

TO-220 Plastic-Encapsulated Transistors

TIP120, 121, 122 Darlington TRANSISTOR (NPN)

FEATURES

Power dissipation

$$P_{CM}: 2 \text{ W (Tamb=25}^\circ\text{C)}$$

Collector current

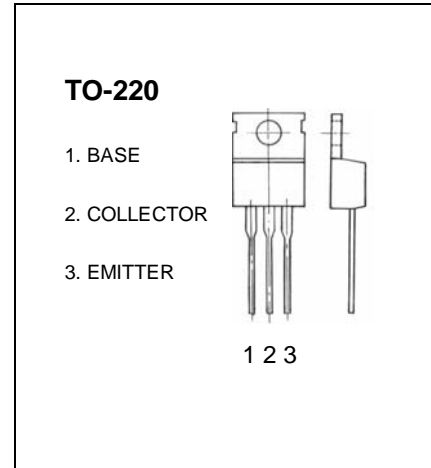
$$I_{CM}: 5 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO}: \begin{array}{ll} \text{TIP120:} & 60 \text{ V} \\ \text{TIP121:} & 80 \text{ V} \\ \text{TIP122:} & 100 \text{ V} \end{array}$$

Operating and storage junction temperature range

$$T_J, T_{stg}: -65^\circ\text{C to } +150^\circ\text{C}$$



ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	TIP120	$I_C = 1 \text{ mA}, I_E = 0$	60		V
	TIP121		80		
	TIP122		100		
Collector-emitter breakdown voltage	TIP120	$I_C = 100 \text{ mA}, I_B = 0$	60		V
	TIP121		80		
	TIP122		100		
Collector cut-off current	TIP120	$V_{CB} = 60 \text{ V}, I_E = 0$		0.2	uA
	TIP121	$V_{CB} = 80 \text{ V}, I_E = 0$		0.2	
	TIP122	$V_{CB} = 100 \text{ V}, I_E = 0$		0.2	
Collector cut-off current	TIP120	$V_{CE} = 30 \text{ V}, I_B = 0$		0.5	uA
	TIP121	$V_{CE} = 40 \text{ V}, I_B = 0$		0.5	
	TIP122	$V_{CE} = 50 \text{ V}, I_B = 0$		0.5	
Emitter cut-off current	I_{EBO}	$V_{EB} = 5 \text{ V}, I_C = 0$		2	mA
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-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3 \text{ A}, I_B = 12 \text{ mA}$ $I_C = 5 \text{ A}, I_B = 20 \text{ mA}$		2 4	V
Base-emitter ON voltage	$V_{BE(on)}$	$V_{CE} = 3 \text{ V}, I_C = 3 \text{ A}$		2.5	V