2

P2N5550
P2N5551

CASE 29-02, STYLE 17
TO-92 (TO-226AA)

AMPLIFIER TRANSISTORS

NPN SILICON

Refer to 2N5550 for graphs.

MAXIMUM RATINGS

Rating	Symbol	2N 5550	2N 5551	Unit
Collector-Emitter Voltage	V_{CEO}	140	160	Vdc
Collector-Base Voltage	V_{CBO}	160	180	Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Collector Current – Continuous	I_C	600		mAdc
Total Device Dissipation T_A = 25°C Derate above 25°C	P_D	625 5.0		mW mW/°C
Total Device Dissipation T_C = 25°C Derate above 25°C	P_D	1.5 12		Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	°C/W

(1) $R_{\theta JA}$ is mesured with the device soldered into a typical printed circuit board.

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (2) (I_C = 1.0 mAdc, I_B = 0)	P2N5550 P2N5551	$V_{(BR)CEO}$	 140 160	 — —	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	P2N5550 P2N5551	$V_{(BR)CBO}$	 160 180	 — —	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)		$V_{(BR)EBO}$	 6.0	 —	Vdc
Collector Cutoff Current (V_{CB} = 100 Vdc, I_E = 0) (V_{CB} = 120 Vdc, I_E = 0) (V_{CB} = 100 Vdc, I_E = 0, T_A = 100°C) (V_{CB} = 120 Vdc, I_E = 0, T_A = 100°C)	 P2N5550 P2N5551 P2N5550 P2N5551	I_{CBO}	 — — — —	 100 50 100 50	 nAdc μAdc
Emitter Cutoff Current (V_{EB} = 4.0 Vdc, I_C = 0)		I_{EBO}	 —	 50	nAdc
ON CHARACTERISTICS (2)					
DC Current Gain (I_C = 10 mAdc, V_{CE} = 5.0 Vdc) (I_C = 10 mAdc, V_{CE} = 5.0 Vdc) (I_C = 50 mAdc, V_{CE} = 5.0 Vdc)	 P2N5550 P2N5551 P2N5550 P2N5551 P2N5550 P2N5551	h_{FE}	 60 80 60 80 20 30	 — — 250 250 — —	—
Collector-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc) (I_C = 50 mAdc, I_B = 5.0 mAdc)	 Both Types P2N5550 P2N5551	$V_{CE(sat)}$	 — — —	 0.15 0.25 0.20	Vdc
Base-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc) (I_C = 50 mAdc, I_B = 5.0 mAdc)	 Both Types P2N5550 P2N5551	$V_{BE(sat)}$	 — — —	 1.0 1.2 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 (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)		f_T	100	300	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)		C_{obo}	—	6.0	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 1.0 MHz)	P2N5550 P2N5551	C_{ibo}	— —	30 20	pF
Small-Signal Current Gain (I_C = 1.0 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)		h_{fe}	50	200	—
Noise Figure (I_C = 250 μAdc, V_{CE} = 5.0 Vdc, R_S = 1.0 kohms, f = 10 Hz to 15.7 kHz)	P2N5550 P2N5551	N_F	— —	10 8.0	dB

(2) Pulse Test: Pulse Width = 300 μs, Duty Cycle = 2.0%.