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 packtage.
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_{CEO}	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		TIP145	-5.0	V
			TIP146		
			TIP147		
I_C	Collector Current	I_C	TIP145	-10	A
			TIP146		
			TIP147		
		I_{CM}	TIP145	-15	
			TIP146		
			TIP147		
I_B	Base Current		TIP145	-0.5	A
			TIP146		
			TIP147		
P_T	Power Dissipation	@ T_{mb} = 25° C	TIP145	125	Watts
			TIP146		
			TIP147		
T_J	Junction Temperature		TIP145	150	°C
			TIP146		
			TIP147		
T_S	Storage Temperature		TIP145	-65 to +150	
			TIP146		
			TIP147		

TIP145, TIP146, TIP147

THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
R_{thJ-mb}	Thermal Resistance Junction - Case	**TIP145** **TIP146** **TIP147**	1	°C / W

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Min	Typ	Mx	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	-	-	

Symbol	Ratings	Test Condition(s)		Min	Typ	Mx	Unit
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	$V_{BE(off)}$= 4.2V, I_C= -10 A, R_L= 3 Ω $I_{B(on)}$= -40mA, $I_{B(off)}$= 40 mA		-	0.9	-	µs
t_{off}	Turn-on Time			-	11	-	

(*) Pulse Width = 200 µs, Duty Cycle ∠ 1.5%

TIP145, TIP146, TIP147

MECHANICAL DATA CASE TO-3PN (SOT93)