

## PNP Epitaxial Silicon Transistor

### 1 Description

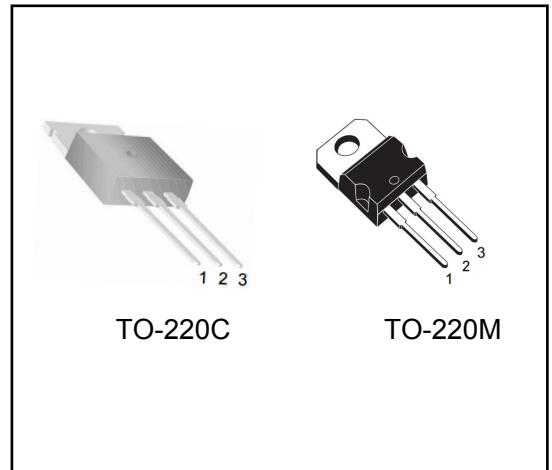
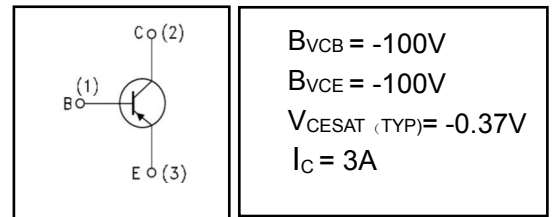
The TIP42C is a medium power low voltage transistor

### 2 Features

- High current output up to 3A
- Low saturation voltage
- Complement to TIP41C

### 3 Applications

- voltage regulator
- medium power linear
- switching



## 4 Electrical Characteristics

### 4.1 Absolute Maximum Ratings (Tc=25°C, 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)	$I_C$	-3	A
*Collector Current (Pulse)	$I_{CP}$	-5	A
Base Current (DC)	$I_B$	-1	A
Collector Dissipation (TC=25°C)	$P_C$	40	W
Collector Dissipation (Ta=25°C)		2	W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55 ~ 150	°C

\* PW≤10ms, Duty Cycle≤50%

### 4.2 Thermal Characteristics

PARAMETER	SYMBOL	VALUE	UNIT
Thermal Resistance, Junction to Case-sink	$R_{thJC}$	3	°C/W

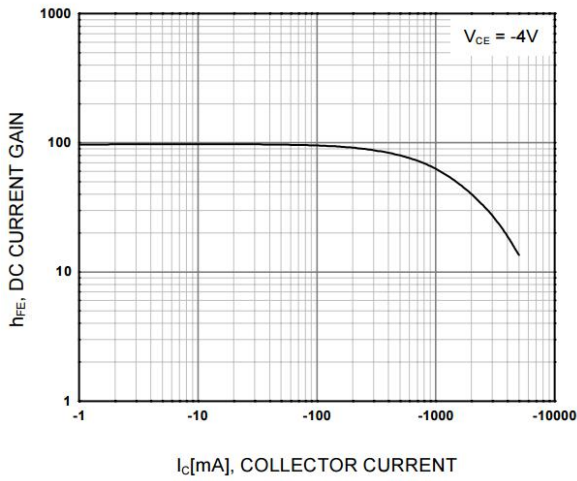
**4.3 Electrical Characteristics** (Tc=25°C, unless otherwise noted)

SYMBOL	PARAMETER	Test Conditions	Min	Typ	Max	Unit
I <sub>CES</sub>	Collector Cut-off Current (V <sub>BE</sub> = 0)	V <sub>CE</sub> =-100V	-	-	100	uA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> =-100V	-	-	100	uA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> =-5V	-	-	100	uA
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage (I <sub>B</sub> = 0 )	I <sub>C</sub> =-10mA	-100	-	-	V
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage (I <sub>E</sub> = 0 )	I <sub>C</sub> =-100uA	-100	-	-	V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage (I <sub>C</sub> = 0 )	I <sub>E</sub> =-100uA	-5	-	-	V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> =-0.5A I <sub>B</sub> =-50mA	-	-0.1	-0.4	V
		I <sub>C</sub> =-1A I <sub>B</sub> =-100mA	-	-0.18	-0.5	
		I <sub>C</sub> =-3A I <sub>B</sub> =-300mA	-	-0.37	-0.8	
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> =-3A I <sub>B</sub> =-300mA	-	-1.1	-1.5	
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> =-10mA, V <sub>CE</sub> =-5V	30	-	300	
		I <sub>C</sub> =-1A, V <sub>CE</sub> =-5 V*	60	120	200	
		I <sub>C</sub> =-3A, V <sub>CE</sub> =-5 V	15	-	300	
f <sub>T</sub>	Transition Frequency	V <sub>CE</sub> =-10V, I <sub>C</sub> =-500mA, f=10MHZ	3	-	-	MHz

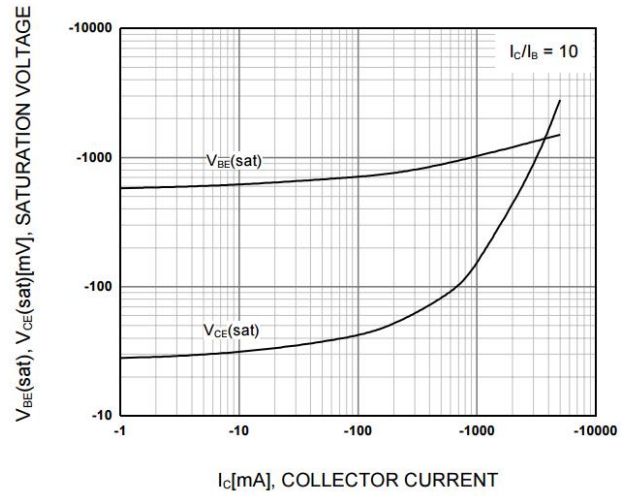
**h<sub>FE</sub>\* Classification**

Classification	1	2	3	4	5	6
h <sub>FE</sub> *	60-80	80-100	100-120	120-140	140-160	160-200

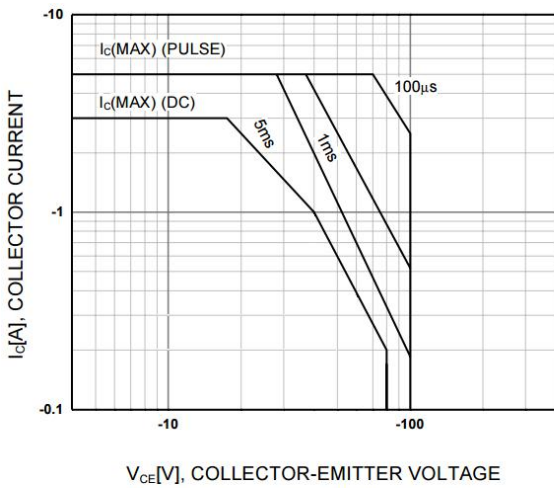
**5 Typical characteristics diagrams**



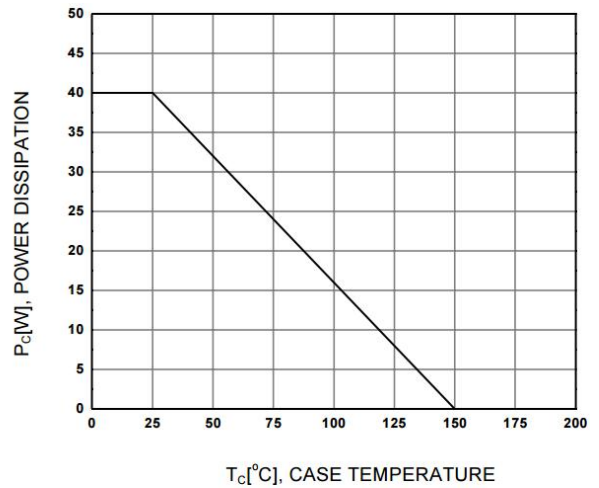
**Figure 1. DC current Gain**



**Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage**



**Figure 3. Safe Operating Area**



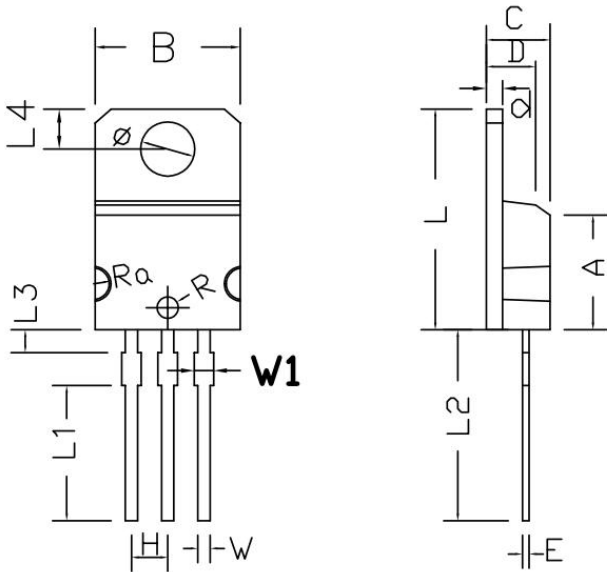
**Figure 4. Power Derating**

**6 Product Specifications and Packaging Models**

Product Model	Package Type	Mark Name	RoHS	Package	Quantity
TIP42C	TO-220	TIP42C	Pb-free	Tube	1000//box

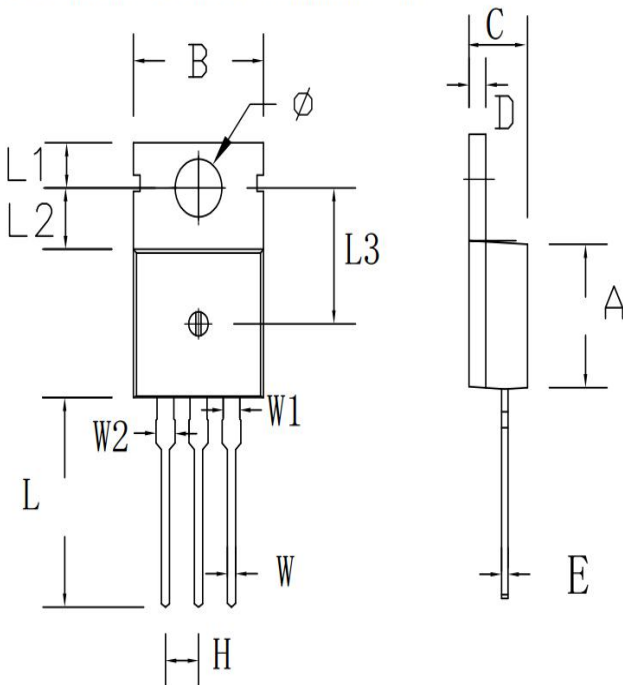
7 Dimensions

TO-220M PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	min.	max.	min.	max.
	MIN	MAX	MIN	MAX
A	8.03	8.05	0.316	0.317
B	10.13	10.23	0.399	0.403
C	4.42	4.52	0.174	0.178
D	3.42	3.52	0.135	0.139
E	0.44	0.46	0.017	0.018
L	15.25	15.45	0.601	0.609
H	2.52	2.56	0.099	0.101
W	0.85	0.87	0.033	0.034
$\Phi$	3.78	3.82	0.149	0.151
R	0.74	0.76	0.029	0.030
Ra	9.44	9.48	0.372	0.374
d	1.28	1.32	0.050	0.052
L1	9.4	9.6	0.370	0.378
L2	13.22	13.62	0.521	0.537
L3	1.52	1.72	0.060	0.068
L4	2.7	2.9	0.106	0.114
W1	1.32	1.42	0.052	0.056

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
$\Phi$	3.50	3.90	0.138	0.154

## 8 Attentions

- ROUM Semiconductor Technology 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 Roma 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
2017.08.11	1.0	Original	