

NPN EPITAXIAL
TIP120/121/122 DARLINGTON TRANSISTOR

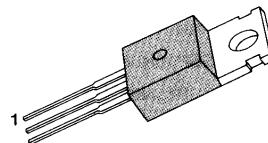
**MEDIUM POWER TRANSISTOR
SWITCHING APPLICATIONS**

• Complementary to TIP125/126/127

ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : TIP120 : TIP121 : TIP122	V_{CBO}	60	V
		80	V
Collector-Emitter Voltage : TIP120 : TIP121 : TIP122	V_{CEO}	100	V
		60	V
		80	V
Emitter-Base Voltage	V_{EBO}	100	V
		5	V
		5	A
		8	A
Base Current (DC)	I_B	120	mA
Collector Dissipation ($T_A=25^\circ\text{C}$)	P_C	2	W
Collector Dissipation ($T_C=25^\circ\text{C}$)	P_C	65	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65 ~ 150	$^\circ\text{C}$

TO-220



1. Base 2. Collector 3. Emitter

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$)

Characteristic	Symbol	Test Conditions	Min	Max	Unit
Collector Emitter Sustaining Voltage : TIP120 : TIP121 : TIP122	$V_{CEO}(\text{sus})$	$I_C = 100\text{mA}, I_B = 0$	60	80	V
Collector Cutoff Current : TIP120 : TIP121 : TIP122	I_{CEO}	$V_{CE} = 30\text{V}, I_B = 0$ $V_{CE} = 40\text{V}, I_B = 0$ $V_{CE} = 50\text{V}, I_B = 0$	100	2	mA
Collector Cutoff Current : TIP120 : TIP121 : TIP122	I_{CBO}	$V_{CB} = 60\text{V}, I_E = 0$ $V_{CB} = 80\text{V}, I_E = 0$ $V_{CB} = 100\text{V}, I_E = 0$	1000	1000	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5\text{V}, I_C = 0$		2	mA
* DC Current Gain	h_{FE}	$V_{CE} = 3\text{V}, I_C = 0.5\text{A}$ $V_{CE} = 3\text{V}, I_C = 3\text{A}$			
* Collector Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C = 3\text{A}, I_B = 12\text{mA}$ $I_C = 5\text{A}, I_B = 20\text{mA}$			
* Base Emitter On Voltage	$V_{BE}(\text{on})$	$V_{CE} = 3\text{V}, I_C = 3\text{A}$		2.0	V
Output Capacitance	C_{OB}	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$		4.0	V
				2.5	V
				200	pF

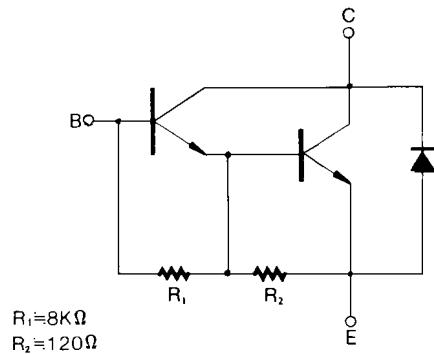
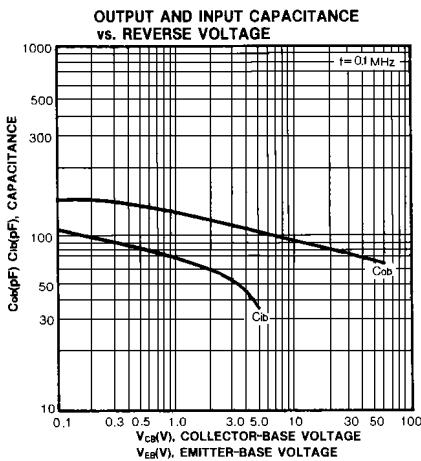
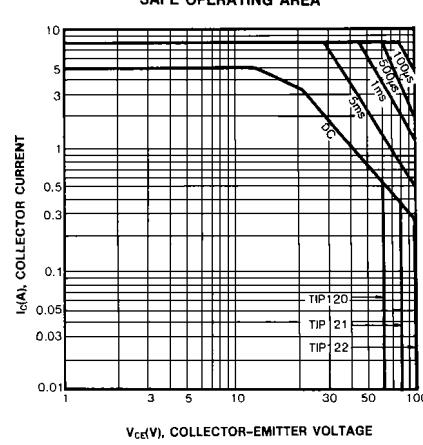
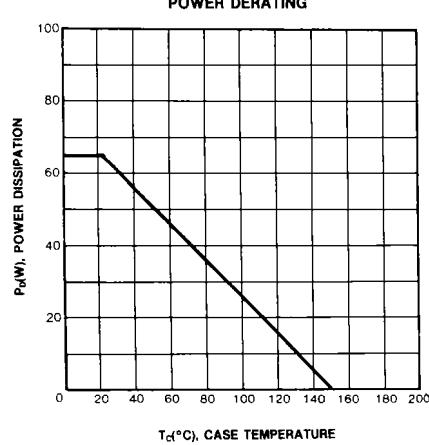
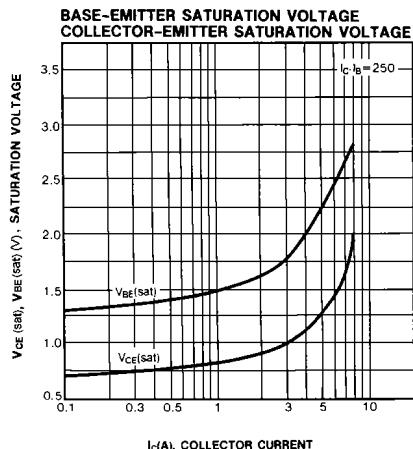
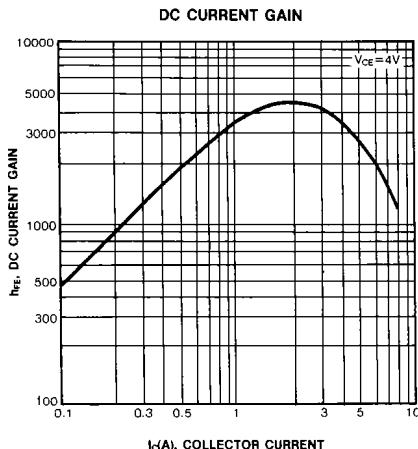
* Pulse Test: $PW \leq 300\text{ms}$, Duty Cycle $\leq 2\%$

Rev. B.1

FAIRCHILD
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