



NPN TIP110-111-112

SILICON DARLINGTON POWER TRANSISTORS

NPN epitaxial-base transistors in a monolithic Darlington circuit and housed in a TO-220 envelope.

They are designed for general purpose amplifier and low-speed switching applications.

PNP complements are TIP115-116-117

Compliance to RoHS-

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit	
V_{CBO}	Collector-Base Voltage	TIP110	60	V	
		TIP111	80		
		TIP112	100		
V_{CEO}	Collector-Emitter Voltage	TIP110	60	V	
		TIP111	80		
		TIP112	100		
V_{EBO}	Emitter-Base Voltage	TIP110	5	V	
		TIP111			
		TIP112			
I_C	Collector Current	TIP110	2	A	
		TIP111			
		TIP112			
I_{CM}	Collector Peak Current	TIP110	4	A	
		TIP111			
		TIP112			
I_B	Base Current	TIP110	50	mA	
		TIP111			
		TIP112			
P_T	Power Dissipation	@ $T_c < 25^\circ$	TIP110	50	Watts
			TIP111		
			TIP112		
		@ $T_a < 25^\circ$	TIP110	2	
			TIP111		
			TIP112		
T_J	Junction Temperature	TIP110	150	°C	
		TIP111			
		TIP112			
T_s	Storage Temperature range	TIP110	-65 to +150		
		TIP111			
		TIP112			

NPN TIP110-111-112

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit	
$R_{thJ-case}$	From junction-case	TIP110	2.5	°C/W
		TIP111		
		TIP112		
$R_{thJ-amb}$	From junction-ambient	TIP110	62.5	°C/W
		TIP111		
		TIP112		

ELECTRICAL CHARACTERISTICS

$T_C=25^{\circ}\text{C}$ unless otherwise noted

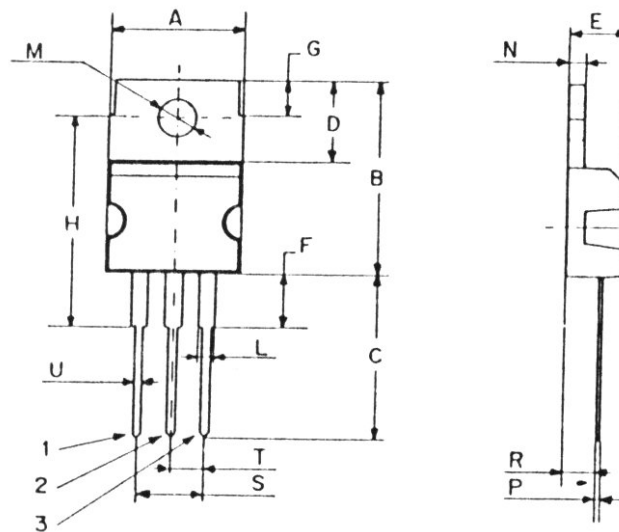
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
I_{CBO}	Collector Cutoff Current	$I_E=0, V_{CB}=V_{CB0max}$	TIP110	-	-	1	mA
			TIP111				
			TIP112				
I_{CEO}	Collector Cutoff Current	$I_E=0, V_{CE}=1/2 V_{CE0max}$	TIP110	-	-	2	mA
			TIP111				
			TIP112				
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{ V}, I_C=0$	TIP110	-	-	2	mA
			TIP111				
			TIP112				
V_{CEO}	Collector-Emitter Breakdown Voltage (*)	$I_C=30\text{ mA}, I_B=0$	TIP110	60	-	-	V
			TIP111	80	-	-	
			TIP112	100	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=2\text{ A}, I_B=8\text{ mA}$	TIP110	-	-	2.5	V
			TIP111				
			TIP112				
$V_{BE(on)}$	Base-Emitter Voltage (*)	$I_C=2\text{ A}, V_{CE}=4\text{ V}$	TIP110	-	-	2.8	V
			TIP111				
			TIP112				
h_{FE}	DC Current Gain (*)	$V_{CE}=4\text{ V}, I_C=1\text{ A}$	TIP110	1000	-	-	-
			TIP111				
			TIP112				
		$V_{CE}=4\text{ V}, I_C=2\text{ A}$	TIP110	500	-	-	
			TIP111				
			TIP112				
C_{OB}	Output Capacitance	$I_E=0, V_{CB}=10\text{ V}$ $f=0.1\text{ MHz}$	TIP110	-	-	100	pF
			TIP111				
			TIP112				

(*) Pulse Width $\approx 300\ \mu\text{s}$, Duty Cycle $\angle 2.0\%$

NPN TIP110-111-112

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 August 2012

Information furnished is believed to be accurate and reliable. However, Comset Semiconductors assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. Data are subject to change without notice. Comset Semiconductors makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Comset Semiconductors assume any liability arising out of the application or use of any product and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Comset Semiconductors' products are not authorized for use as critical components in life support devices or systems.