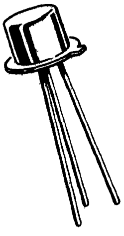
2N910 (SILICON)
2N911



CASE 22
(TO-18)
Collector connected to case

NPN silicon annular transistors designed for small-signal amplifier and general purpose switching applications.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	60	Vdc
Collector-Emitter Voltage	V_{CER}	80	Vdc
Collector-Base Voltage	V_{CB}	100	Vdc
Emitter-Base Voltage	V_{EB}	7.0	Vdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	0.5 2.86	Watt mW/°C
Total Device Dissipation @ T_C = 25°C T_C = 100°C Derate above 25°C	P_D	1.8 0.975 10.3	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 Sustaining Voltage* (I_C = 30 mAdc, I_B = 0)		$BV_{CEO(sus)}$*	60	-	Vdc
Collector-Emitter Sustaining Voltage* (I_C = 100 mAdc, $R_{BE} \leqq$ 10 ohms)		$BV_{CER(sus)}$*	80	-	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)		BV_{CBO}	100	-	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)		BV_{EBO}	7.0	-	Vdc
Collector Cutoff Current (V_{CB} = 75 Vdc, I_E = 0)		I_{CBO}	-	25	nAdc
(V_{CB} = 75 Vdc, I_E = 0, T_A = 150°C)			-	15	μAdc
Emitter Cutoff Current (V_{BE} = 5.0 Vdc, I_C = 0)		I_{EBO}	-	25	nAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 0.1 mAdc, V_{CE} = 10 Vdc)	2N910	h_{FE}	35	-	-
	2N911		20	-	
(I_C = 10 mAdc, V_{CE} = 10 Vdc)	2N910*		75	-	
	2N911*		35	-	
(I_C = 10 mAdc, V_{CE} = 10 Vdc, T_A = -55°C)	2N910*		30	-	
	2N911*		15	-	
Collector-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)		$V_{CE(sat)}$	-	0.4	Vdc
(I_C = 50 mAdc, I_B = 5.0 mAdc)			-	1.2	
Base-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)		$V_{BE(sat)}$	0.6	0.8	Vdc
(I_C = 50 mAdc, I_B = 5.0 mAdc)			-	0.9	
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain—Bandwidth Product (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 20 MHz)	2N910	f_T	60	-	MHz
	2N911		50	-	
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)		C_{ob}	-	15	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 100 kHz)		C_{ib}	-	85	pF
Input Impedance (I_C = 5.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	2N910	h_{ie}	-	1800	Ohms
	2N911		-	1000	
Small-Signal Current Gain (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	2N910	h_{fe}	76	200	-
	2N911		36	90	
(I_C = 5.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	2N911		40	100	
Output Admittance (I_C = 5.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	2N910	h_{oe}	-	100	μmhos
	2N911		-	50	
Input Resistance (I_C = 1.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)		h_{ib}	20	30	Ohms
(I_C = 5.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)			4.0	8.0	
Voltage Feedback Ratio (I_C = 1.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)	2N910	h_{rb}	-	3.0	X 10^{-4}
	2N911		-	1.25	
(I_C = 5.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)	2N911		-	1.75	
Output Conductance (I_C = 1.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)		h_{ob}	-	0.5	μmho
(I_C = 5.0 mAdc, V_{CB} = 5.0 Vdc, f = 1.0 kHz)			-	1.0	
Noise Figure (I_C = 0.3 mAdc, V_{CB} = 10 Vdc, R_G = 510 ohms, f = 1.0 kHz, B. W. = 200 Hz)	2N910	NF	-	12	dB
	2N911		-	15	

* Pulse Test: Pulse Width $\leqq$ 300 μs, Duty Cycle = 2.0%.