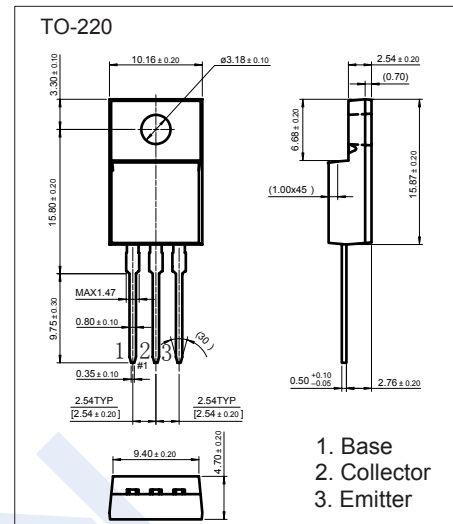


NPN Darlington Transistors

TIP121 (KIP121)

■ Features

- Collector Current Capability $I_C=5A$
- Collector Emitter Voltage $V_{CEO}=80\text{ V}$
- Medium Power Complementary Silicon Transistors



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V _{CBO}	80	V
Collector - Emitter Voltage	V _{CEO}	80	
Emitter - Base Voltage	V _{EBO}	5	
Collector Current - Continuous	I _C	5	A
Collector Power Dissipation	P _C	2	W
Thermal Resistance Junction to Ambient	R _{θJA}	62.5	°C/W
Thermal Resistance Junction to Case	R _{θJC}	1.92	
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = 1 \text{ mA}, I_E = 0$	80			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = 30 \text{ mA}, I_B = 0$	80			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 1 \text{ mA}, I_C = 0$	5			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 80 \text{ V}, I_E = 0$			0.2	mA
Collector- emitter cut-off current	I_{CEO}	$V_{CE} = 40 \text{ V}, I_E = 0$			0.5	
Emitter cut-off current	I_{EBO}	$V_{EB} = 5 \text{ V}, I_C = 0$			2	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3 \text{ A}, I_B = 12 \text{ mA}$			2	V
		$I_C = 5 \text{ A}, I_B = 20 \text{ mA}$			4	
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 3 \text{ A}, I_B = 12 \text{ mA}$			1.2	
Base-emitter voltage	V_{BE}	$V_{CE} = 3 \text{ V}, I_C = 3 \text{ A}$			2.5	
DC current gain	h_{FE}	$V_{CE} = 3 \text{ V}, I_C = 0.5 \text{ A}$	1000			
		$V_{CE} = 3 \text{ V}, I_C = 3 \text{ A}$	1000			
Collector output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}, I_E = 0, f = 0.1 \text{ MHz}$			200	pF