

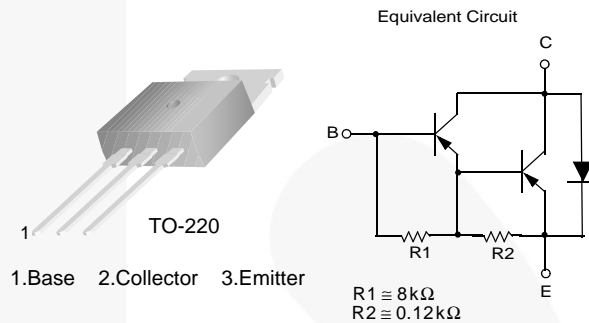


November 2014

TIP125 / TIP126 / TIP127 PNP Epitaxial Darlington Transistor

Features

- Medium Power Linear Switching Applications
- Complementary to TIP120 / TIP121 / TIP122



Ordering Information

Part Number	Top Mark	Package	Packing Method
TIP125	TIP125	TO-220 3L (Single Gauge)	Bulk
TIP125TU	TIP125	TO-220 3L (Single Gauge)	Rail
TIP126	TIP126	TO-220 3L (Single Gauge)	Bulk
TIP126TU	TIP126	TO-220 3L (Single Gauge)	Rail
TIP127	TIP127	TO-220 3L (Single Gauge)	Bulk
TIP127TU	TIP127	TO-220 3L (Single Gauge)	Rail

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_C = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	TIP125	-60
		TIP126	-80
		TIP127	-100
V_{CEO}	Collector-Emitter Voltage	TIP125	-60
		TIP126	-80
		TIP127	-100
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current (DC)	-5	A
I_{CP}	Collector Current (Pulse)	-8	A
I_B	Base Current (DC)	-120	mA
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-65 to 150	$^\circ\text{C}$

TIP125 / TIP126 / TIP127 — PNP Epitaxial Darlington Transistor

Thermal Characteristics

Values are at $T_C = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
P_C	Collector Dissipation ($T_A = 25^\circ\text{C}$)	2	W
	Collector Dissipation ($T_C = 25^\circ\text{C}$)	65	

Electrical Characteristics

Values are at $T_C = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	TIP125	$I_C = -100\text{ mA}, I_B = 0$	-60	V
		TIP126		-80	
		TIP127		-100	
I_{CEO}	Collector Cut-Off Current	TIP125	$V_{CE} = -30\text{ V}, I_B = 0$	-2	mA
		TIP126	$V_{CE} = -40\text{ V}, I_B = 0$	-2	
		TIP127	$V_{CE} = -50\text{ V}, I_B = 0$	-2	
I_{CBO}	Collector Cut-Off Current	TIP125	$V_{CB} = -60\text{ V}, I_E = 0$	-1	mA
		TIP126	$V_{CB} = -80\text{ V}, I_E = 0$	-1	
		TIP127	$V_{CB} = -100\text{ V}, I_E = 0$	-1	
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = -5\text{ V}, I_C = 0$		-2	mA
h_{FE}	DC Current Gain ⁽¹⁾	$V_{CE} = -3\text{ V}, I_C = -0.5\text{ A}$	1000		
		$V_{CE} = -3\text{ V}, I_C = -3\text{ A}$	1000		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ⁽¹⁾	$I_C = -3\text{ A}, I_B = -12\text{ mA}$		-2	V
		$I_C = -5\text{ A}, I_B = -20\text{ mA}$		-4	
$V_{BE(on)}$	Base-Emitter On Voltage ⁽¹⁾	$V_{CE} = -3\text{ V}, I_C = -3\text{ A}$		-2.5	V
C_{ob}	Output Capacitance	$V_{CB} = -10\text{ V}, I_E = 0,$ $f = 0.1\text{ MHz}$		300	pF

Note:

1. Pulse test: $p_w \leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

Typical Performance Characteristics

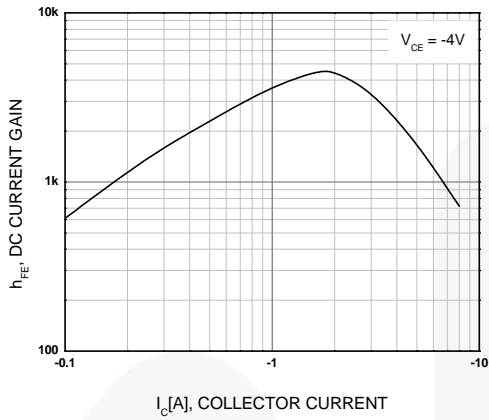


Figure 1. DC Current Gain

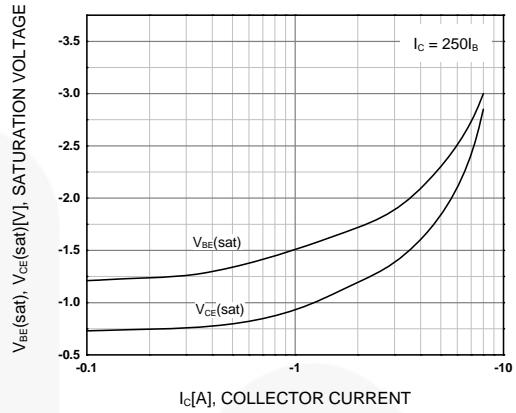


Figure 2. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

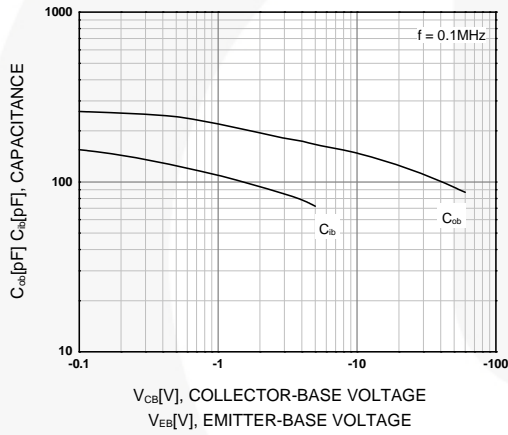


Figure 3. Output and Input Capacitance vs. Reverse Voltage

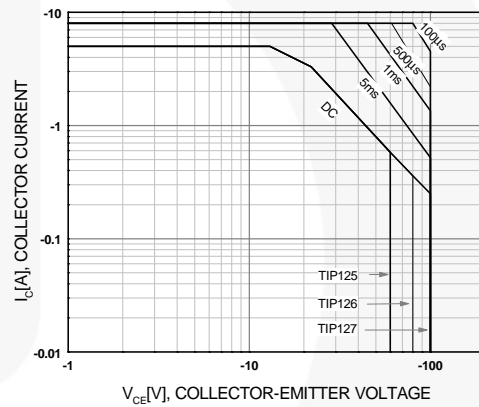


Figure 4. Safe Operating Area

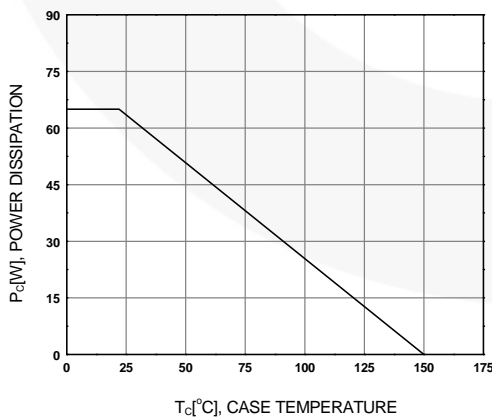


Figure 5. Power Derating



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