PNP General Purpose Amplifier
(continued)

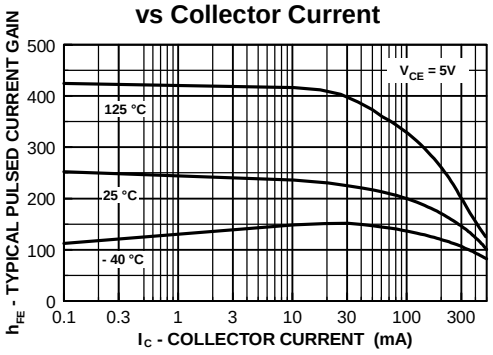
Electrical Characteristics
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	I_C = 10 mA, I_B = 0	40		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10 µA, I_E = 0	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	5.0		V
I_{EBO}	Emitter Cutoff Current	V_{EB} = 30 V		50	nA
I_{CBO}	Collector Cutoff Current	V_{CB} = 30 V		50	nA
ON CHARACTERISTICS					
h_{FE}	DC Current Gain	I_C = 10 mA, V_{CE} = 10 V I_C = 150 mA, V_{CE} = 10 V* I_C = 300 mA, V_{CE} = 10 V I_C = 500 mA, V_{CE} = 10 V*	75 100 30 50	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage*	I_C = 150 mA, I_B = 15 mA I_C = 300 mA, I_B = 30 mA		0.4 1.6	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 150 mA, I_B = 15 mA* I_C = 300 mA, I_B = 30 mA		1.3 2.6	V V

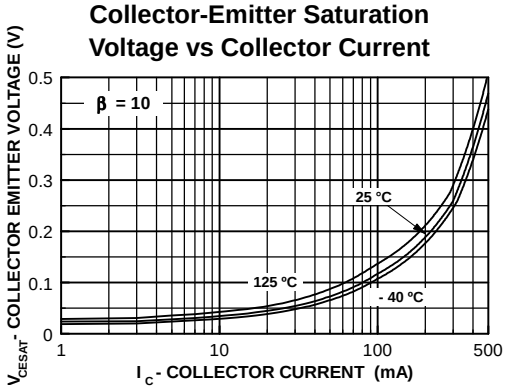
*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%

Typical Characteristics

Typical Pulsed Current Gain vs Collector Current



Collector-Emitter Saturation Voltage vs Collector Current

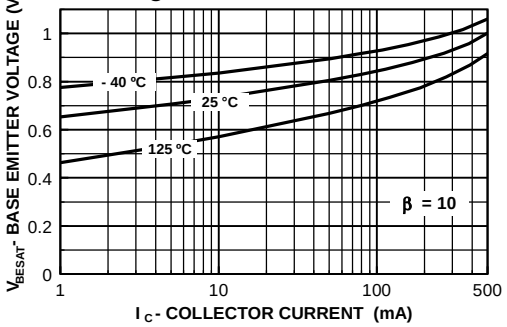


Spice Model

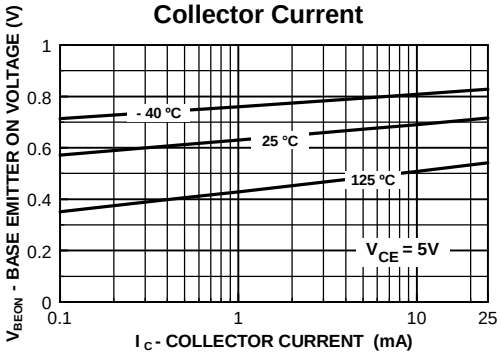
PNP (Is=650.6E-18 Xti=3 Eg=1.11 Vaf=115.7 Bf=231.7 Ne=1.829 Ise=54.81f Ikf=1.079 Xtb=1.5 Br=3.563 Nc=2 Isc=0 Ikr=0 Rc=.715 Cjc=14.76p Mjc=.5383 Vjc=.75 Fc=.5 Cje=19.82p Mje=.3357 Vje=.75 Tr=111.3n Tf=603.7p Itf=.65 Vtf=5 Xtf=1.7 Rb=10)

Typical Characteristics (continued)

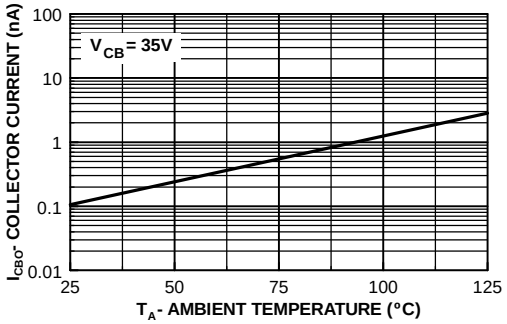
Base-Emitter Saturation Voltage vs Collector Current



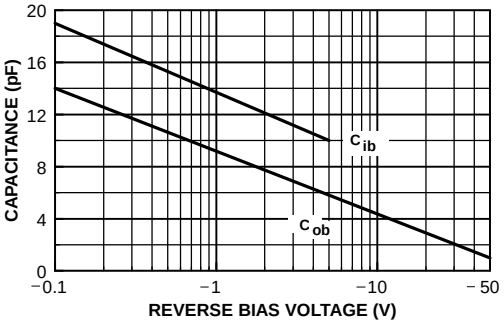
Base Emitter ON Voltage vs Collector Current



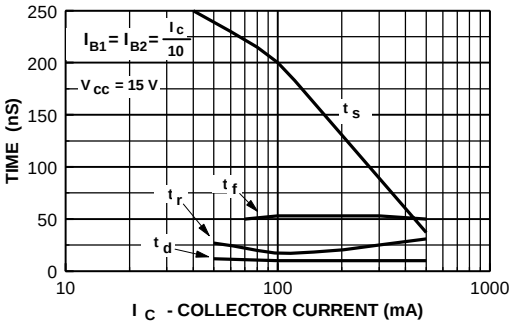
Collector-Cutoff Current vs. Ambient Temperature



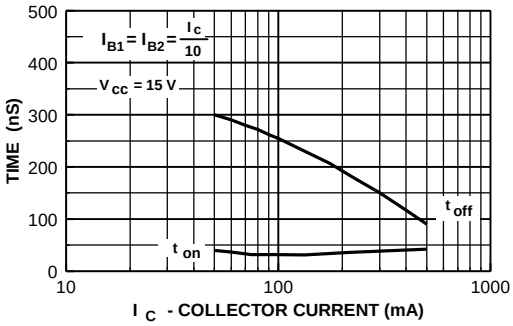
Input and Output Capacitance vs Reverse Bias Voltage



Switching Times vs Collector Current

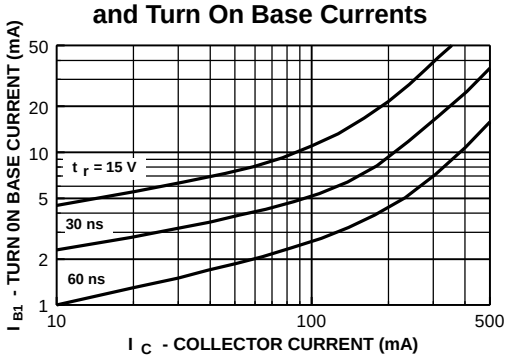


Turn On and Turn Off Times vs Collector Current

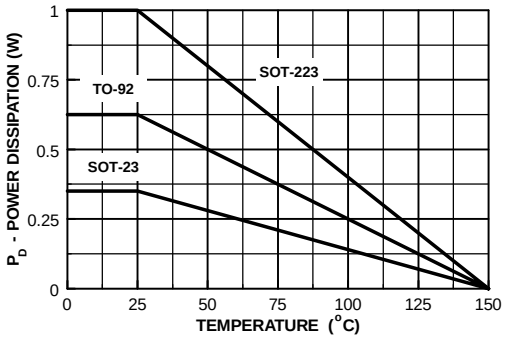


Typical Characteristics (continued)

Rise Time vs Collector and Turn On Base Currents



Power Dissipation vs Ambient Temperature



Test Circuits

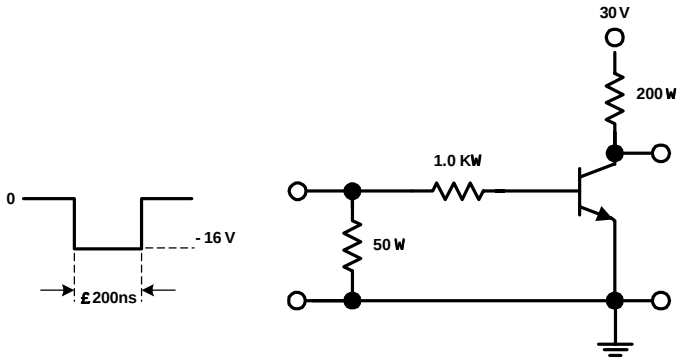


FIGURE 1: Saturated Turn-On Switching Time Test Circuit

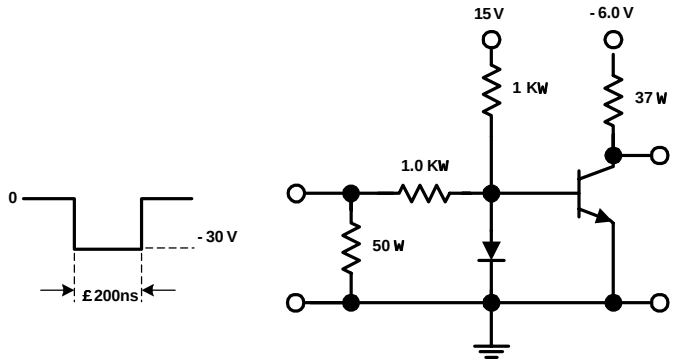


FIGURE 2: Saturated Turn-Off Switching Time Test Circuit

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DenseTrench™	HiSeC™	QS™	TinyLogic™
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