

## 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	°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	°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

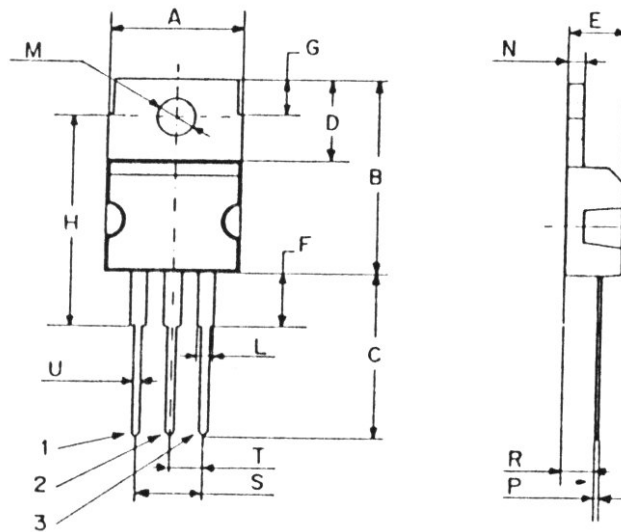
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$V_{CEO}$	Collector-Emitter Breakdown Voltage (*)	$I_C = 30 \text{ mA}$ $I_B = 0$	TIP130	60	-	-	V
			TIP131	80	-	-	
			TIP132	100	-	-	
$I_{CBO}$	Collector-Emitter sustaining Current	$V_{CB} = V_{CEO}$ $I_E = 0$	TIP130	-	-	0.2	mA
			TIP131	-	-	0.2	
			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	$V_{CE} = 30 \text{ V}$ $V_{CE} = 40 \text{ V}$ $V_{CE} = 50 \text{ V}$	TIP130	-	-	0.5	A
			TIP131	-	-	0.5	
			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  $\leq 2.0\%$

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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

Revised August 2012

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