

## TIP135-136-137

### PNP SILICON DARLINGTON POWER TRANSISTORS

PNP 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.

NPN complements are TIP130-131-132

Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit	
$V_{CBO}$	Collector-Base Voltage		TIP135	-60	V
			TIP136	-80	
			TIP137	-100	
$V_{CEO}$	Collector-Emitter Voltage		TIP135	-60	V
			TIP136	-80	
			TIP137	-100	
$V_{EBO}$	Emitter-Base Voltage		TIP135	-5	V
			TIP136		
			TIP137		
$I_C$	Collector Current		TIP135	-8	A
			TIP136		
			TIP137		
$I_{CM}$	Collector Peak Current		TIP135	-12	A
			TIP136		
			TIP137		
$I_B$	Base Current		TIP135	-300	mA
			TIP136		
			TIP137		
$P_T$	Power Dissipation	@ $T_c < 25^\circ$	TIP135	70	W
			TIP136		
			TIP137		
		@ $T_a < 25^\circ$	TIP135	2	
			TIP136		
			TIP137		
$T_J$	Junction Temperature		TIP135	150	$^\circ\text{C}$
			TIP136		
			TIP137		
$T_s$	Storage Temperature range		TIP135	-65 to +150	
			TIP136		
			TIP137		

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### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-case}$	From junction-case	1.78	°C/W
$R_{thJ-amb}$	From junction-ambient	63.5	°C/W

### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

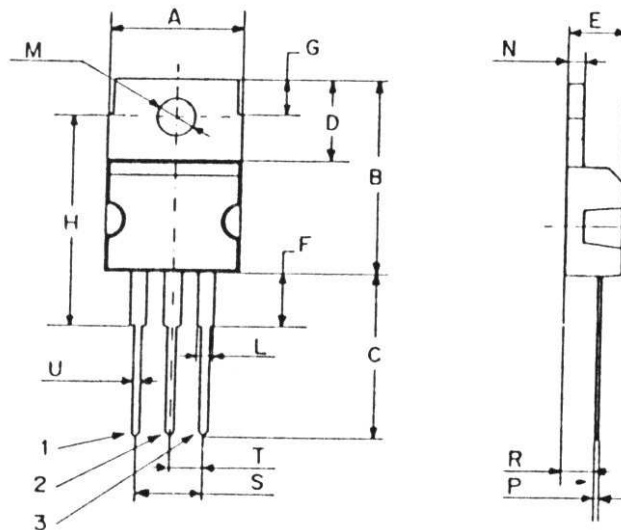
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$I_{CBO}$	Collector Cutoff Current	$I_E = 0$ $V_{CB} = -V_{CB0max}$	TIP135	-	-	-0.2	mA
			TIP136				
			TIP137				
$I_{CEO}$	Collector Cutoff Current	$I_E = 0$ $V_{CE} = 1/2 -V_{CEOmax}$	TIP135	-	-	-0.5	mA
			TIP136				
			TIP137				
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = -5 V$ $I_C = 0$	TIP135	-	-	-5	mA
			TIP136				
			TIP137				
$V_{CEO}$	Collector-Emitter Breakdown Voltage (*)	$I_C = -30 mA$ $I_B = 0$	TIP135	-60	-	-	V
			TIP136	-80	-	-	
			TIP137	-100	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = -4 A$ $I_B = -16 mA$	TIP135	-	-	-2	V
			TIP136				
			TIP137				
		$I_C = -6 A$ $I_B = -30 mA$	TIP135	-	-	-3	
			TIP136				
			TIP137				
$V_{BE(on)}$	Base-Emitter Voltage (*)	$I_C = -4 A$ $V_{CE} = -4 V$	TIP135	-	-	-2.5	V
			TIP136				
			TIP137				
$h_{FE}$	DC Current Gain (*)	$V_{CE} = -4 V$ $I_C = -1 A$	TIP135	500	-	-	-
			TIP136				
			TIP137				
		$V_{CE} = -4 V$ $I_C = -4 A$	TIP135	1000	-	15K	
			TIP136				
			TIP137				
$C_{OBO}$	Output Capacitance	$I_E = 0, V_{CB} = -10 V$	TIP135	-	-	200	pF
			TIP136				
			TIP137				

(\*) 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

Revised October 2014

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