

NPN Silicon Epitaxial Planar Transistor

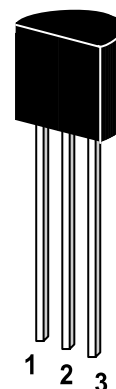
for general purpose amplifier and high speed switching applications.

The transistor is subdivided into two groups L and K, according to its DC current gain.

On special request, these transistors can be manufactured in different pin configurations.

Features

- High frequency current gain
- High speed switching
- Small output capacitance

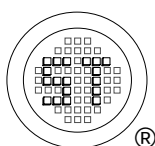


1. Emitter 2. Base 3. Collector

TO-92 Plastic Package
Weight approx. 0.19g

Absolute Maximum Ratings ($T_a = 25^{\circ}\text{C}$)

	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	40	V
Collector Emitter Voltage	V_{CES}	40	V
Collector Emitter Voltage	V_{CEO}	15	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	200	mA
Collector Current (10 μ s pulse)	I_C	500	mA
Power Dissipation	P_{tot}	600	mW
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature Range	T_S	-55 to +150	$^{\circ}\text{C}$



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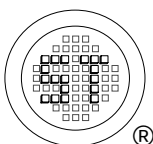


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Characteristics at $T_{amb}=25\text{ }^{\circ}\text{C}$

	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain* at $V_{CE}=1\text{V}$, $I_C=10\text{mA}$					
Current Gain Group L	h_{FE}	40	-	120	-
Current Gain Group K	h_{FE}	100	-	200	-
Collector Cutoff Current at $V_{CB}=20\text{V}$	I_{CBO}	-	-	0.1	μA
Emitter Cutoff Current at $V_{EB}=3\text{V}$	I_{EBO}	-	-	0.1	μA
Collector Saturation Voltage* at $I_C=10\text{mA}$, $I_B=1\text{mA}$	$V_{CE(sat)}$	-	0.15	0.25	V
Base Saturation Voltage* at $I_C=10\text{mA}$, $I_B=1\text{mA}$	$V_{BE(sat)}$	-	0.8	0.85	V
Turn-on Time at $V_{CC}=3\text{V}$, $I_C=10\text{mA}$, $I_{B1}=3\text{mA}$, $-V_{BE}=1.5\text{V}$	t_{on}	-	8	12	ns
Storage Time at $I_C=10\text{mA}$, $I_{B1}= -I_{B2}=10\text{mA}$	t_{stg}	-	6	13	ns
Turn-off Time at $V_{CC}=3\text{V}$, $I_C=10\text{mA}$, $I_{B1}=3\text{mA}$, $-I_{B2}=1.5\text{mA}$	t_{off}	-	12	18	ns
Gain Bandwidth Product at $V_{CE}=10\text{V}$, $-I_E=10\text{mA}$, $f=100\text{MHz}$	f_T	500	750	-	MHz
Output Capacitance at $V_{CB}=5\text{V}$, $f=1\text{MHz}$	C_{OB}	-	1.8	4	pF

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



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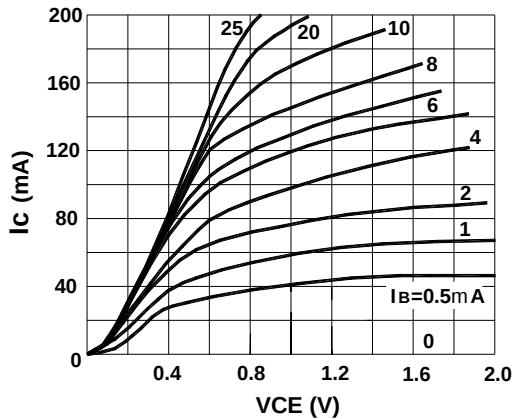


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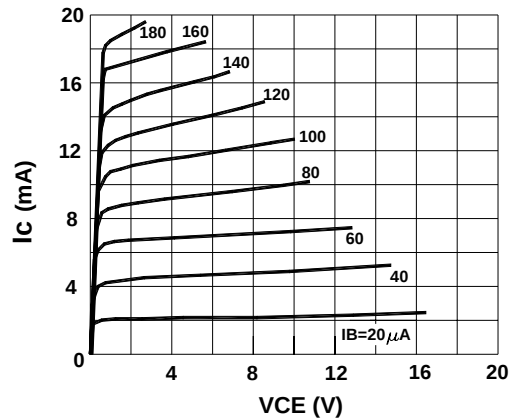
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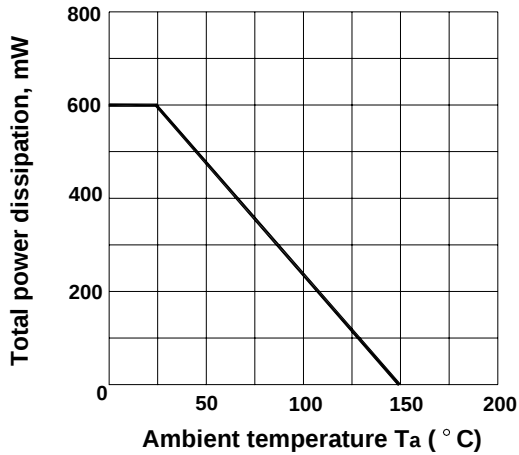
Collector current vs.
collector emitter voltage



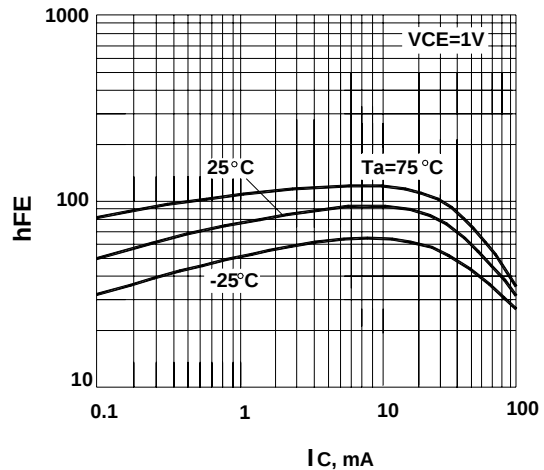
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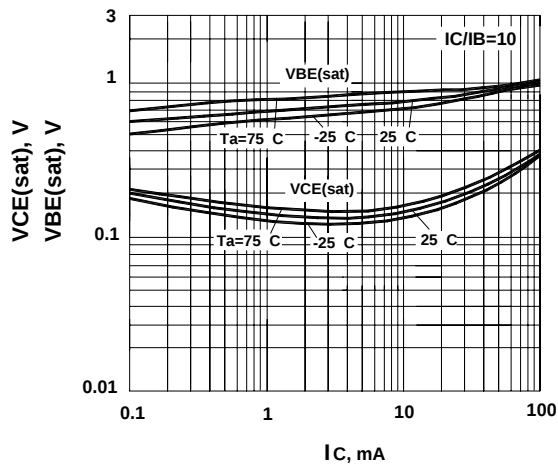
Total power dissipation vs.
ambient temperature



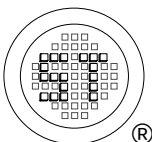
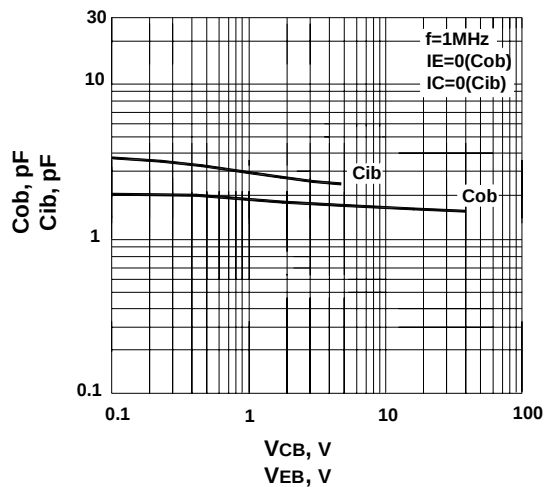
DC current gain vs. collector current



Base and collector saturation
voltage vs. collector current



Input and output capacitance
vs. reverse voltage



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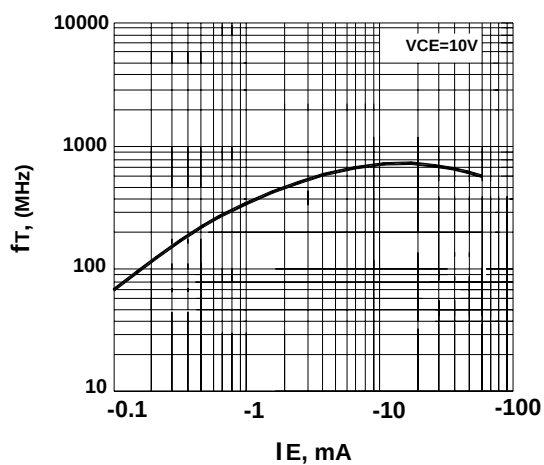


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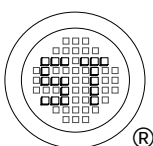
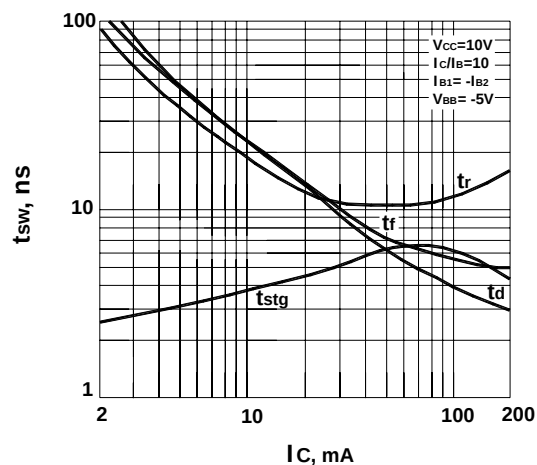
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Dated : 07/08/2003

Gain bandwidth product
vs. emitter current



Switching time vs. collector current



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