

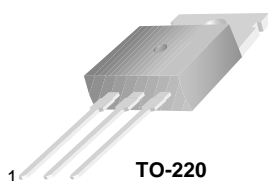


# TIP42/TIP42A/TIP42B/TIP42C

## PNP Epitaxial Silicon Transistor

### Features

- Medium Power Linear Switching Applications
- Complement to TIP41/TIP41A/TIP41B/TIP41C



1.Base 2.Collector 3.Emitter

### Absolute Maximum Ratings $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage : TIP42	- 40	V
	: TIP42A	- 60	V
	: TIP42B	- 80	V
	: TIP42C	- 100	V
$V_{CEO}$	Collector-Emitter Voltage : TIP42	- 40	V
	: TIP42A	- 60	V
	: TIP42B	- 80	V
	: TIP42C	- 100	V
$V_{EBO}$	Emitter-Base Voltage	- 5	V
$I_C$	Collector Current (DC)	- 6	A
$I_{CP}$	Collector Current (Pulse)	-10	A
$I_B$	Base Current	-2	A
$P_C$	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	65	W
	Collector Dissipation ( $T_A=25^\circ\text{C}$ )	2	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 65 to 150	$^\circ\text{C}$

**Electrical Characteristics**  $T_A=25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CEO(sus)}$	* Collector-Emitter Sustaining Voltage : TIP42 : TIP42A : TIP42B : TIP42C	$I_C = -30\text{mA}, I_B = 0$	-40 -60 -80 -100		V V V V
$I_{CEO}$	Collector Cut-off Current : TIP42/42A : TIP42B/42C	$V_{CE} = -30\text{V}, I_B = 0$ $V_{CE} = -60\text{V}, I_B = 0$		-0.7 -0.7	mA mA
$I_{CES}$	Collector Cut-off Current : TIP42 : TIP42A : TIP42B : TIP42C	$V_{CE} = -40\text{V}, V_{EB} = 0$ $V_{CE} = -60\text{V}, V_{EB} = 0$ $V_{CE} = -80\text{V}, V_{EB} = 0$ $V_{CE} = -100\text{V}, V_{EB} = 0$		-400 -400 -400 -400	$\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = -5\text{V}, I_C = 0$		-1	mA
$h_{FE}$	* DC Current Gain	$V_{CE} = -4\text{V}, I_C = -0.3\text{A}$ $V_{CE} = -4\text{V}, I_C = -3\text{A}$	30 15	75	
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = -6\text{A}, I_B = -600\text{mA}$		-1.5	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$V_{CE} = -4\text{V}, I_C = -6\text{A}$		-2.0	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = -10\text{V}, I_C = -500\text{mA},$ $f = 1\text{MHz}$	3.0		MHz

\* Pulse Test:  $PW \leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

Typical Performance Characteristics

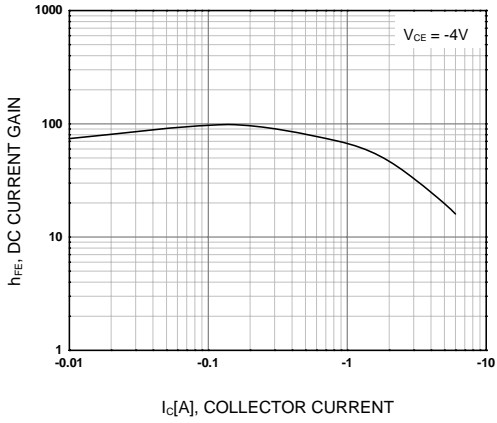


Figure 1. DC current Gain

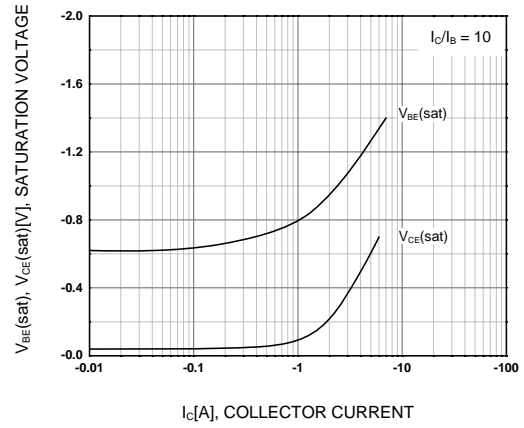


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

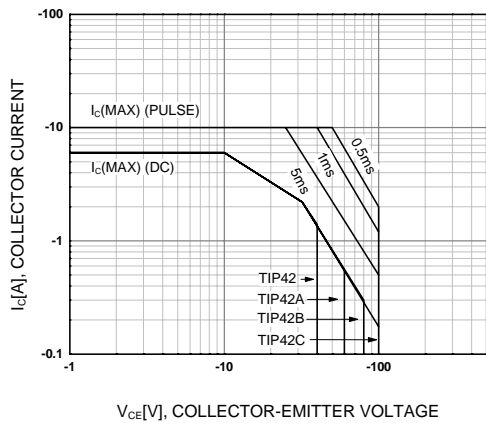


Figure 3. Safe Operating Area

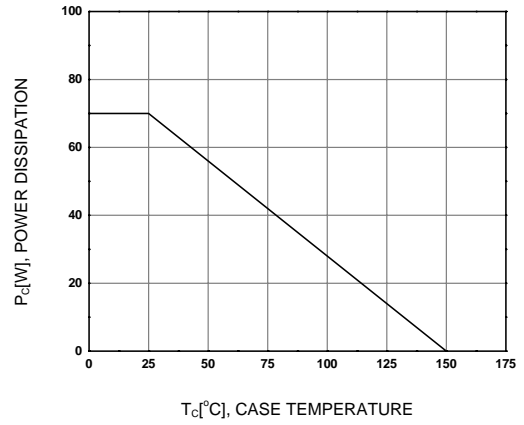
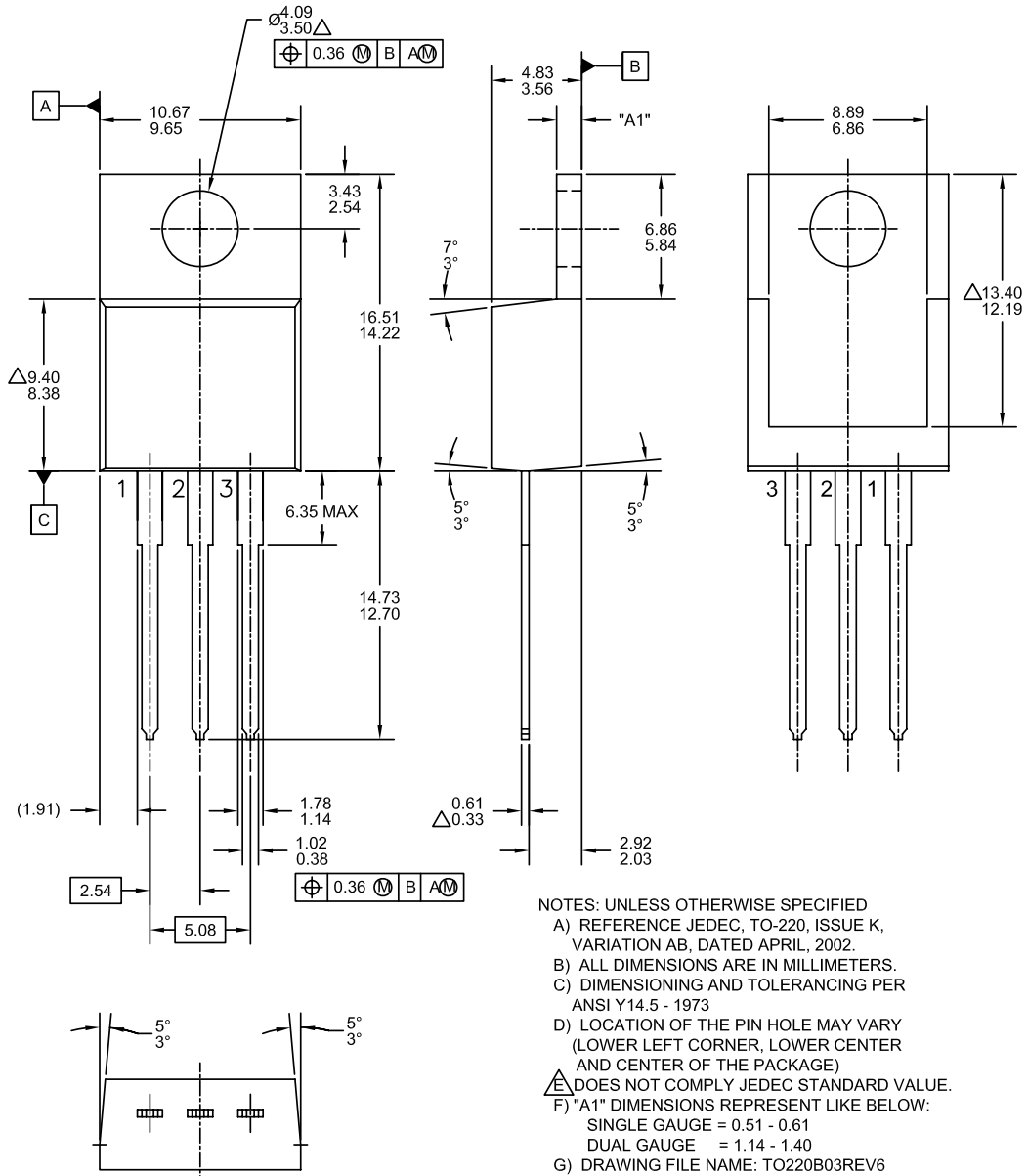


Figure 4. Power derating

Mechanical Dimensions

TO-220








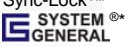
- NOTES: UNLESS OTHERWISE SPECIFIED
- A) REFERENCE JEDEC, TO-220, ISSUE K, VARIATION AB, DATED APRIL, 2002.
  - B) ALL DIMENSIONS ARE IN MILLIMETERS.
  - C) DIMENSIONING AND TOLERANCING PER ANSI Y14.5 - 1973
  - D) LOCATION OF THE PIN HOLE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)
  - $\Delta$  DOES NOT COMPLY JEDEC STANDARD VALUE.
  - F) "A1" DIMENSIONS REPRESENT LIKE BELOW:  
 SINGLE GAUGE = 0.51 - 0.61  
 DUAL GAUGE = 1.14 - 1.40
  - G) DRAWING FILE NAME: TO220B03REV6

Dimensions in Millimeters



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