2N3244
2N3245

CASE 79, STYLE 1
TO-39 (TO-205AD)

GENERAL PURPOSE TRANSISTOR

PNP SILICON

4

2N3227

For Specifications, See 2N2368 Data.

MAXIMUM RATINGS

Rating	Symbol	2N3244	2N3245	Unit
Collector-Emitter Voltage	V_{CEO}	40	50	Vdc
Collector-Base Voltage	V_{CBO}	40	50	Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Collector Current — Continuous	I_C	1.0		Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	1.0 5.71		Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	5.0 28.6		Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	35	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	0.175	°C/mW

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)	2N3244 2N3245	$V_{(BR)CEO}$	 40 50	 — —	Vdc
Collector-Base Breakdown Voltage (I_C = 10 μAdc, I_E = 0)	2N3244 2N3245	$V_{(BR)CBO}$	 40 50	 — —	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)		$V_{(BR)EBO}$	5.0	—	Vdc
Base Cutoff Current (V_{CE} = 30 Vdc, V_{BE} = 3.0 Vdc)		I_{BEV}	—	80	nAdc
Collector Cutoff Current (V_{CE} = 30 Vdc, V_{BE} = 3.0 Vdc)		I_{CEX}	—	50	nAdc
Collector Cutoff Current (V_{CB} = 30 Vdc, I_E = 0) (V_{CB} = 30 Vdc, I_E = 0, T_A = 100°C)		I_{CBO}	 — —	 0.050 10	μAdc
Emitter Cutoff Current (V_{EB} = 3.0 Vdc, I_C = 0) (V_{EB} = 4.0 Vdc, I_C = 0)	 2N3245 2N3244	I_{EBO}	 — —	 30 30	nAdc
ON CHARACTERISTICS					
DC Current Gain(1) (I_C = 150 mAdc, V_{CE} = 1.0 Vdc) (I_C = 500 mAdc, V_{CE} = 1.0 Vdc) (I_C = 1.0 Adc, V_{CE} = 5.0 Vdc)	 2N3244 2N3245 2N3244 2N3245 2N3244 2N3245	h_{FE}	 60 35 50 30 25 20	 — — 150 90 — —	—
Collector-Emitter Saturation Voltage(1) (I_C = 150 mAdc, I_B = 15 mAdc) (I_C = 500 mAdc, I_B = 50 mAdc) (I_C = 1.0 Adc, I_B = 100 mAdc)	 2N3244 2N3245 2N3244 2N3245 2N3244 2N3245	$V_{CE(sat)}$	 — — — — — —	 0.3 0.35 0.5 0.6 1.0 1.2	Vdc

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

Characteristic		Symbol	Min	Max	Unit
Base-Emitter Saturation Voltage(1) (I_C = 150 mAdc, I_B = 15 mAdc) (I_C = 500 mAdc, I_B = 50 mAdc) (I_C = 1.0 Adc, I_B = 100 mAdc)		$V_{BE(sat)}$	— 0.75 —	1.1 1.5 2.0	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	2N3244 2N3245	f_T	175 150	— —	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)		C_{obo}	—	25	pF
Input Capacitance (V_{EB} = 0.5 Vdc, I_C = 0, f = 100 kHz)		C_{ibo}	—	100	pF
SWITCHING CHARACTERISTICS					
Delay Time	(I_C = 500 mA, I_{B1} = 50 mA V_{EB} = 2.0 V, V_{CC} = 30 V) 2N3244 2N3245	t_d	—	15	ns
Rise Time		t_r	— —	35 40	ns
Storage Time	(I_C = 500 mA, V_{CC} = 30 V I_{B1} = I_{B2} = 50 mA) 2N3244 2N3245	t_s	—	140 120	ns
Fall Time		t_f	—	45	ns
Total Control Charge (I_C = 500 mA, I_B = 50 mA, V_{CC} = 30 V)	2N3244 2N3245	Q_T	— —	14 12	pC

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

FIGURE 1 — MINIMUM CURRENT GAIN CHARACTERISTICS

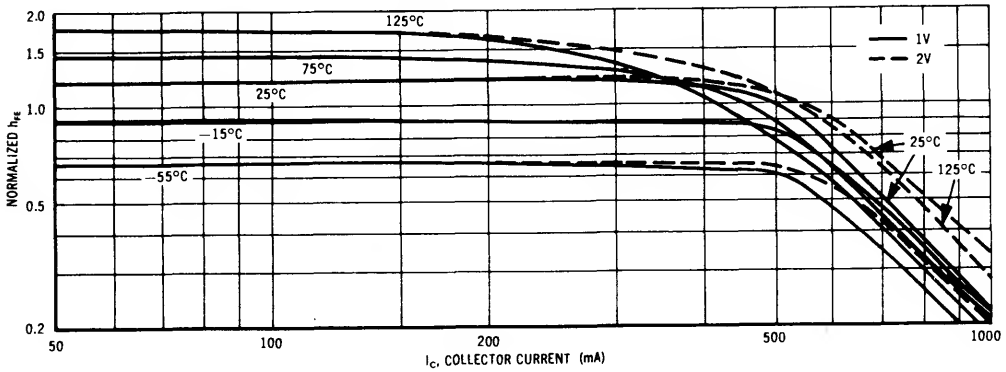
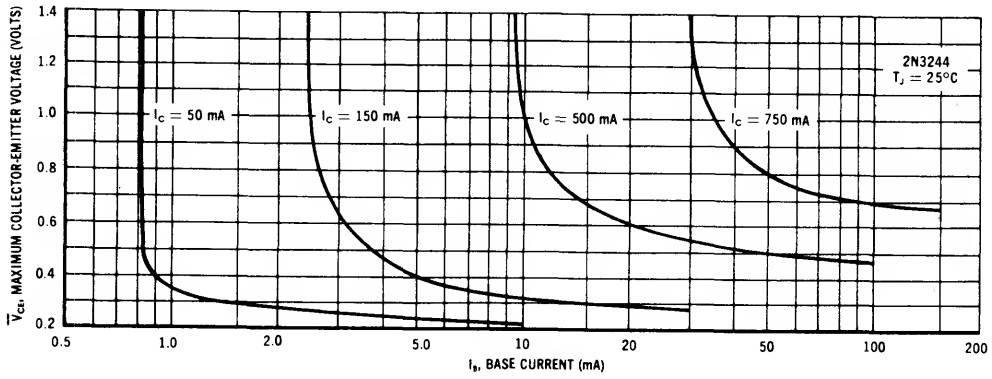


FIGURE 2 — COLLECTOR-EMITTER SATURATION VOLTAGE CHARACTERISTICS



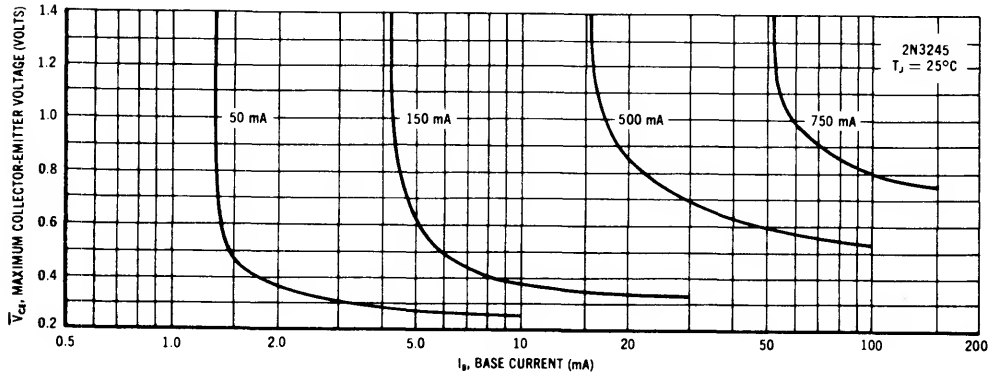


FIGURE 3 — MAXIMUM SATURATION VOLTAGES

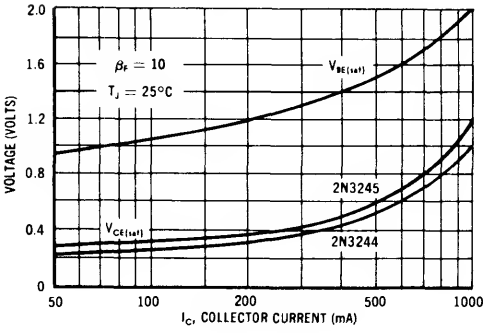


FIGURE 4 — TYPICAL TEMPERATURE COEFFICIENTS

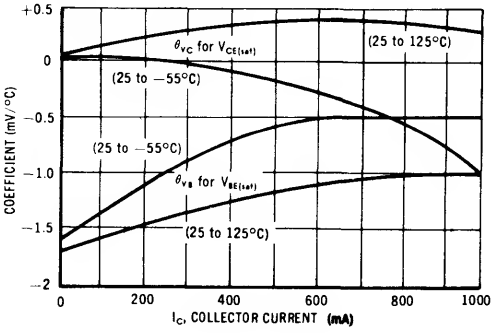


FIGURE 5 — JUNCTION CAPACITANCE

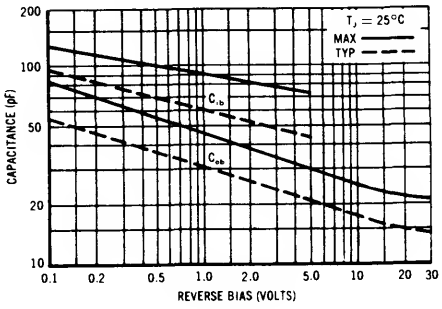


FIGURE 6 — TYPICAL SWITCHING TIMES

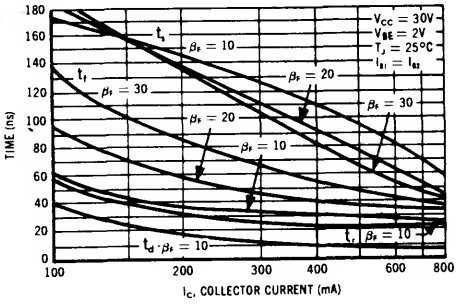


FIGURE 7 — CHARGE DATA

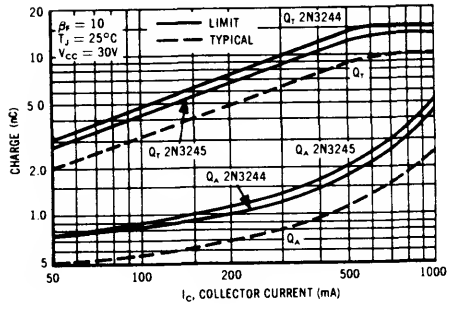


FIGURE 8 — TURN-ON EQUIVALENT TEST CIRCUIT

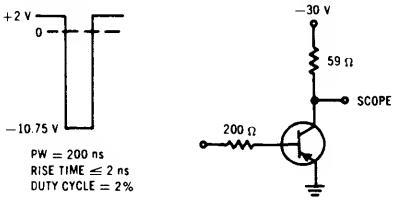


FIGURE 9 — TURN-OFF EQUIVALENT TEST CIRCUIT

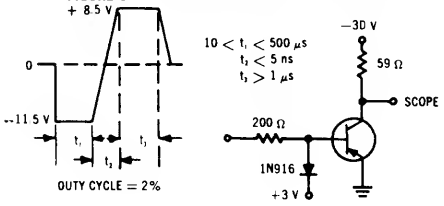


FIGURE 10 — Q_T TEST CIRCUIT

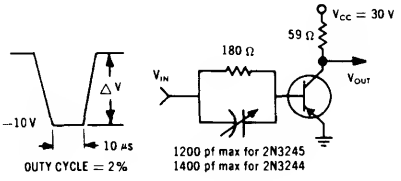


FIGURE 11 — TURN-OFF WAVEFORM