



TIP140 – TIP141 – TIP142

NPN SILICON DARLINGTONS, SILICON POWER TRANSISTORS

They are silicon epitaxial-base NPN transistors in monolithic Darlington configuration and are mounted in TO-3PN plastic package.

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

The complementary are TIP145, TIP146, TIP147.

Compliance to RoHS

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V_{CEO}	Collector-Emitter Voltage	TIP140	60	V
		TIP141	80	
		TIP142	100	
V_{CBO}	Collector-Base Voltage	TIP140	60	V
		TIP141	80	
		TIP142	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	@ $T_{mb} = 25^\circ \text{C}$	125	Watts
T_J	Junction Temperature		150	$^\circ\text{C}$
T_S	Storage Temperature		-65 to +150	

THERMAL CHARACTERISTICS

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

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ELECTRICAL CHARACTERISTICS

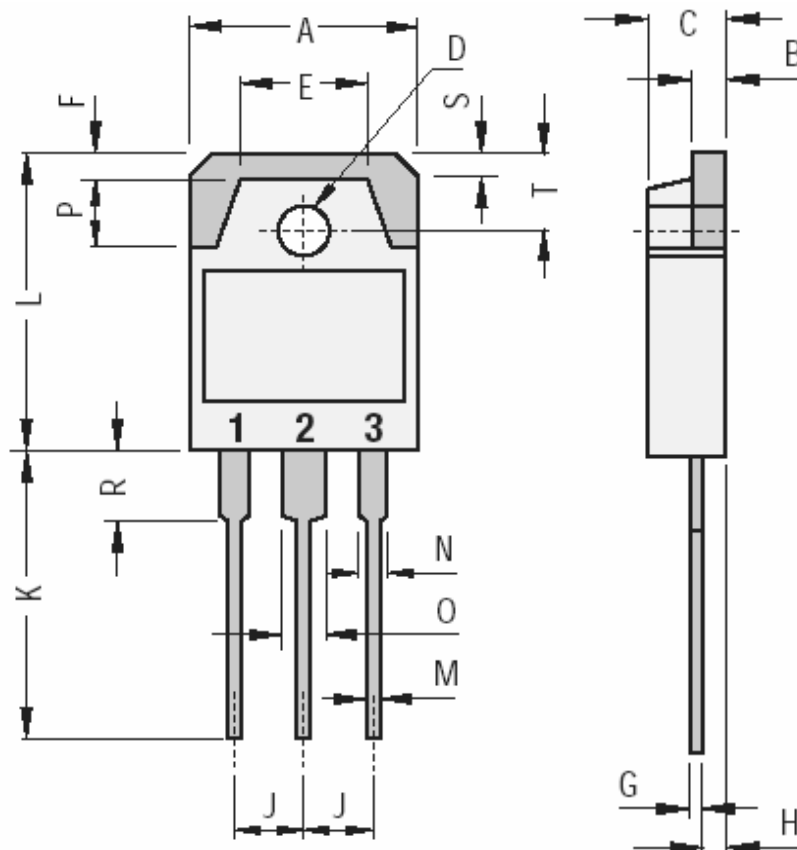
TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
I _{CEO}	Collector Cutoff Current I _B = 0	V _{CE} = 30 V	TIP140	-	-	2	mA
		V _{CE} = 40 V	TIP141	-	-		
		V _{CE} = 50 V	TIP142	-	-		
I _{EBO}	Emitter Cutoff Current I _C = 0	V _{BE} = 5 V	TIP140	-	-	2	mA
			TIP141	-	-		
			TIP142	-	-		
I _{CBO}	Collector Cutoff Current I _E = 0	V _{CB} = 60 V	TIP140	-	-	1	mA
		V _{CB} = 80 V	TIP141	-	-		
		V _{CB} = 100 V	TIP142	-	-		
V _{CE0(SUS)}	Collector-Emitter Sustaining I _B = 0	I _C = 30 mA	TIP140	60	-	-	V
			TIP141	80	-	-	
			TIP142	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	TIP140	-	-	2	V
			TIP141				
			TIP142				
		I _C = 10 A I _B =40 mA	TIP140	-	-	3	
			TIP141				
			TIP142				
V _{BE}	Base-Emitter Voltage (*)	V _{CE} = 4 V I _C = 10 A	TIP140	-	-	3	V
			TIP141				
			TIP142				
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		-	0.9	-	μS
t _{off}	Turn-on Time	I _{B(on)} = 40mA I _{B(off)} = -40 mA		-	11	-	

(*) Pulse Width = 200 μs , Duty Cycle $\angle 1.5\%$

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MECHANICAL DATA CASE TO3PN Non Isolated Plastic Package



DIMENSIONS (mm)		
	Min.	Max.
A	15.20	16.00
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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