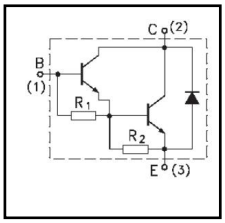
NPN Epitaxial Silicon Transistor

1 Description

The TIP147 is a medium power low voltagetransistor



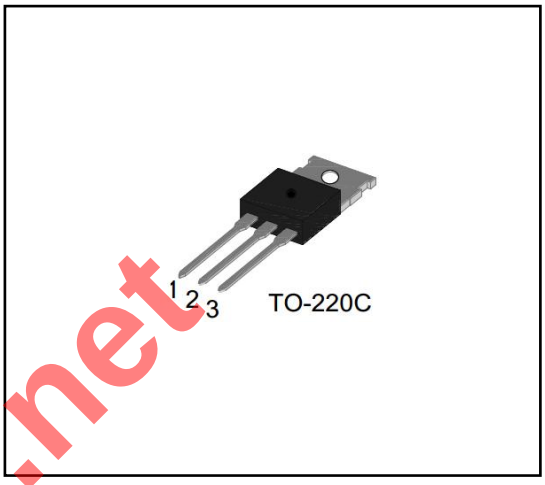
B_{VCB} = 100V
B_{VCE} = 100V
I_C = 10A

2 Features

- High current output up to 10A
- Low saturation voltage
- Complement to TIP147

3 Applications

- voltage regulator
- medium power linear
- switching



SMDCode.net

4 Electrical Characteristics

4.1 Absolute Maximum Ratings (Tc=25℃,unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	10	A
*Collector Current (Pulse)	I_{CP}	15	A
Base Current (DC)	I_B	0.5	A
Collector Dissipation (TC=25℃)	P_C	125	W
Collector Dissipation (Ta=25℃)		3.5	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	- 55 ~ 150	℃

* PW≤10ms, Duty Cycle≤50%

4.2 Thermal Characteristics

PARAMETER	SYMBOL	VALUE	UNIT
Thermal Resistance, Junction to Case-sink	R_{thJC}	1.35	℃/W

4.3 Electrical Characteristics (Tc=25℃,unless otherwise noted)

SYMBOL	PARAMETER	Test Conditions	Min	Typ	Max	Unit
I_{CES}	Collector Cut-off Current (VBE = 0)	V_{CE}=100V	-	-	100	uA
I_{CEO}	Collector Cut-off Current (IB = 0)	V_{CE}=100V	-	-	100	uA
I_{EBO}	Emitter Cut-off Current (IC = 0)	V_{EB}=7V	-	-	100	mA
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (IB = 0)	I_C=10mA	100	-	-	V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (IE = 0)	I_C=100uA	100	-	-	V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (IC = 0)	I_E=50mA	5	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C=1A ,IB=10mA	-	-	1.2	V
		I_C=5A ,IB=12mA	-	0.88	2.0	
		I_C=10A ,IB=40mA	-	1.05	3.0	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C=10A I_B=40mA	-	1.78	3.5	
h_{FE}	DC Current Gain	I_C=10mA,V_{CE}=4V	1.0K	-	9K	
		I_C=2A,V_{CE}=4V*	1.0K	4.5K	9K	
		I_C=5A,V_{CE} =4V	1.0K	-	9K	
$V_{BE(on)}$	Base-Emitter ON Voltage	VCE = 4V, IC = 10A	-	-	3	V

h_{FE*} Classificntion

Classification	1	2	3	4	5	6
h_{FE*}	1K-3K	3K-4K	4K-5K	5K-6K	6K-7K	7K-9K

SMDCode.net

5 Typical characteristics diagrams

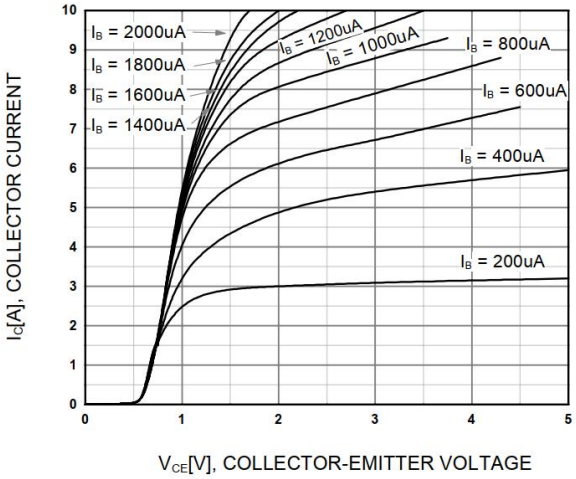


Figure 1. Static Characteristic

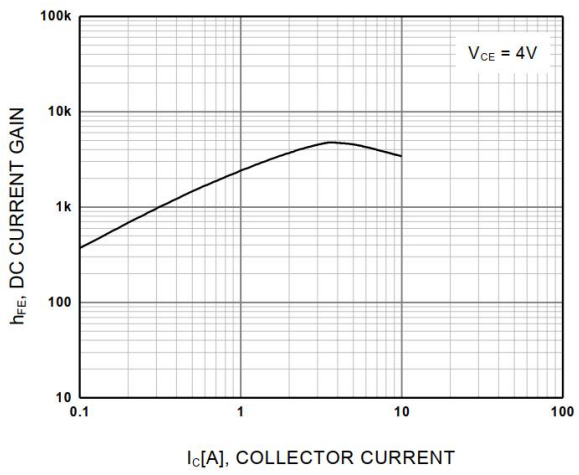


Figure 2. DC current Gain

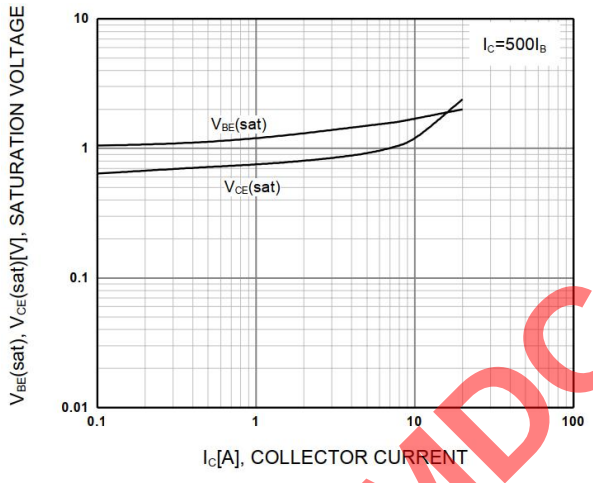


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

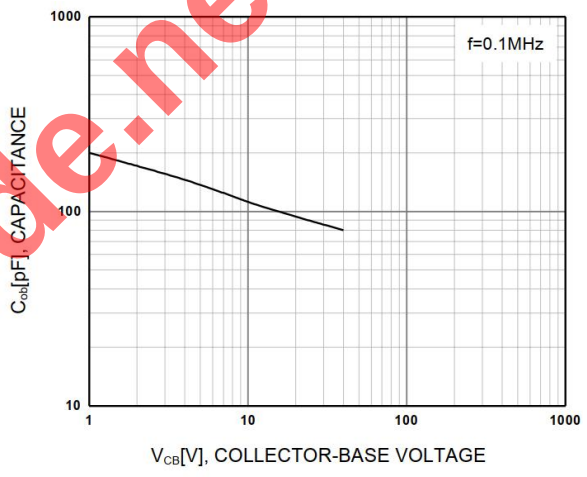


Figure 4. Collector Output Capacitance

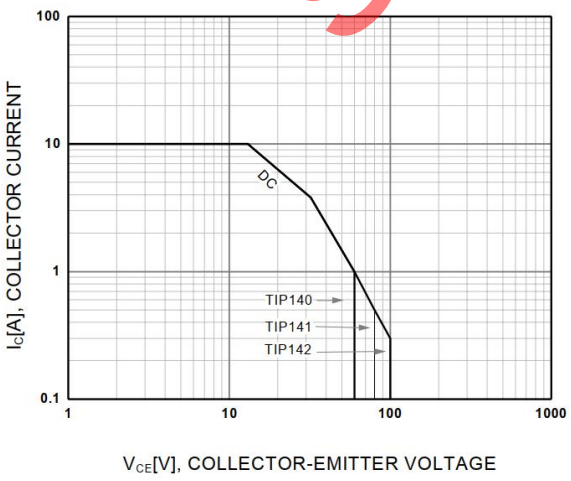


Figure 5. Safe Operating Area

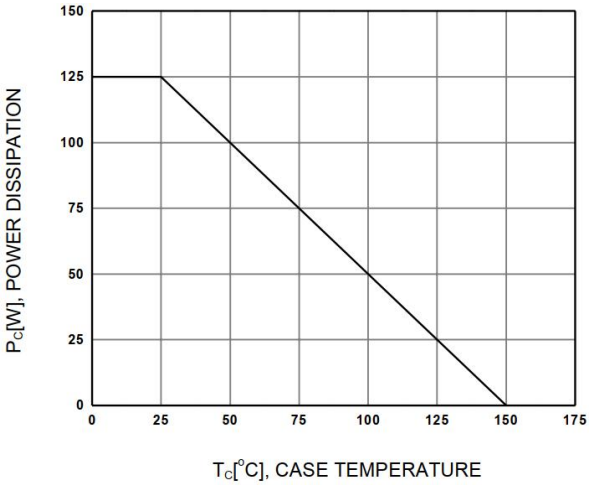


Figure 6. Power Derating

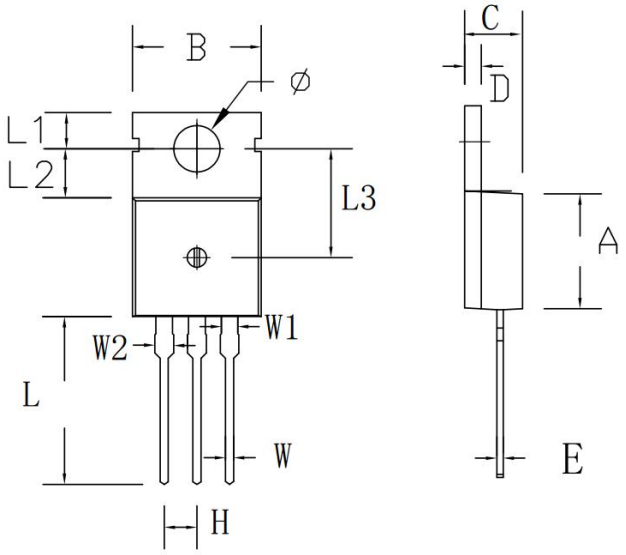
SMDCode.net

6 Product Specifications and Packaging Models

Product Model	Package Type	Mark Name	RoHS	Package	Quantity
TIP142	TO-220C	TIP142	Pb-free	Tube	1000//box

7 Dimensions

TO-220C PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	min.	max.	min.	max.
A	8.80	9.30	0.346	0.366
B	9.70	10.30	0.382	0.406
C	4.25	4.75	0.167	0.187
D	1.20	1.45	0.047	0.057
E	0.40	0.60	0.016	0.024
H	2.54 TYP		0.100 TYP	
W	0.60	0.95	0.024	0.037
W1	1.05	1.45	0.041	0.057
W2	1.20	1.60	0.047	0.063
L	12.60	13.40	0.496	0.528
L1	2.45	2.95	0.096	0.116
L2	3.45	3.95	0.136	0.156
L3	8.15	8.65	0.321	0.341
Φ	3.50	3.90	0.138	0.154

SMDCode.net

8 Attentions

- Jiangsu Donghai Semiconductor Co.,Ltd.. reserves the right to change the specification without prior notice! The customer should obtain the latest version of the information before making the order and verify that the information is complete and up to date.
- It is the responsibility of the purchaser for any failure or failure of any semiconductor product under certain conditions. It is the responsibility of the purchaser to comply with safety standards and to take safety measures in the system design and machine manufacturing of Jiangsu Donghai Semiconductor Co.,Ltd. products in order to avoid potential risk of failure. Injury or property damage.
- Product promotion is endless, our company will be dedicated to provide customers with better products.

9 Appendix

Revision history:

Date	REV.	Description	Page
2017.12.11	1.0	Original	