

NPN TIP130 – 131 – 132

SILICON DARLINGTON POWER TRANSISTORS

NPN epitaxial-base transistors in a monolithic Darlington circuit and housed in a TO-220 envelope.

They are intended for use in power linear and switching applications.

The complementary PNP types are TIP135/136/137

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings			Value	Unit
V_{CBO}	Collector-Base Voltage ($I_E=0$)		TIP130	60	V
			TIP131	80	
			TIP132	100	
V_{CEO}	Collector-Emitter Voltage ($I_B=0$)		TIP130	60	V
			TIP131	80	
			TIP132	100	
V_{EBO}	Emitter-Base Voltage ($I_C=0$)			5	V
I_C	Collector Current			8	A
I_{CM}	Collector Peak Current (1)			12	A
I_B	Base Current			0.3	A
P_T	Power Dissipation	T_{case}	@ $T_{mb} < 25^\circ$	70	W
		t_{amb}		2	
t_J	Junction Temperature			150	$^\circ C$
t_s	Storage Temperature range			-65 to +150	

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJC}	From Junction to Case Thermal Resistance	1.78	$^\circ\text{C/W}$
R_{thJA}	From Junction to Free-Air Thermal Resistance	62.5	

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

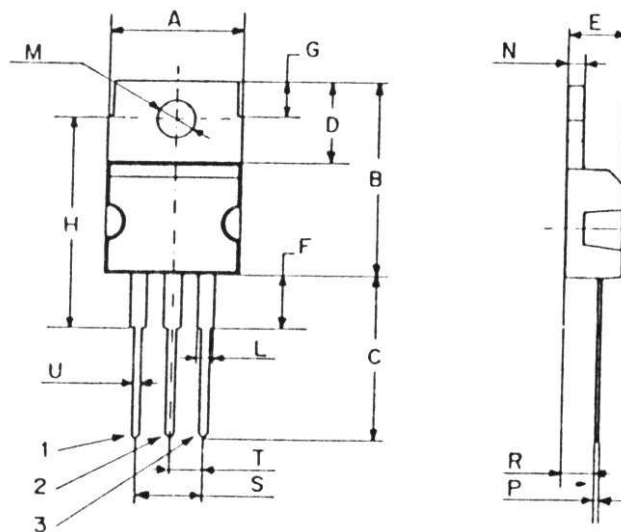
Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
V_{CEO}	Collector-Emitter Breakdown Voltage (*)	$I_C = 30 \text{ mA}$ $I_B = 0$	TIP130	60	-	-	V
			TIP131	80	-	-	
			TIP132	100	-	-	
I_{CBO}	Collector-Emitter sustaining Current	$V_{CB} = V_{CEO}$ $I_E = 0$	TIP130	-	-	0.2	mA
			TIP131	-	-	0.2	
			TIP132	-	-	0.2	
		$V_{CB} = V_{CEO}$ $I_E = 0$ $T_C = 100^\circ\text{C}$	TIP130	-	-	1	
			TIP131	-	-	1	
			TIP132	-	-	1	
I_{CEO}	Collector-Emitter Cutoff Current	$V_{CE} = 30 \text{ V}$	TIP130	-	-	0.5	A
		$V_{CE} = 40 \text{ V}$	TIP131	-	-	0.5	
		$V_{CE} = 50 \text{ V}$	TIP132	-	-	0.5	
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 5 \text{ V}$ $I_C = 0$		-	-	5	mA
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = 4 \text{ A}$ $I_B = 16 \text{ mA}$		-	-	2	V
		$I_C = 6 \text{ A}$ $I_B = 30 \text{ mA}$		-	-	3	
V_{BE}	Base-Emitter Voltage (*)	$V_{CE} = 4 \text{ V}$ $I_C = 4 \text{ A}$		-	-	2.5	V
h_{FE}	Forward Current transfer ratio (*)	$V_{CE} = 4 \text{ V}$ $I_C = 1 \text{ A}$		500	-	-	-
		$V_{CE} = 4 \text{ V}$ $I_C = 4 \text{ A}$		1000	-	1500 0	
C_{OBO}	Output Capacitance	$V_{CB} = 10 \text{ V}$ $I_E = 0$		-	-	200	pF

(*) Pulse Width $\approx 300 \mu\text{s}$, Duty Cycle $\angle 2.0\%$

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MECHANICAL DATA CASE TO-220

DIMENSIONS (mm)		
	Min.	Max.
A	9,90	10,30
B	15,65	15,90
C	13,20	13,40
D	6,45	6,65
E	4,30	4,50
F	2,70	3,15
G	2,60	3,00
H	15,75	17,15
L	1,15	1,40
M	3,50	3,70
N	-	1,37
P	0,46	0,55
R	2,50	2,70
S	4,98	5,08
T	2,49	2,54
U	0,70	0,90



Pin 1 :	Base
Pin 2 :	Collector
Pin 3 :	Emitter
Case :	Collector

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