2N3494
2N3495

CASE 31-03, STYLE 1
TO-39 (TO-205AD)

2N3496
2N3497

CASE 22-03, STYLE 1
TO-18 (TO-206AA)

GENERAL PURPOSE TRANSISTOR

PNP SILICON

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MAXIMUM RATINGS

Rating	Symbol	2N3494 2N3496	2N3495 2N3497	Unit
Collector-Emitter Voltage	V_{CEO}	80	120	Vdc
Collector-Base Voltage	V_{CBO}	80	120	Vdc
Emitter-Base Voltage	V_{EBO}	4.5		Vdc
Collector Current — Continuous	I_C	100		mAdc
		2N3494 2N3495	2N3496 2N3497	
Total Device Dissipation @ $T_A = 25°C$ Derate above 25°C	P_D	600 3.43	400 2.28	mW mW/°C
Total Device Dissipation @ $T_C = 25°C$* Derate above 25°C	P_D	3.0 17.2	1.2 6.85	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200		°C

*Indicates Data in addition to JEDEC Requirements.

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)	 2N3494, 2N3496 2N3495, 2N3497	$V_{(BR)CEO}$	 80 120	 — —	Vdc
Collector-Base Breakdown Voltage (I_C = 10 μAdc, I_E = 0)	 2N3494, 2N3496 2N3495, 2N3497	$V_{(BR)CBO}$	 80 120	 — —	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)		$V_{(BR)EBO}$	4.5	—	Vdc
Collector Cutoff Current (V_{CB} = 50 Vdc, I_E = 0) (V_{CB} = 90 Vdc, I_E = 0)	 2N3494, 2N3496 2N3495, 2N3497	I_{CBO}	 — —	 100 100	nAdc
Emitter Cutoff Current (V_{BE} = 3.0 Vdc, I_C = 0)		I_{EBO}	—	25	nAdc
ON CHARACTERISTICS					
DC Current Gain(1) (I_C = 100 μAdc, V_{CE} = 10 Vdc) (I_C = 1.0 mAdc, V_{CE} = 10 Vdc) (I_C = 10 mAdc, V_{CE} = 10 Vdc) (I_C = 50 mAdc, V_{CE} = 10 Vdc) (I_C = 100 mAdc, V_{CE} = 10 Vdc)	 2N3494, 2N3496	h_{FE}	 35 40 40 40 35	 — — — — —	—
Collector-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)	 2N3494, 2N3496 2N3495, 2N3497	$V_{CE(sat)}$	 — —	 0.3 0.35	Vdc
Base-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)		$V_{BE(sat)}$	0.6	0.9	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product(2) (I_C = 20 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	 2N3494, 2N3496 2N3495, 2N3497	f_T	 200 150	 — —	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)	 2N3494, 2N3496 2N3495, 2N3497	C_{obo}	 — —	 7.0 6.0	pF
Input Capacitance (V_{BE} = 2.0 Vdc, I_C = 0, f = 100 kHz)		C_{ibo}	—	30	pF

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

Characteristic	Symbol	Min	Max	Unit
Input Impedance (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{ie}	0.1	1.2	k ohms
Voltage Feedback Ratio (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{re}	—	2.0	X 10^{-4}
Small-Signal Current Gain (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{fe}	40	300	—
Output Admittance (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{oe}	—	300	μmhos
Real Part of Input Impedance (I_C = 20 mAdc, V_{CE} = 10 Vdc, f = 300 MHz)	$Re(h_{ie})$	—	30	Ohms
SWITCHING CHARACTERISTICS				
Turn-On Time (V_{CC} = 30 Vdc, I_C = 10 mAdc, I_{B1} = 1.0 mAdc)	t_{on}	—	300	ns
Turn-Off Time (V_{CC} = 30 Vdc, I_C = 10 mAdc, I_{B1} = I_{B2} = 1.0 mAdc)	t_{off}	—	1000	ns

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle = 2.0%.
(2) f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

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FIGURE 1 — TURN-ON TIME TEST CIRCUIT

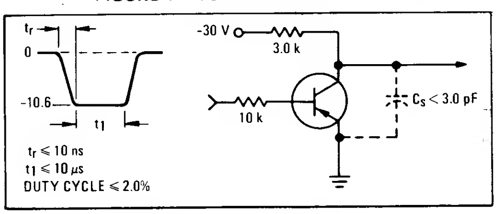

FIGURE 2 — TURN-OFF TIME TEST CIRCUIT

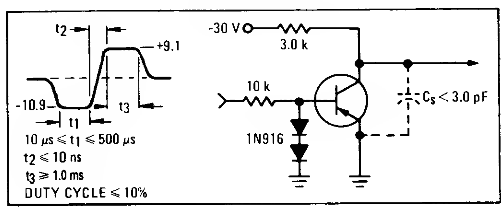

FIGURE 3 — V_{CE} (sat) versus I_C

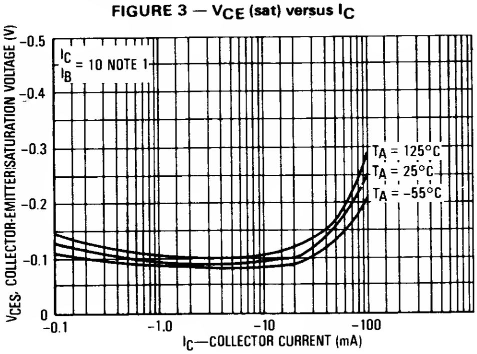

FIGURE 4 — I_{CBO} versus T_A

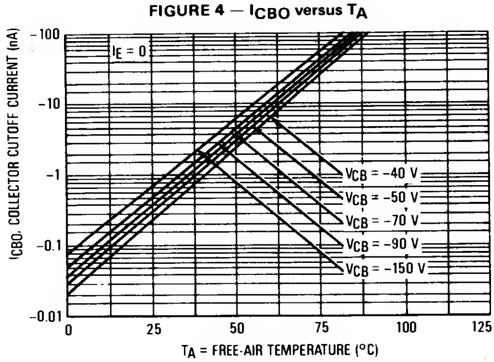

FIGURE 5 — h_{FE} versus I_C

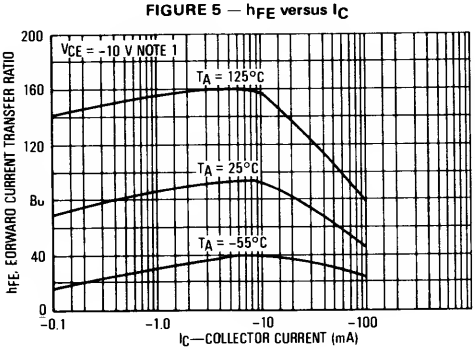

FIGURE 6 — V_{BE} versus I_C

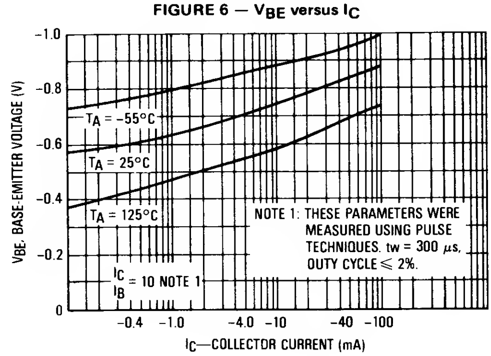

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FIGURE 7 — f_T versus I_C

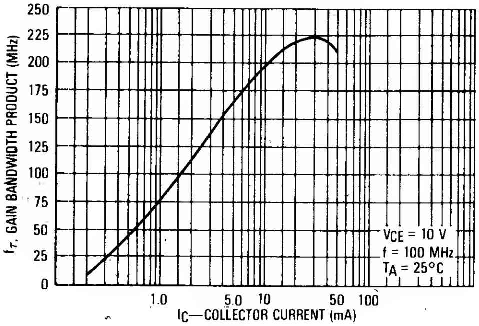


FIGURE 8 — C_{OBO} versus V_{CB}

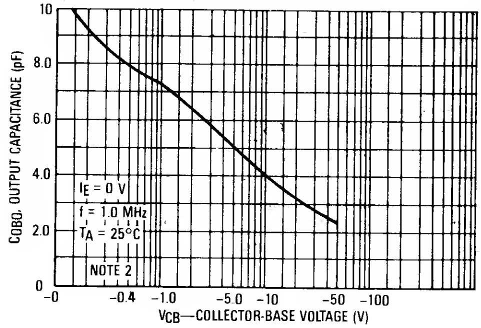
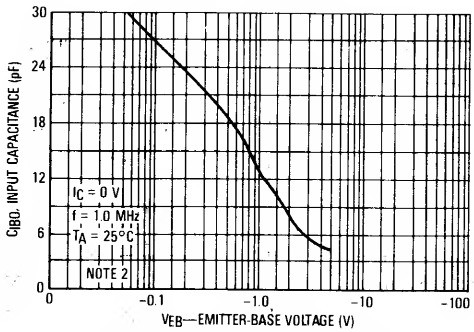


FIGURE 9 — C_{IBO} versus V_{EB}



NOTE 2: CAPACITANCE MEASURE MADE WITH TO-18 PACKAGE.