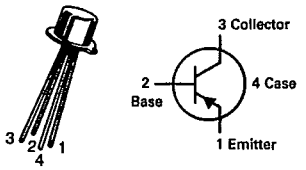
2N4260
2N4261

2N4261 JAN, JTX AVAILABLE
CASE 20-03, STYLE 10
TO-72 (TO-206AF)



SWITCHING TRANSISTORS

PNP SILICON

3

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	15	Vdc
Collector-Base Voltage	V_{CBO}	15	Vdc
Emitter-Base Voltage	V_{EBO}	4.5	Vdc
Collector Current — Continuous	I_C	30	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	200 1.14	mW 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 Breakdown Voltage (I_C = 10 mAdc, I_E = 0)		$V_{(BR)CEO}$	15	—	Vdc
Collector-Base Breakdown Voltage (I_C = 10 μAdc, I_E = 0)		$V_{(BR)CBO}$	15	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)		$V_{(BR)EBO}$	4.5	—	Vdc
Collector Cutoff Current (V_{CE} = 10 Vdc, $V_{BE(off)}$ = 2.0 Vdc) (V_{CE} = 10 Vdc, $V_{BE(off)}$ = 2.0 Vdc, T_A = 150°C) (V_{CE} = 10 Vdc, $V_{EB(on)}$ = 0.4 Vdc)		I_{CEX}	 — — —	 0.005 5.0 0.05	μAdc
Base Cutoff Current (V_{CE} = 10 Vdc, $V_{BE(off)}$ = 2.0 Vdc)		I_{BL}	—	0.005	μAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 1.0 mAdc, V_{CE} = 1.0 Vdc) (I_C = 10 mAdc, V_{CE} = 1.0 Vdc) (I_C = 30 mAdc, V_{CE} = 2.0 Vdc)		h_{FE}	 25 30 20	 — 150 —	—
Collector-Emitter Saturation Voltage (I_C = 1.0 mAdc, I_B = 0.1 mAdc) (I_C = 10 mAdc, I_B = 1.0 mAdc)		$V_{CE(sat)}$	 — —	 0.15 0.35	Vdc
Base-Emitter On Voltage (I_C = 1.0 mAdc, V_{CE} = 1.0 Vdc) (I_C = 10 mAdc, V_{CE} = 1.0 Vdc)		$V_{BE(on)}$	 — —	 0.8 1.0	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I_C = 5.0 mAdc, V_{CE} = 4.0 Vdc, f = 100 MHz) (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	 2N4260 2N4261 2N4260 2N4261	f_T	 1200 1500 1600 2000	 — — — —	MHz
Output Capacitance (V_{CB} = 4.0 Vdc, I_E = 0, f = 100 kHz)		C_{obo}	—	2.5	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 100 kHz)		C_{ibo}	—	2.5	pF
Current Gain — High Frequency (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	2N4260 2N4261	$\|h_{fe}\|$	16 20	— —	—

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

Characteristic		Symbol	Min	Max	Unit
Collector Base Time Constant		$rb'C_c$			ps
(I_C = 5.0 mAdc, V_{CE} = 4.0 Vdc, f = 31.8 MHz)	2N4260		—	35	
	2N4261		—	60	
(I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 31.8 MHz)	2N4260		—	30	
	2N4261		—	50	
			Typical Performance (V_{out} = 1.0 V)		
SWITCHING CHARACTERISTICS			@ 10 mA	@ 30 mA	
Rise Time		t_r	0.5	0.9	ns
Fall Time		t_f	1.0	1.2	ns
Turn-On Time		$t_{on(delay)}$	1.0	1.2	ns
Turn-Off Delay Time		$t_{off(delay)}$	1.0	1.2	ns

3

TYPICAL CHARACTERISTICS

FIGURE 1 — DC CURRENT GAIN

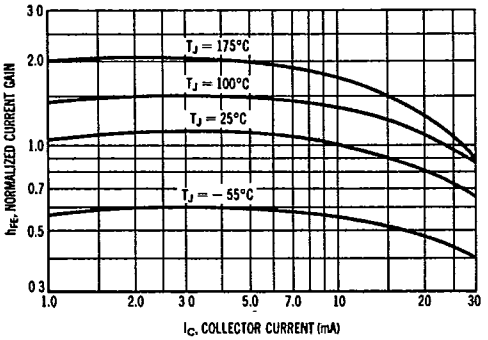


FIGURE 2 — COLLECTOR SATURATION REGION

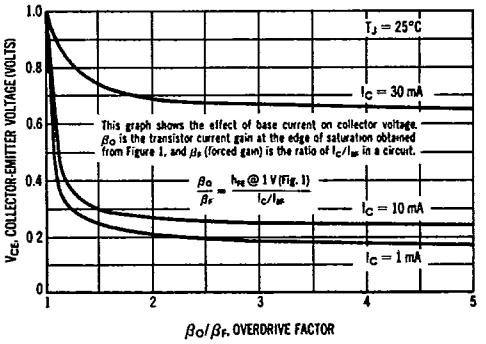


FIGURE 3 — "ON" VOLTAGES

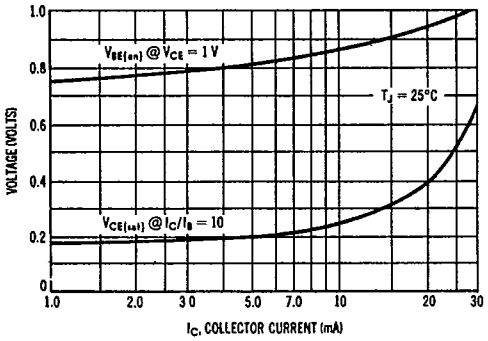


FIGURE 4 — TEMPERATURE COEFFICIENTS

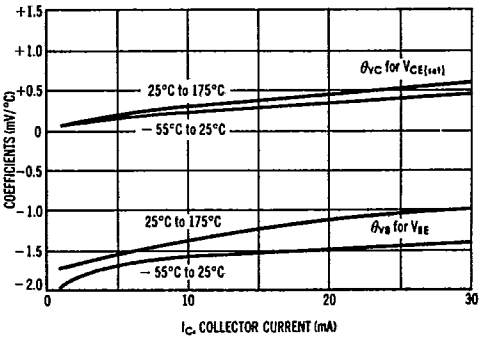


FIGURE 5 — CURRENT-GAIN — BANDWIDTH PRODUCT

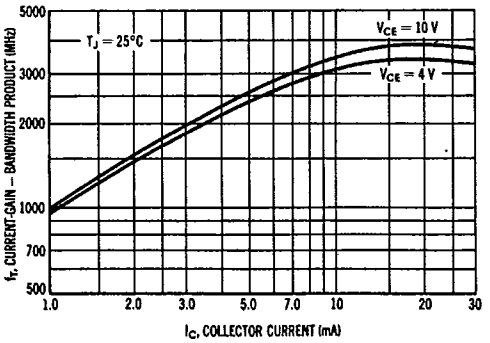


FIGURE 6 — COLLECTOR-BASE CONSTANT

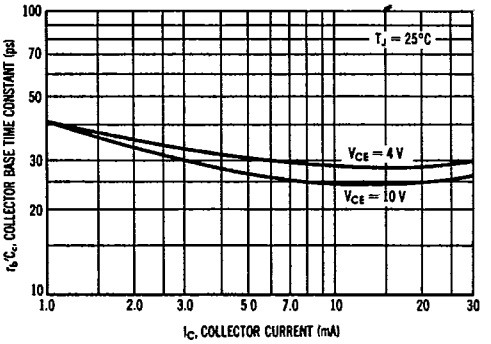


FIGURE 7 — SWITCHING TIMES

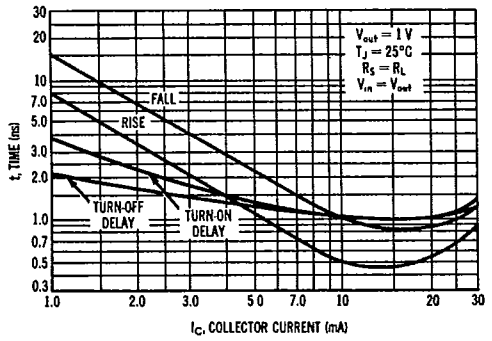
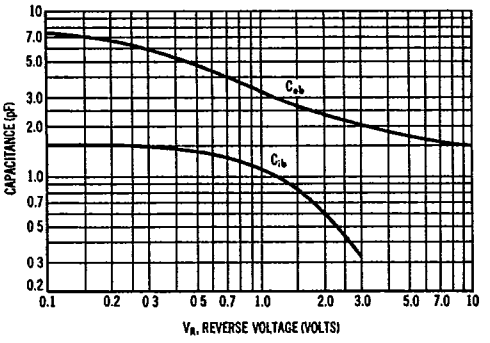


FIGURE 8 — CAPACITANCE



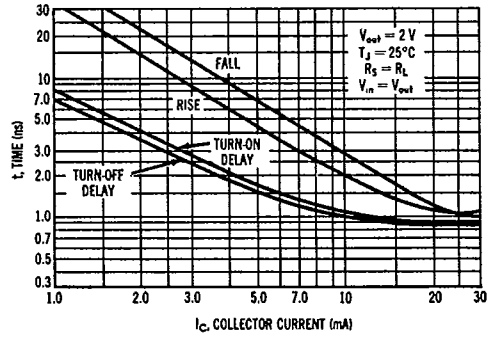
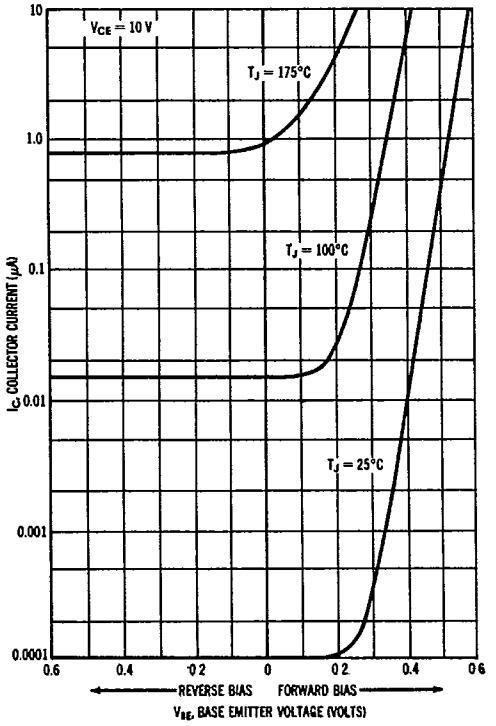
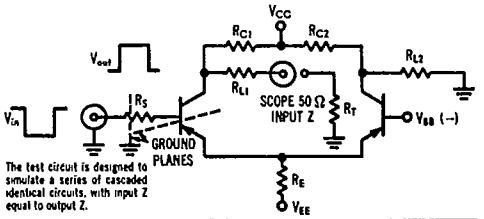


FIGURE 9 — CUT-OFF CHARACTERISTICS





The test circuit is designed to simulate a series of cascaded identical circuits, with input Z equal to output Z.

	$V_{in} = V_{out} = 2\ V$ $V_{BB} = 1\ V$ $R_{C1} = R_{C2}$								$V_{in} = V_{out} = 1\ V$ $V_{BB} = 0.5\ V$ $R_{C1} = R_{C2}$							
I_C mA	R_S ohms	R_C ohms	R_{L1} ohms	R_{L2} ohms	R_E ohms	V_{EE} volts	V_{CC} volts		R_S ohms	R_C ohms	R_{L1} ohms	R_{L2} ohms	R_E ohms	V_{EE} volts	V_{CC} volts	
1	2 k	6 k	3 k	3 k	10 k	10	16		1 k	6 k	1.2 k	1.2 k	24 k	24	32	
5	360	3.56 k	400	450	2 k	10	47		175	1 k	200	250	3 k	15	27	
10	160	1 k	200	250	3 k	30	26.3		75	300	100	150	3 k	30	17	
20	62	300	100	150	1 k	20	16		25	150	25	75	1 k	20	11	
30	28	157	66	116	1 k	30	13		8	77	0	50	1 k	30	9	