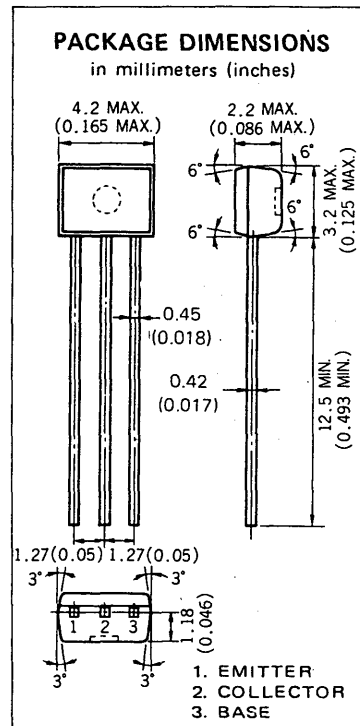


DESCRIPTION The 2SC3731 is designed for general purpose amplifier and high speed switching applications.

- FEATURES**
- High Frequency Current Gain.
 - High Speed Switching.
 - Small Output Capacitance.
 - Complementary to the NEC 2SA1458 PNP transistor.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures			
Storage Temperature		-55 to +150 °C	
Junction Temperature		150 °C Maximum	
Maximum Power Dissipation ($T_a = 25\text{ °C}$)			
Total Power Dissipation		250 mW	
Maximum Voltages and Current ($T_a = 25\text{ °C}$)			
V_{CBO}	Collector to Base Voltage		60 V
V_{CEO}	Collector to Emitter Voltage		40 V
V_{EBO}	Emitter to Base Voltage		6.0 V
I_C	Collector Current		200 mA



ELECTRICAL CHARACTERISTICS ($T_a = 25\text{ °C}$)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
t_{on}	Turn-on Time			70	ns	See Test Circuit.
t_{stg}	Storage Time		100	200	ns	See Test Circuit.
t_{off}	Turn-off Time			250	ns	See Test Circuit.
f_T	Gain Bandwidth Product	300	510		MHz	$V_{CE} = 20\text{ V}$, $I_E = -10\text{ mA}$, $f = 100\text{ MHz}$
C_{ob}	Output Capacitance		3.0	4.0	pF	$V_{CB} = 5.0\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$
h_{FE1}^*	DC Current Gain	75	200	300	—	$V_{CE} = 1.0\text{ V}$, $I_C = 10\text{ mA}$
h_{FE2}^*	DC Current Gain	25	80		—	$V_{CE} = 1.0\text{ V}$, $I_C = 100\text{ mA}$
$V_{CE(sat)}^*$	Collector Saturation Voltage		0.12	0.30	V	$I_C = 50\text{ mA}$, $I_B = 5.0\text{ mA}$
$V_{BE(sat)}^*$	Base Saturation Voltage		0.80	0.95	V	$I_C = 50\text{ mA}$, $I_B = 5.0\text{ mA}$
I_{CBO}	Collector Cutoff Current			0.1	μA	$V_{CB} = 30\text{ V}$, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			0.1	μA	$V_{EB} = 3.0\text{ V}$, $I_C = 0$

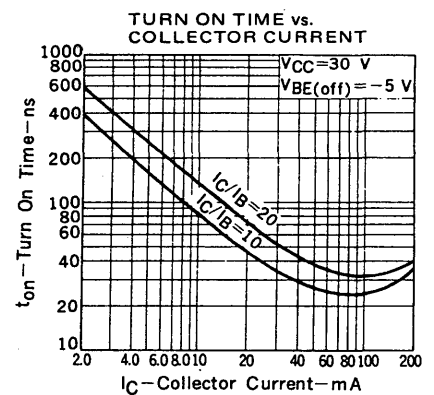
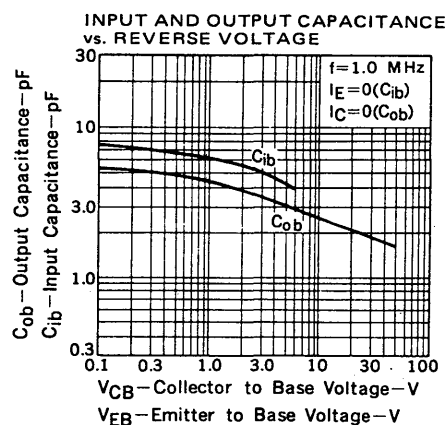
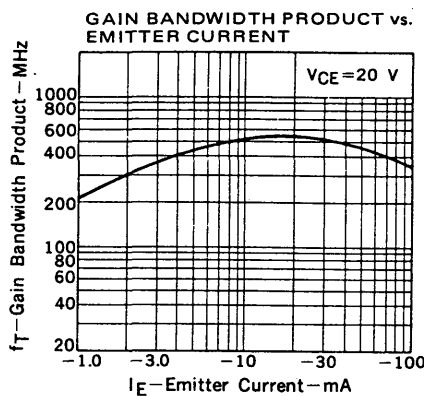
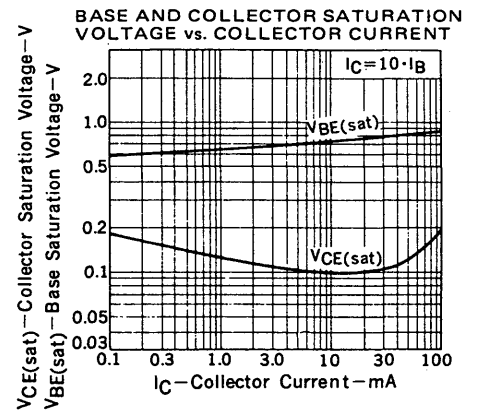
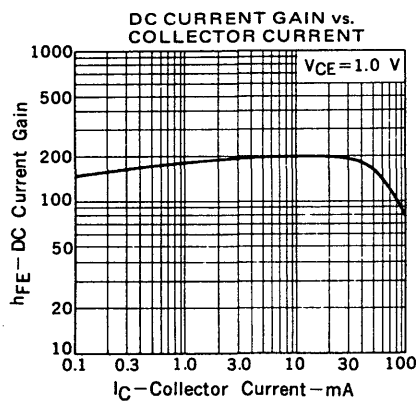
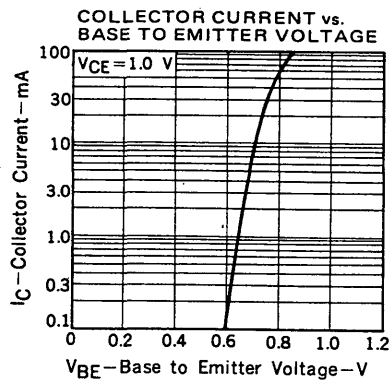
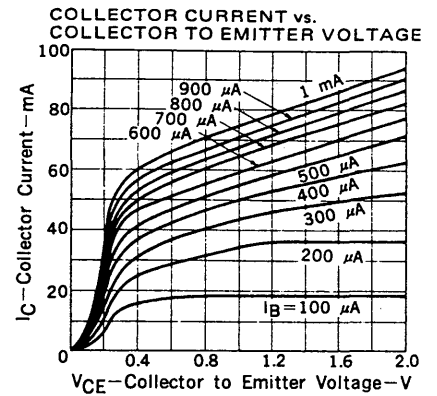
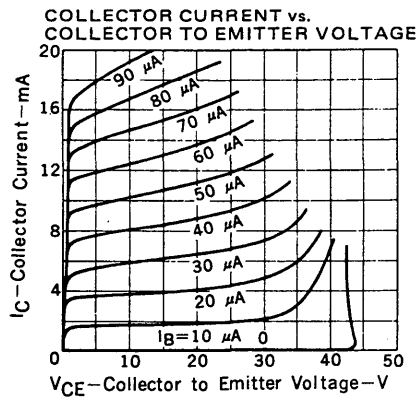
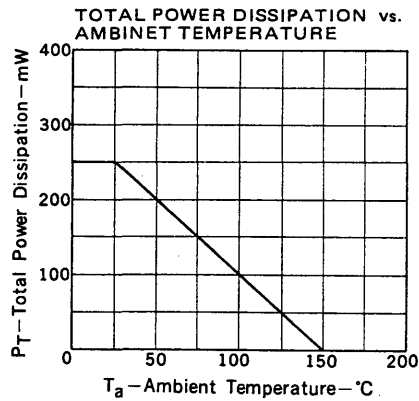
* Pulsed PW $\leq 350\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$

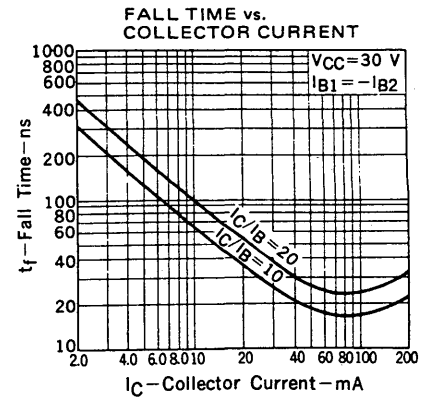
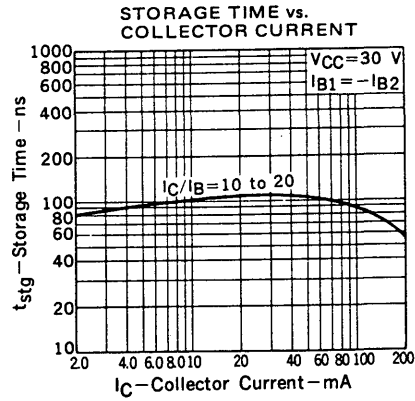
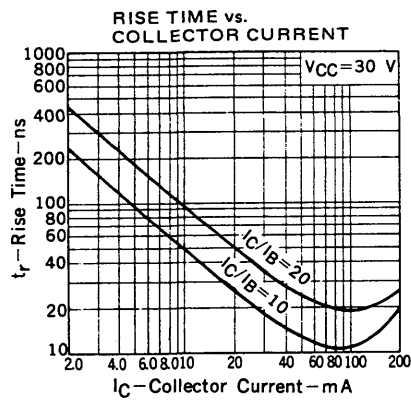
Classification of h_{FE1}

Rank	M	L	K
Range	75 to 150	100 to 200	150 to 300

Test Conditions : $V_{CE} = 1.0\text{ V}$, $I_C = 10\text{ mA}$

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)





SWITCHING TIME TEST CIRCUIT

