2N4928 thru 2N4931

2N4930 and 2N4931 JAN, JTX & JTXV AVAILABLE
CASE 79, STYLE 1
TO-39 (TO-205AD)

GENERAL PURPOSE TRANSISTOR

PNP SILICON

4

Refer to 2N3494 for graphs for 2N4928.*

MAXIMUM RATINGS

Rating	Symbol	2N4928	2N4929	2N4930	2N4931	Unit
Collector-Emitter Voltage	V_{CEO}	100	150	200	250	Vdc
Collector-Base Voltage	V_{CBO}	100	150	200	250	Vdc
Emitter-Base Voltage	V_{EBO}	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 Derate above 25°C	P_D	0.6 3.4	1.0 5.71	1.0 5.71	1.0 5.71	Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	3.0 17.2	5.0 28.6	5.0 28.6	5.0 28.6	Watt mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200				°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage(1) (I_C = 10 mAdc, I_B = 0)	 2N4928 2N4929 2N4930 2N4931	$V_{(BR)CEO}$	 100 150 200 250	 — — — —	Vdc
Collector-Base Breakdown Voltage (I_E = 0, I_C = 100 μAdc)	 2N4928 2N4929 2N4930 2N4931	$V_{(BR)CBO}$	 100 150 200 250	 — — — —	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)		$V_{(BR)EBO}$	4.0	—	Vdc
Collector Cutoff Current (V_{CB} = 50 Vdc, I_E = 0) (V_{CB} = 75 Vdc, I_E = 0) (V_{CB} = 150 Vdc, I_E = 0)	 2N4928 2N4929 2N4930, 2N4931	I_{CBO}	 — — —	 0.5 0.5 1.0	μAdc
Emitter Cutoff Current (V_{BE} = 3.0 Vdc, I_C = 0) (V_{BE} = 3.0 Vdc, I_C = 0)	 2N4928, 2N4929 2N4930, 2N4931	I_{EBO}	 — —	 0.5 1.0	μAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 1.0 mAdc, V_{CE} = 10 Vdc) (I_C = 10 mAdc, V_{CE} = 10 Vdc)(1) (I_C = 50 mAdc, V_{CE} = 10 Vdc)(1) (I_C = 30 mAdc, V_{CE} = 10 Vdc)(1)	 All Types 2N4928, 2N4929 2N4930, 2N4931 2N4928, 2N4929 2N4930, 2N4931	h_{FE}	 20 25 20 20 20	 — 200 200 — —	—
Collector-Emitter Saturation Voltage(1) (I_C = 10 mAdc, I_B = 1.0 mAdc)	 2N4928, 2N4929 2N4930, 2N4931	$V_{CE(sat)}$	 — —	 0.5 5.0	Vdc
Base-Emitter On Voltage (I_C = 10 mAdc, V_{CE} = 10 Vdc)		$V_{BE(on)}$	—	1.0	Vdc

ELECTRICAL CHARACTERISTICS (continued) (T_A = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Max	Unit
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth 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	

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.
Refer to 2N3634 for graphs for 2N4929.
Refer to 2N3743 for graphs for 2N4930 and 2N4931.

4