Vdc) [1]	2N4928, 2N4929		20	-	
(I_C = 30 mAdc, V_{CE} = 10 Vdc) [1]	2N4930, 2N4931		20	-	
Collector-Emitter Saturation Voltage [1] (I_C = 10 mAdc, I_B = 1.0 mAdc)	2N4928, 2N4929	$V_{CE(sat)}$	-	0.5	Vdc
	2N4930, 2N4931		-	5.0	
Base-Emitter On Voltage (I_C = 10 mAdc, V_{CE} = 10 Vdc)		$V_{BE(on)}$	-	1.0	Vdc
DYNAMIC CHARACTERISTICS					
Current-Gain–Gandwidth Product		f_T			MHz
(I_C = 20 mAdc, V_{CE} = 20 Vdc, f = 100 MHz)	2N4928, 2N4929		100	1,000	
(I_C = 20 mAdc, V_{CE} = 20 Vdc, f = 20 MHz)	2N4930, 2N4931		20	200	
Collector-Base Capacitance		C_{cb}			pF
(V_{CB} = 20 Vdc, I_E = 0, f = 140 kHz)	2N4928		-	6.0	
(V_{CB} = 20 Vdc, I_E = 0, f = 140 kHz)	2N4929		-	10	
(V_{CB} = 20 Vdc, I_E = 0, f = 140 kHz)	2N4930, 2N4931		-	20	
Emitter-Base Capacitance		C_{eb}			pF
(V_{BE} = 2.0 Vdc, I_C = 0, f = 140 kHz)	2N4928		-	40	
(V_{BE} = 1.0 Vdc, I_C = 0, f = 140 kHz)	2N4929		-	80	
(V_{BE} = 0.5 Vdc, I_C = 0, f = 140 kHz)	2N4930, 2N4931		-	400	