



## TIP145 – TIP146 – TIP147

### NPN SILICON DARLINGTONS, SILICON POWER TRANSISTORS

They are silicon epitaxial-base PNP transistors in monolithic Darlington configuration and are mounted in SOT93 plastic package.

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

The complementary are TIP140, TIP141, TIP142.

Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
$V_{CE0}$	Collector-Emitter Voltage	TIP145	-60	V
		TIP146	-80	
		TIP147	-100	
$V_{CBO}$	Collector-Base Voltage	TIP145	-60	V
		TIP146	-80	
		TIP147	-100	
$V_{EBO}$	Emitter-Base Voltage		-5.0	V
$I_C$	Collector Current	$I_C$	-10	A
		$I_{CM}$	-15	
$I_B$	Base Current		-0.5	A
$P_T$	Power Dissipation	@ $T_{mb} = 25^\circ C$	125	Watts
$T_J$	Junction Temperature		150	$^\circ C$
$T_S$	Storage Temperature		-65 to +150	

#### THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
$R_{thJ-mb}$	Thermal Resistance Junction - Case		1	$^\circ C / W$

## TIP145 – TIP146 – TIP147

### ELECTRICAL CHARACTERISTICS

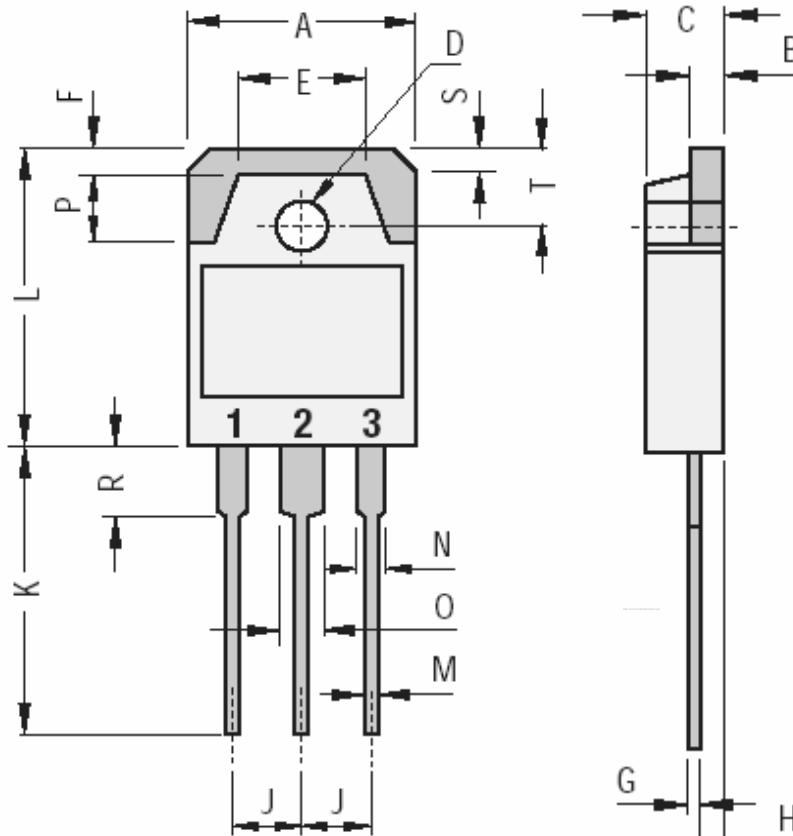
TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$I_{CEO}$	Collector Cutoff Current $I_B = 0$	$V_{CE} = -30$ V	TIP145	-	-	-2	mA
		$V_{CE} = -40$ V	TIP146	-	-		
		$V_{CE} = -50$ V	TIP147	-	-		
$I_{EBO}$	Emitter Cutoff Current $I_C = 0$	$V_{BE} = -5$ V	TIP145	-	-	-2	mA
			TIP146	-	-		
			TIP147	-	-		
$I_{CBO}$	Collector Cutoff Current $I_E = 0$	$V_{CB} = -60$ V	TIP145	-	-	-1	mA
		$V_{CB} = -80$ V	TIP146	-	-		
		$V_{CB} = -100$ V	TIP147	-	-		
$V_{CE0(SUS)}$	Collector-Emitter Sustaining $I_B = 0$	$I_C = -30$ mA	TIP145	-60	-	-	V
			TIP146	-80	-	-	
			TIP147	-100	-	-	
$h_{FE}$	DC Current Gain (*)	$V_{CE} = 4$ V $I_C = 5$ A		1000	-	-	-
		$V_{CE} = 4$ V $I_C = 10$ A		500	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = -5$ A $I_B = -10$ mA	TIP145	-	-	-2	V
			TIP146				
			TIP147				
		$I_C = -10$ A $I_B = -40$ mA	TIP145	-	-	-3	
			TIP146				
			TIP147				
$V_{BE}$	Base-Emitter Voltage (*)	$V_{CE} = -4$ V $I_C = -10$ A	TIP145	-	-	-3	V
			TIP146				
			TIP147				
$V_F$	Parallel Diode forward voltage	$I_F = 10$ A		-	-	3.5	V
$t_{on}$	Turn-on Time	$V_{BE(off)} = 4.2$ V, $I_C = -10$ A $R_L = 3$ $\Omega$		-	0.9	-	$\mu$ s
$t_{off}$	Turn-on Time	$I_{B(on)} = -40$ mA $I_{B(off)} = 40$ mA		-	11	-	

(\*) Pulse Width = 200  $\mu$ s, Duty Cycle  $\leq$  1.5%

## TIP145 – TIP146 – TIP147

### MECHANICAL DATA CASE TO3PN Non Isolated Plastic Package



DIMENSIONS (mm)		
	Min.	Max.
A	15.20	1600
B	1.90	2.10
C	4.60	5.00
D	3.10	3.30
E		9.60
F		2.00
G	0.35	0.55
H		1.40
J	5.35	5.55
K	20.00	
L	19.60	20.20
M	0.95	1.25
N		2.00
O		3.00
P		4.00
R		4.00
S		1.80
T	4.80	5.20

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

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