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 packtage.
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° C		125	Watts
T_J	Junction Temperature			150	°C
T_S	Storage Temperature			-65 to +150	

THERMAL CHARACTERISTICS

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

TIP140 – TIP141 – TIP142

ELECTRICAL CHARACTERISTICS

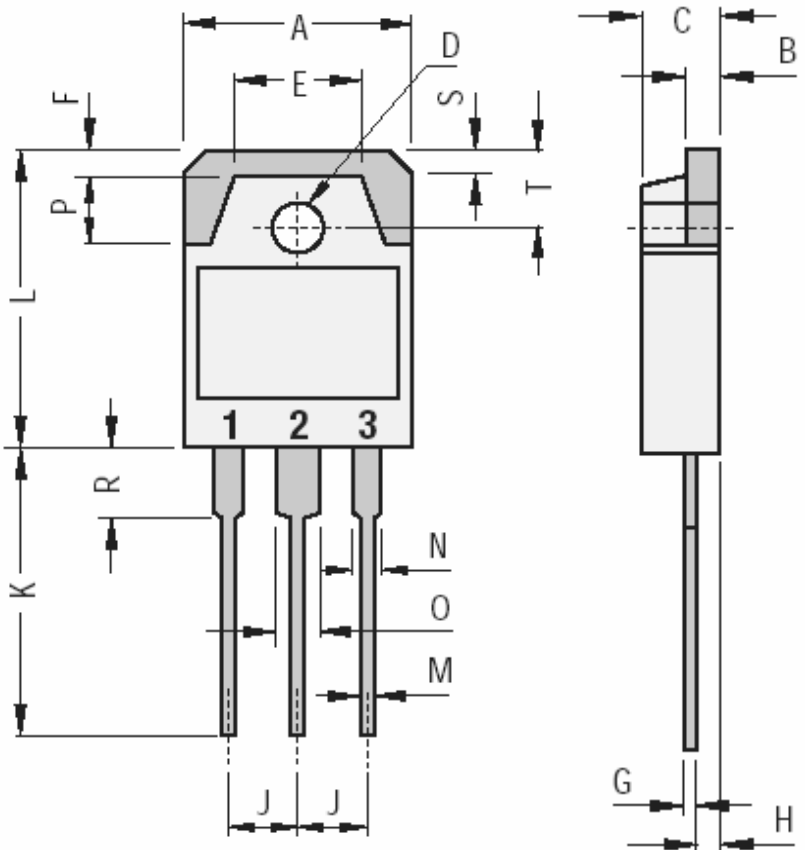
TC=25°C unless otherwise noted

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 $I_{B(on)}$= 40mA $I_{B(off)}$= -40 mA		-	0.9	-	µs
t_{off}	Turn-on Time			-	11	-	

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

TIP140 – TIP141 – TIP142

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

September 2012