

NPN TIP100-101-102

SILICON DARLINGTON POWER TRANSISTORS

NPN epitaxial-base transistors in a monolithic Darlington circuit and housed in a TO-220 envelope. They are designed for general purpose amplifier and low-speed switching applications.

PNP complements are TIP105-106-107

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit	
V_{CBO}	Collector-Base Voltage		TIP100	60	V
			TIP101	80	
			TIP102	100	
V_{CEO}	Collector-Emitter Voltage		TIP100	60	V
			TIP101	80	
			TIP102	100	
V_{EBO}	Emitter-Base Voltage		TIP100	5	V
			TIP101		
			TIP102		
I_C	Collector Current		TIP100	8	A
			TIP101		
			TIP102		
I_{CM}	Collector Peak Current		TIP100	15	A
			TIP101		
			TIP102		
I_B	Base Current		TIP100	1	A
			TIP101		
			TIP102		
P_T	Power Dissipation	@ $T_c < 25^\circ$	TIP100	80	Watts
			TIP101		
			TIP102		
		@ $T_a < 25^\circ$	TIP100	2	
			TIP101		
			TIP102		
T_J	Junction Temperature		TIP100	150	$^{\circ}\text{C}$
			TIP101		
			TIP102		
T_s	Storage Temperature range		TIP100	-65 to +150	
			TIP101		
			TIP102		

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THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-case}$	From junction-case	1.56	°C/W
$R_{thJ-amb}$	From junction-ambient	62.5	°C/W

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

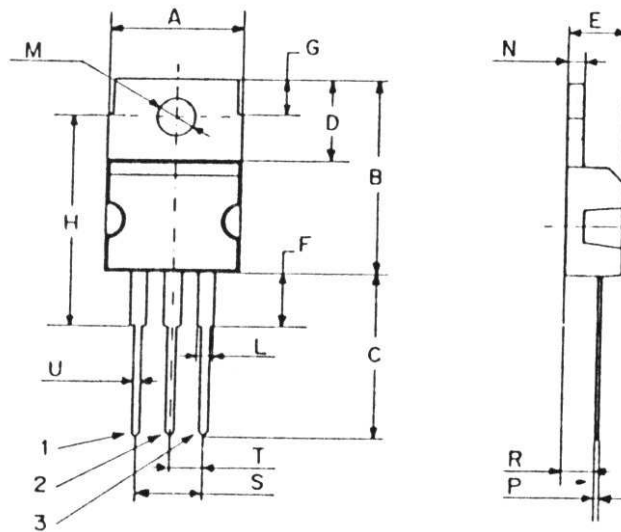
Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
I_{CBO}	Collector Cutoff Current	$I_E = 0, V_{CB} = V_{CBOmax}$	TIP100	-	-	50	μA
			TIP101				
			TIP102				
I_{CEO}	Collector Cutoff Current	$I_E = 0, V_{CE} = 1/2 V_{CEOmax}$	TIP100	-	-	50	μA
			TIP101				
			TIP102				
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 5\text{ V}, I_C = 0$	TIP100	-	-	8	mA
			TIP101				
			TIP102				
V_{CEO}	Collector-Emitter Breakdown Voltage (*)	$I_C = 30\text{ mA}, I_B = 0$	TIP100	60	-	-	V
			TIP101	80	-	-	
			TIP102	100	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = 3\text{ A}, I_B = 6\text{ mA}$	TIP100	-	-	2	V
			TIP101				
			TIP102				
		$I_C = 8\text{ A}, I_B = 80\text{ mA}$	TIP100	-	-	2.5	
			TIP101				
			TIP102				
$V_{BE(on)}$	Base-Emitter Voltage (*)	$I_C = 8\text{ A}, V_{CE} = 4\text{ V}$	TIP100	-	-	2.8	V
			TIP101				
			TIP102				
h_{FE}	DC Current Gain (*)	$V_{CE} = 4\text{ V}, I_C = 3\text{ A}$	TIP100	1000	-	20k	-
			TIP101				
			TIP102				
		$V_{CE} = 4\text{ V}, I_C = 8\text{ A}$	TIP100	200	-	-	
			TIP101				
			TIP102				
C_{OB}	Output Capacitance	$I_E = 0, V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$	TIP100	-	-	200	pF
			TIP101				
			TIP102				

(*) Pulse Width $\approx 300 \mu s$, 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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