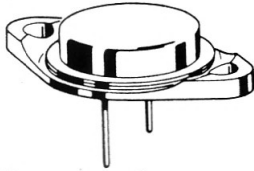


2N3789 thru 2N3792 (SILICON)



CASE 11
(TO-3)

PNP silicon power transistors for medium-speed switching and amplifier applications. Complement to NPN type 2N3713 thru 2N3716.

Collector connected to case

MAXIMUM RATINGS (T_c = 25°C unless otherwise noted)

Rating	Symbol	2N3789 2N3791	2N3790 2N3792	Unit
Collector-Base Voltage	V _{CB}	60	80	Volts
Collector-Emitter Voltage	V _{CEO}	60	80	Volts
Emitter-Base Voltage	V _{EB}	7	7	Volts
Collector Current	I _C	10	10	Amp
Collector Current (Peak)	I _C	10	10	Amp
Base Current (Continuous)	I _B	4.0	4.0	Amp
Power Dissipation	P _D	150	150	Watts
Thermal Resistance	θ _{JC}	1.17	1.17	°C/W
Junction Operating and Storage Temperature Range	T _J , T _{stg}	-65 to +200		°C

ELECTRICAL CHARACTERISTICS (T_c = 25°C unless otherwise noted)

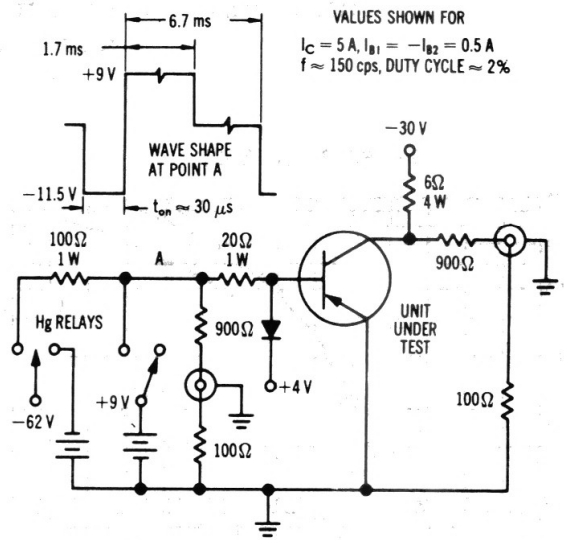
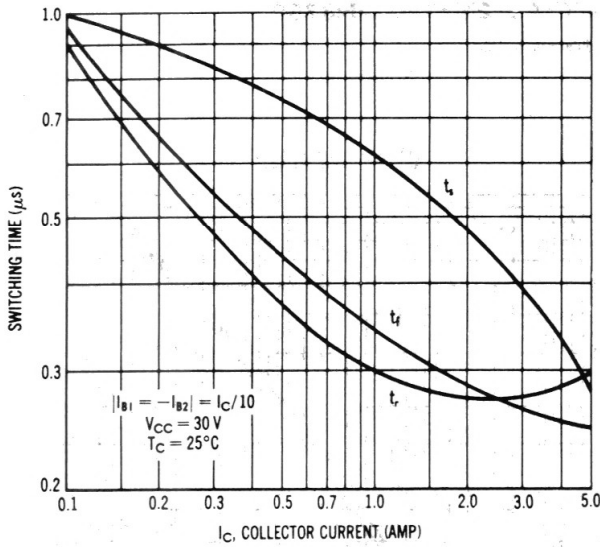
Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Sustaining Voltage* (I _C = 200 mA, I _B = 0)	V _{CEO(sus)} *	60 80	—	Vdc
Collector-Emitter Cutoff Current (V _{CE} = 60 Vdc, V _{BE} = -1.5 Vdc)	I _{CEX}	—	1	mA
(V _{CE} = 80 Vdc, V _{BE} = -1.5 Vdc)		—	1	
(V _{CE} = 60 Vdc, V _{BE} = -1.5 Vdc, T _C = 150°C)		—	5	
(V _{CE} = 80 Vdc, V _{BE} = -1.5 Vdc, T _C = 150°C)		—	5	
Emitter-Base Cutoff Current (V _{EB} = 7 Vdc)	I _{EBO}	—	5	mA
DC Current Gain* (I _C = 1 A, V _{CE} = 2 Vdc)	h _{FE} *	25 50	90 150	—
(I _C = 3 A, V _{CE} = 2 Vdc)		15 30	— —	
Collector-Emitter Saturation Voltage* (I _C = 4 A, I _B = 0.4 A)	V _{CE(sat)} *	—	1.0	Vdc
(I _C = 5 A, I _B = 0.5 A)		—	1.0	
Base-Emitter Saturation Voltage* (I _C = 4 A, I _B = 0.4 A)	V _{BE(sat)} *	—	2.0	Vdc
(I _C = 5 A, I _B = 0.5 A)		—	1.5	
Current Gain — Bandwidth Product (V _{CE} = 10 Vdc, I _C = 0.5 A, f = 1.0 MHz)	f _T	4	—	MHz

*Sweep Test: 1/2 sine wave cycle @ 60 Hz .

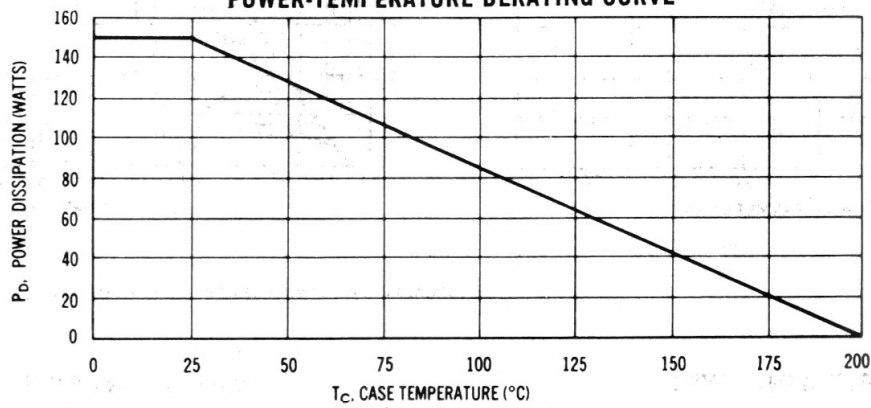


2N3789 thru 2N3792 (continued)

TYPICAL SWITCHING TIMES AND TEST CIRCUIT



POWER-TEMPERATURE DERATING CURVE

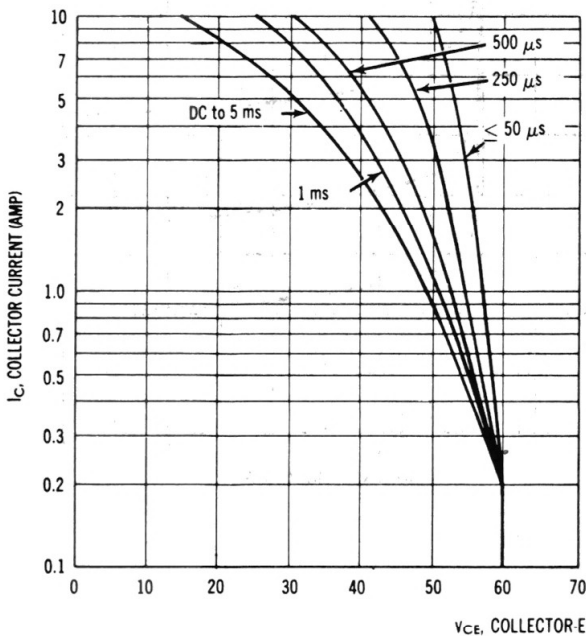


Safe area curves are indicated. Both limits are applicable and must be observed.

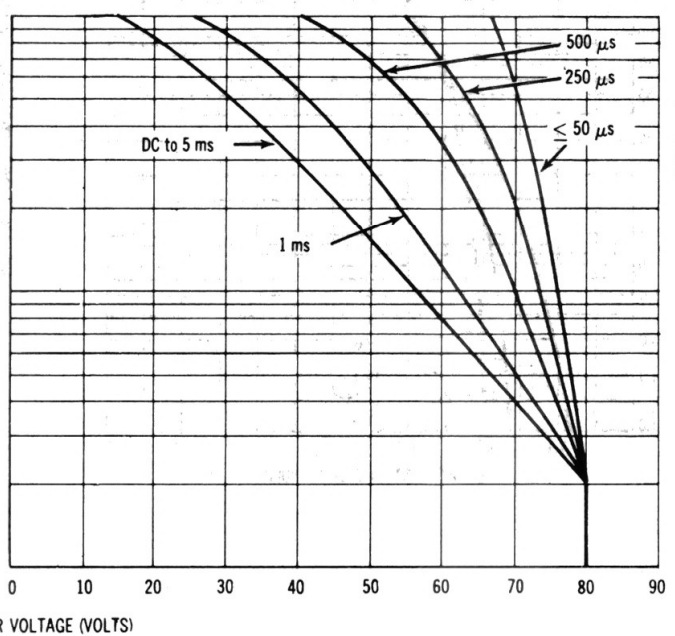
www.datasheetcatalog.com

ACTIVE-REGION SAFE OPERATING AREAS

2N3789, 2N3791



2N3790, 2N3792



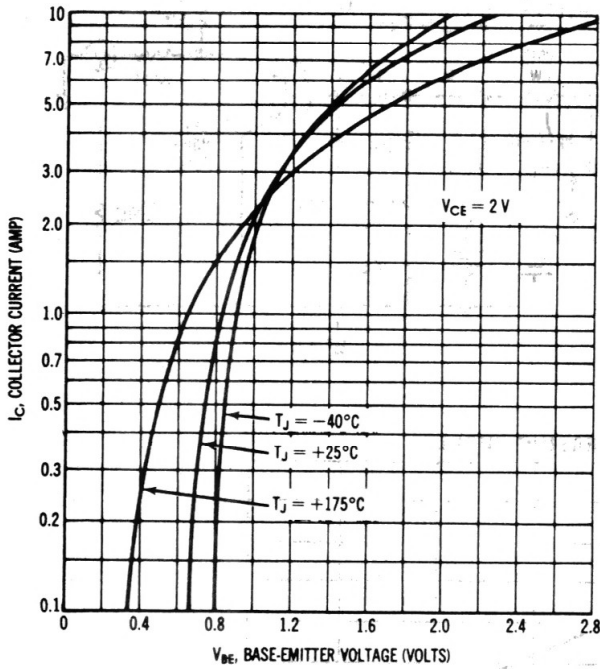
The Safe Operating Area Curves indicate $I_C - V_{CE}$ limits below which the device will not go into secondary breakdown. Collector load lines for specific circuits must fall within the applicable Safe Area to avoid causing a collector-emitter short. (Duty cycle of the excursion make no significant change in these safe areas.) To insure operation below the maximum T_J , the power-temperature derating curve must be observed for both steady state and pulse power conditions.

2N3789 thru 2N3792 (continued)

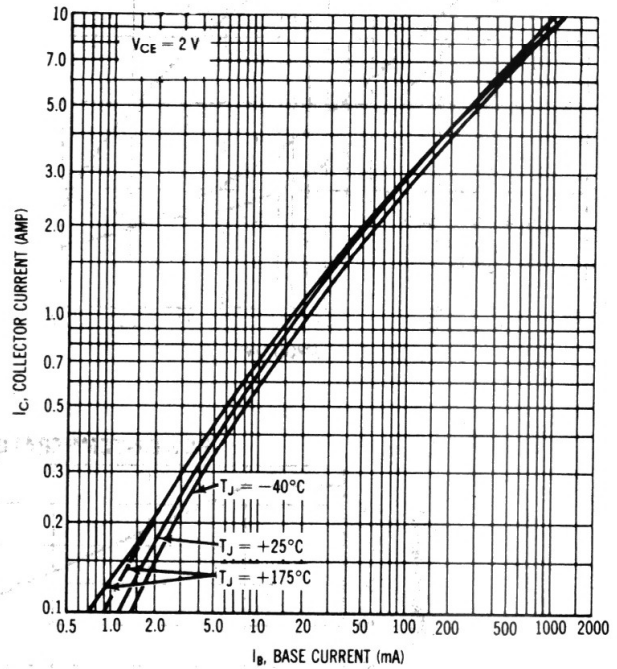
LARGE SIGNAL CHARACTERISTICS – TYPE 2N3789, 2N3790

(PULSE TEST: pulse width $\approx 200 \mu\text{s}$, duty cycle $\approx 1\%$)

TRANSCONDUCTANCE

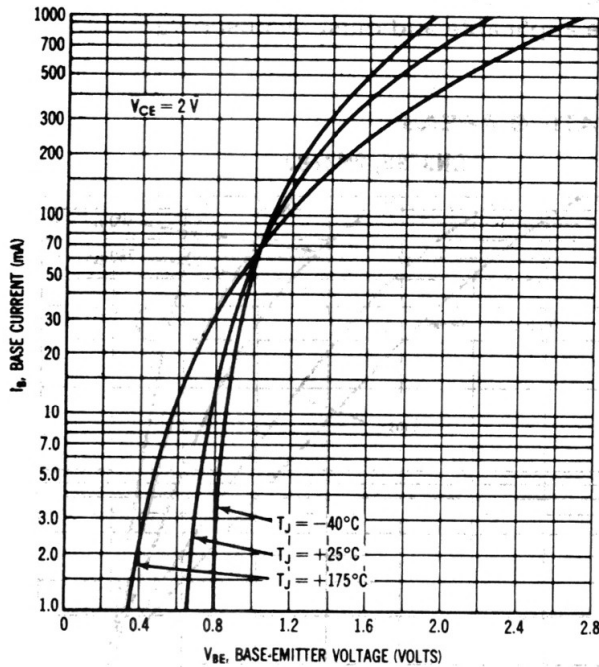


CURRENT GAIN *

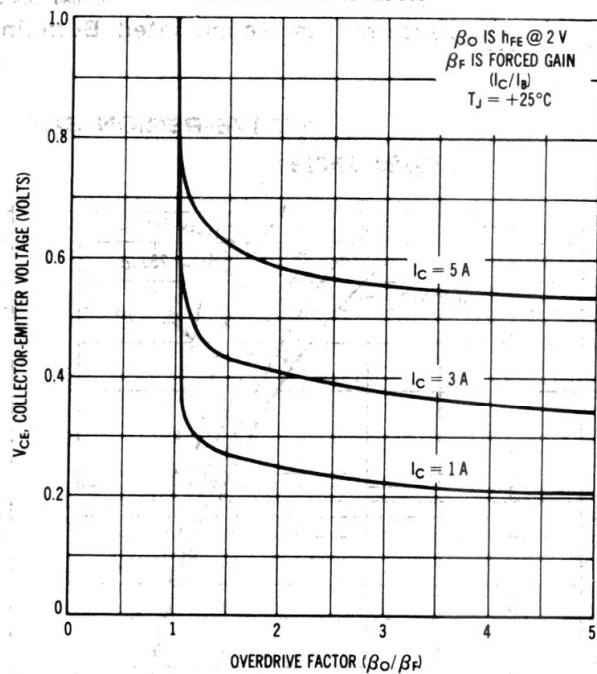


* Dashed line indicates metered base current minus I_{CBO} of the transistor at 175°C .

INPUT ADMITTANCE



SATURATION REGION

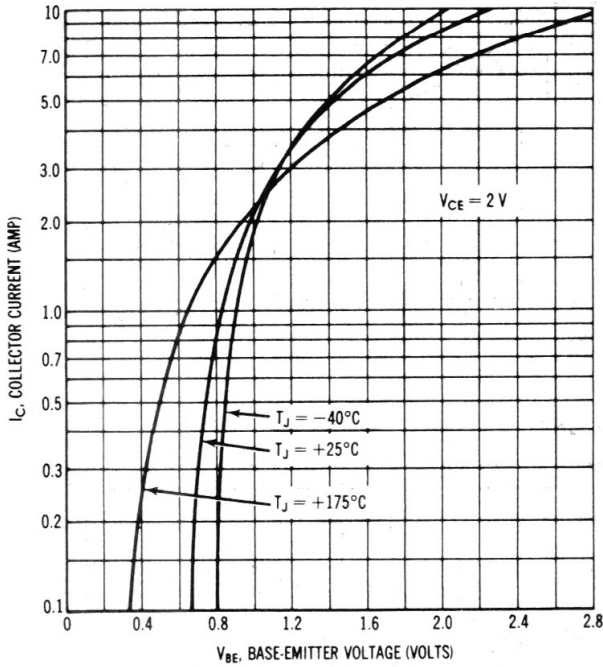


2N3789 thru 2N3792 (continued)

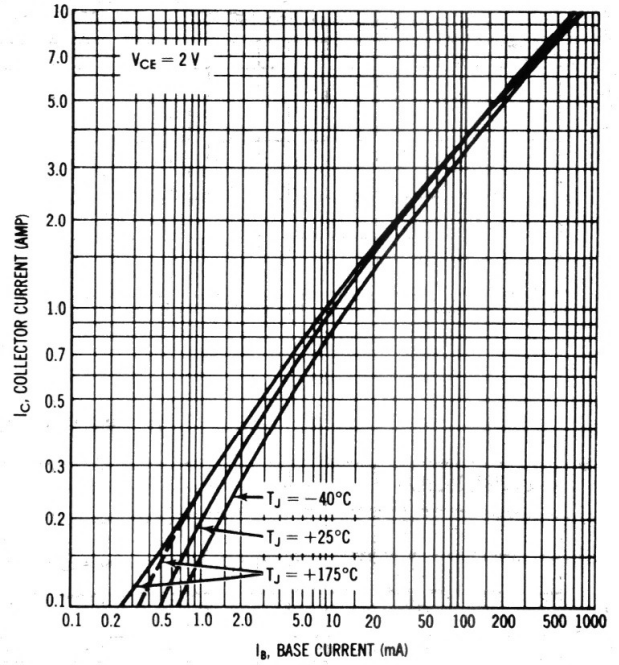
LARGE SIGNAL CHARACTERISTICS – TYPE 2N3791, 2N3792

(PULSE TEST: pulse width $\approx 200 \mu\text{sec}$, duty cycle $\approx 1\%$)

TRANSCONDUCTANCE

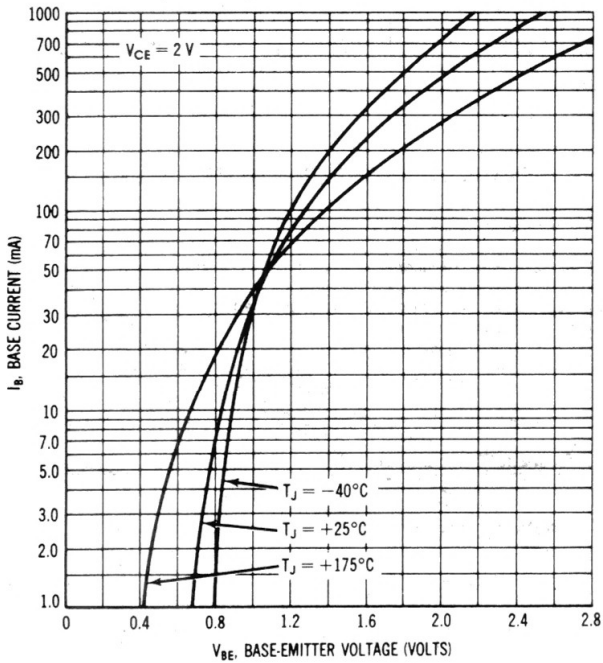


CURRENT GAIN

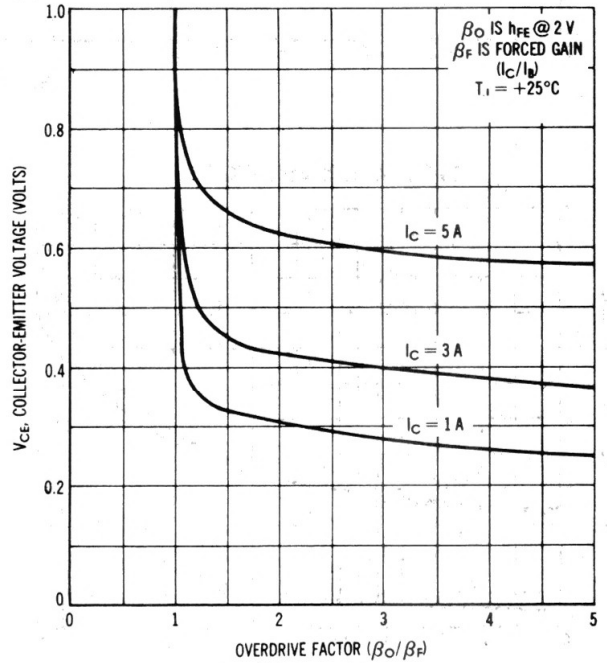


Dashed line indicates metered base current minus I_{CBO} of the transistor at 175°C .

INPUT ADMITTANCE

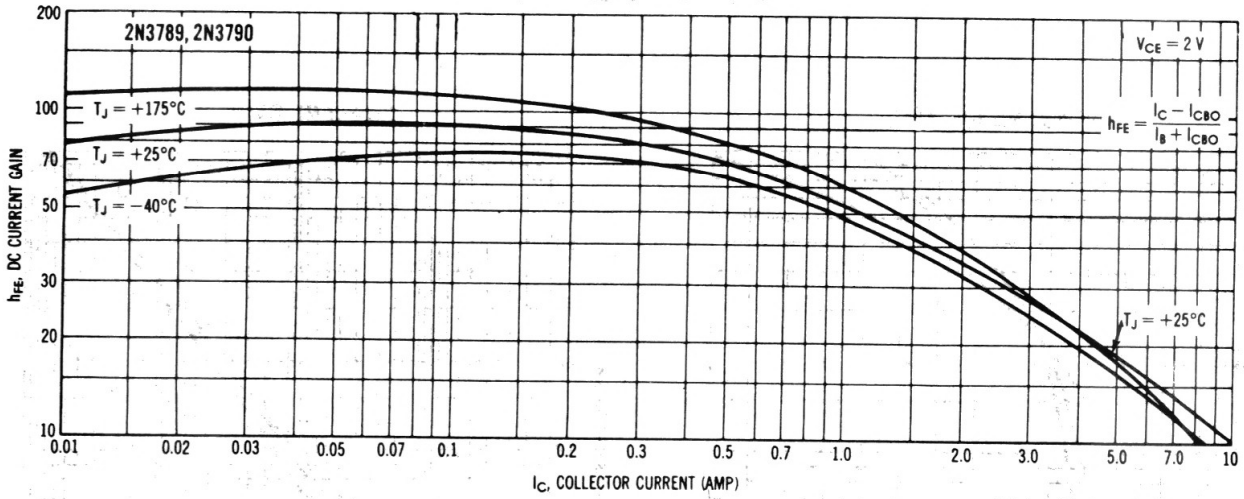


SATURATION REGION

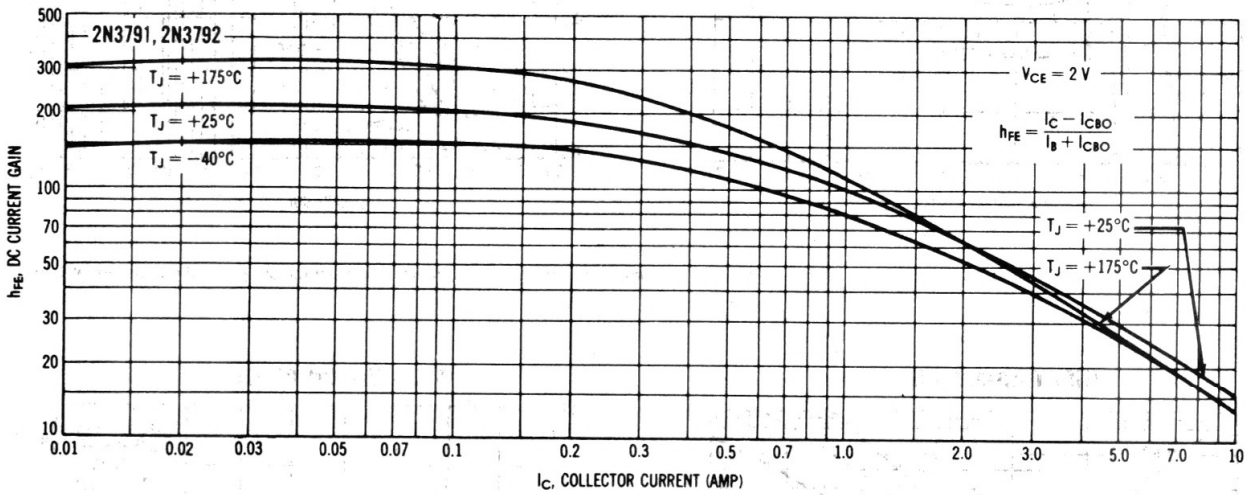


2N3789 thru 2N3792 (continued)

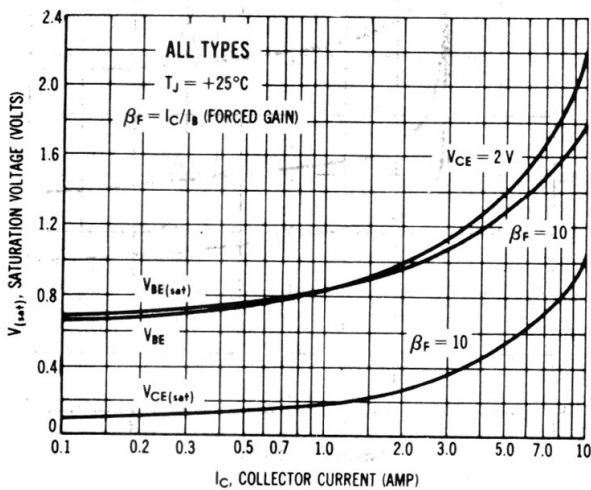
CURRENT GAIN VARIATIONS



CURRENT GAIN VARIATIONS



SATURATION VOLTAGES



TEMPERATURE COEFFICIENTS

