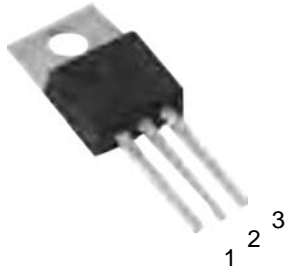


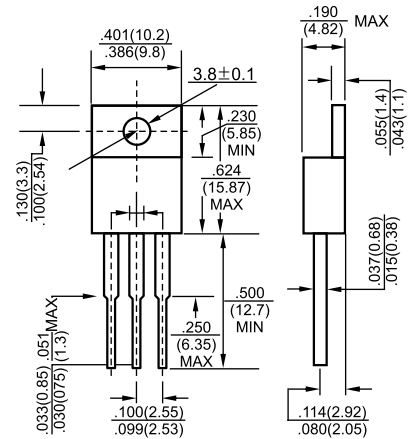
# TIP120-TIP127

## TO-220 Darlington Transistor



- 1.BASE
- 2.COLLECTOR
- 3.EMITTER

### TO-220



Dimensions in inches and (millimeters)

## Features

- ✧ TIP120,121,122 Darlington TRANSISTOR (NPN)
- ✧ TIP125,126,127 Darlington TRANSISTOR (PNP)
- ✧ Medium Power Complementary silicon transistors

## MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	TIP120 TIP125	TIP121 TIP126	TIP122 TIP127	Units
$V_{CBO}$	Collector-Base Voltage	60	80	100	V
$V_{CEO}$	Collector-Emitter Voltage	60	80	100	V
$V_{EBO}$	Emitter-Base Voltage	5			V
$I_C$	Collector Current -Continuous	5			A
$P_C$	Collector Power Dissipation	2			W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	62.5			$^{\circ}\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.92			$^{\circ}\text{C/W}$
$T_J$	Junction Temperature	150			$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55to+150			$^{\circ}\text{C}$

## ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

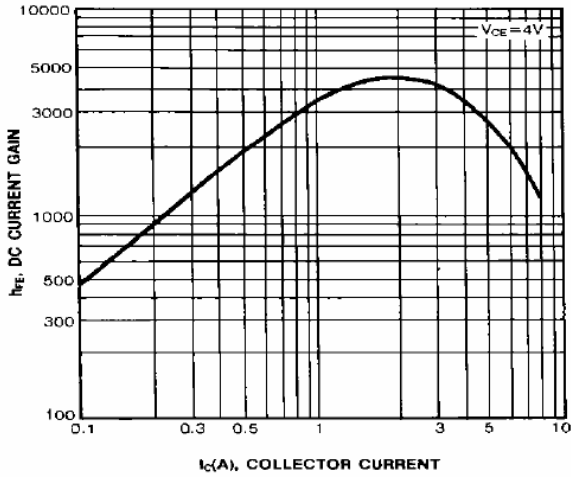
Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage TIP120,TIP125 TIP121,TIP126 TIP122,TIP127	$V(BR)_{CBO}$	$I_C=1\text{mA}, I_E=0$	60 80 100		V
Collector-emitter breakdown voltage TIP120,TIP125 TIP121,TIP126 TIP122,TIP127	$V_{CEO(SUS)}$	$I_C=30\text{mA}, I_B=0$	60 80 100		V
Collector cut-off current TIP120,TIP125 TIP121,TIP126 TIP122,TIP127	$I_{CBO}$	$V_{CB}=60\text{V}, I_E=0$ $V_{CB}=80\text{V}, I_E=0$ $V_{CB}=100\text{V}, I_E=0$		0.2	mA
Collector cut-off current TIP120,TIP125 TIP121,TIP126 TIP122,TIP127	$I_{CEO}$	$V_{CE}=30\text{V}, I_B=0$ $V_{CE}=40\text{V}, I_B=0$ $V_{CE}=50\text{V}, I_B=0$		0.5	mA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$		2	mA
DC current gain	$h_{FE(1)}$	$V_{CE}=3\text{V}, I_C=0.5\text{A}$	1000		
	$h_{FE(2)}$	$V_{CE}=3\text{V}, I_C=3\text{A}$	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 voltage	$V_{BE}$	$V_{CE}=3\text{V}, I_C=3\text{A}$		2.5	V
Output Capacitance TIP125,TIP126,TIP127 TIP120,TIP121,TIP122	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$		300 200	pF

# TIP120-TIP127

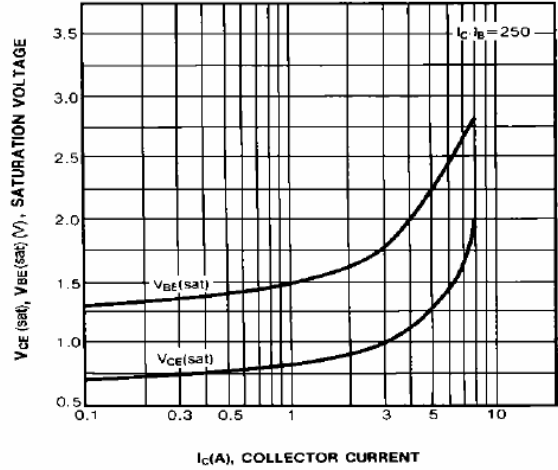
TO-220 Darlington Transistor

## Typical Characteristics

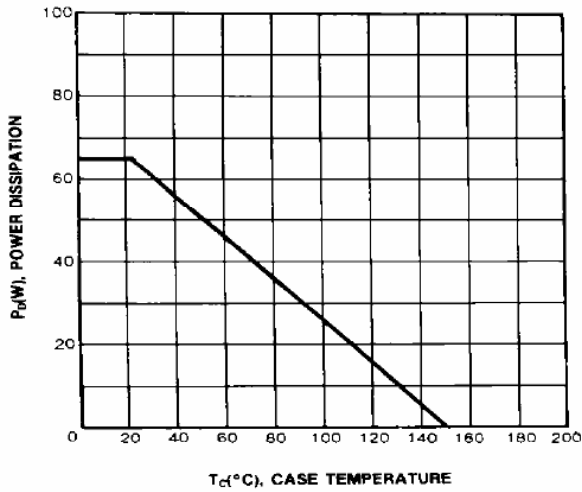
DC CURRENT GAIN



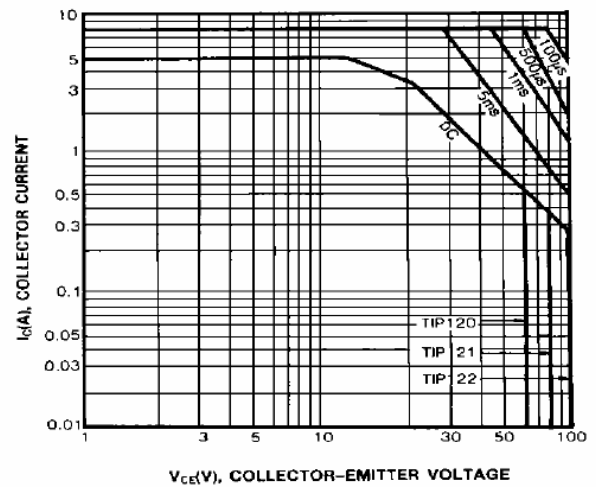
BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE



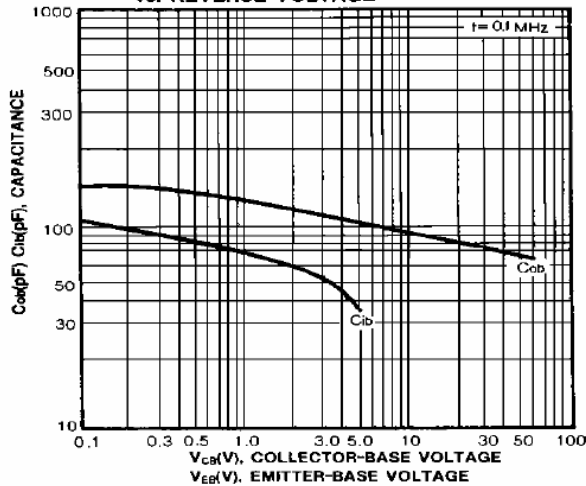
POWER DERATING



SAFE OPERATING AREA



OUTPUT AND INPUT CAPACITANCE  
vs. REVERSE VOLTAGE



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