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2N4910 thru 2N4912 (SILICON)

Medium-power NPN silicon transistors designed for driver circuits, switching, and amplifier applications.

MAXIMUM RATINGS

Rating	Symbol	2N4910	2N4911	2N4912	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	80	Vdc
Collector-Base Voltage	V_{CB}	40	60	80	Vdc
Emitter-Base Voltage	V_{EB}	← 5.0 →			Vdc
Collector Current — Continuous*	I_C*	← 1.0 → ← 4.0 →			Adc
Base Current — Continuous	I_B	← 1.0 →			Adc
Total Device Dissipation T_C = 25°C	P_D	← 25 →			Watts
Derate above 25°C		← 0.143 →			mW/°C
Operating & Storage Junction Temperature Range	T_J, T_{stg}	← -65 to +200 →			°C

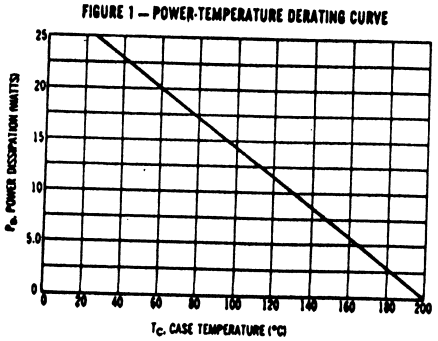
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	7.0	°C/W

* The 1.0 Amp maximum I_C value is based upon JEDEC current gain requirements.

The 4.0 Amp maximum value is based upon actual current-handling capability of the device (see Figure 5).

FIGURE 1 — POWER-TEMPERATURE DERATING CURVE

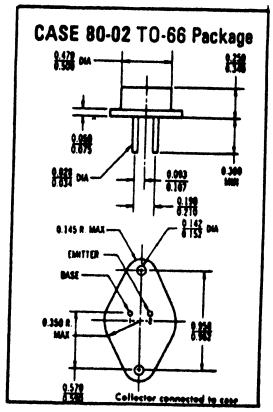


Safe Area Curves are indicated by Figure 5. All limits are applicable and must be observed.

CASE DIMENSIONS

Dimensions are in inches.
To convert inches to millimeters multiply by 25.4.

CASE 80-02 TO-66 Package



ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Characteristic	Fig. No.	Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage (1) (I_C = 0.1 Adc, I_B = 0) 2N4910 / 2N4911 / 2N4912	-	$BV_{CEO(sus)}$	40 / 60 / 80	- / - / -	Vdc
Collector Cutoff Current (V_{CE} = 30 Vdc, I_B = 0) 2N4910	-	I_{CEO}	-	0.5	mAdc
(V_{CE} = 30 Vdc, I_B = 0) 2N4911			-	0.5	
(V_{CE} = 40 Vdc, I_B = 0) 2N4912			-	0.5	
Collector Cutoff Current (V_{CE} = Rated V_{CEO}, $V_{EB(off)}$ = 1.5 Vdc)	12	I_{CEX}	-	0.1	mAdc
(V_{CE} = Rated V_{CEO}, $V_{EB(off)}$ = 1.5 Vdc, T_C = 150°C)			-	1.0	
Collector Cutoff Current (V_{CB} = Rated V_{CB}, I_E = 0)	-	I_{CBO}	-	0.1	mAdc
Emitter Cutoff Current (V_{EB} = 5.0 Vdc, I_C = 0)	-	I_{EBO}	-	1.0	mAdc
ON CHARACTERISTICS (1)					
DC Current Gain (I_C = 50 mAdc, V_{CE} = 1.0 Vdc)	8	h_{FE}	40	-	-
(I_C = 500 mAdc, V_{CE} = 1.0 Vdc)			30	100	
(I_C = 1.0 Adc, V_{CE} = 1.0 Vdc)			10	-	
Collector-Emitter Saturation Voltage (I_C = 1.0 Adc, I_B = 0.1 Adc)	9 / 11 / 13	$V_{CE(sat)}$	-	0.6	Vdc
Base-Emitter Saturation Voltage (I_C = 1.0 Adc, I_B = 0.1 Adc)	11 / 13	$V_{BE(sat)}$	-	1.3	Vdc
Base-Emitter On Voltage (I_C = 1.0 Adc, V_{CE} = 1.0 Vdc)	11 / 13	$V_{BE(on)}$	-	1.3	Vdc
SMALL SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I_C = 250 mAdc, V_{CE} = 10 Vdc, f = 1.0 MHz)	-	f_T	3.0	-	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)	-	C_{ob}	-	100	pF
Small-Signal Current Gain (I_C = 250 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	-	h_{fe}	25	-	-

(1) Pulse Test: PW = 300 μs, Duty Cycle = 2.0%

FIGURE 2 — SWITCHING TIME EQUIVALENT CIRCUIT

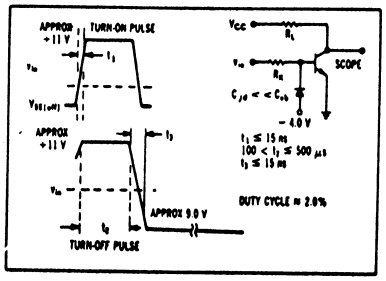


FIGURE 3 — TURN-ON TIME