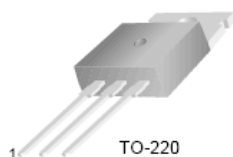


TIP29/TIP29A/TIP29B/TIP29C

NPN Epitaxial Silicon Transistor

Features

- Complementary to TIP30/TIP30A/TIP30B/TIP30C



TO-220
1. Base 2. Collector 3. Emitter

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : TIP29	40	V
	: TIP29A	60	V
	: TIP29B	80	V
	: TIP29C	100	V
V_{CEO}	Collector-Emitter Voltage : TIP29	40	V
	: TIP29A	60	V
	: TIP29B	80	V
	: TIP29C	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	1	A
I_{CP}	Collector Current (Pulse)	3	A
I_B	Base Current	0.4	A
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	30	W
	Collector Dissipation ($T_a=25^\circ\text{C}$)	2	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 ~ 150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CEO(sus)}$	*Collector-Emitter Sustaining Voltage : TIP29 : TIP29A : TIP29B : TIP29C	$I_C = 30\text{mA}, I_B = 0$	40 60 80 100		V V V V
I_{CEO}	Collector Cut-off Current : TIP29/29A : TIP29B/29C	$V_{CE} = 30\text{V}, I_B = 0$ $V_{CE} = 60\text{V}, I_B = 0$		0.3 0.3	mA mA
I_{CES}	Collector Cut-off Current : TIP29 : TIP29A : TIP29B : TIP29C	$V_{CE} = 40\text{V}, V_{EB} = 0$ $V_{CE} = 60\text{V}, V_{EB} = 0$ $V_{CE} = 80\text{V}, V_{EB} = 0$ $V_{CE} = 100\text{V}, V_{EB} = 0$		200 200 200 200	μA μA μA μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$		1.0	mA
h_{FE}	*DC Current Gain	$V_{CE} = 4\text{V}, I_C = 0.2\text{A}$ $V_{CE} = 4\text{V}, I_C = 1\text{A}$	40 15	75	
$V_{CE(sat)}$	*Collector-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 125\text{mA}$		0.7	V
$V_{BE(sat)}$	*Base-Emitter Saturation Voltage	$V_{CE} = 4\text{V}, I_C = 1\text{A}$		1.3	V
f_T	Current Gain Bandwidth Product	$V_{CE} = 10\text{V}, I_C = 200\text{mA}$	3.0		MHz

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

Typical Characteristics

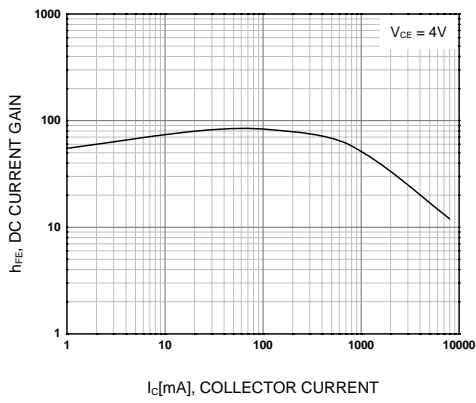


Figure 1. DC current Gain

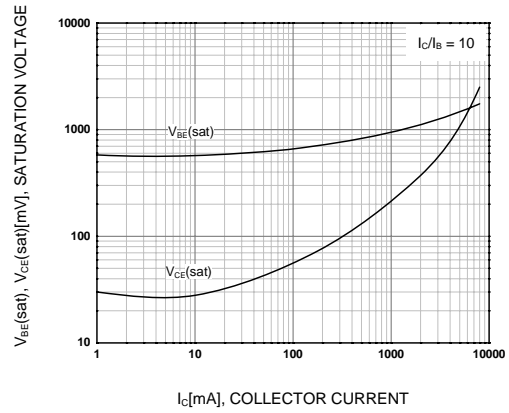


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

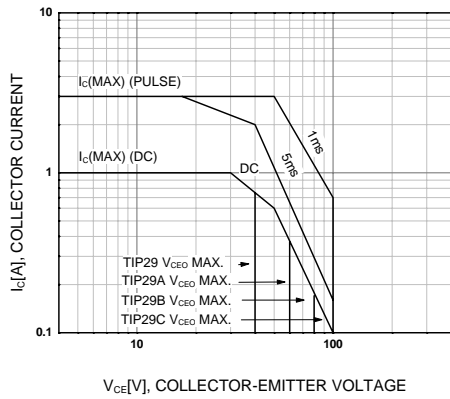


Figure 3. Safe Operating Area

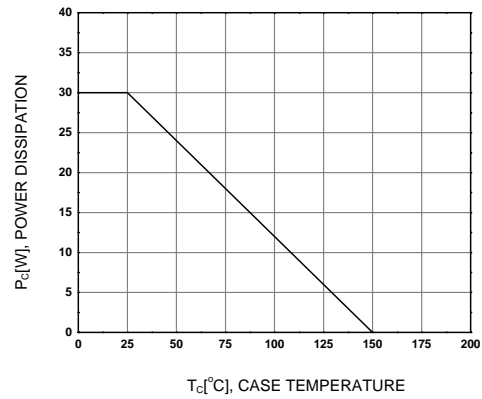
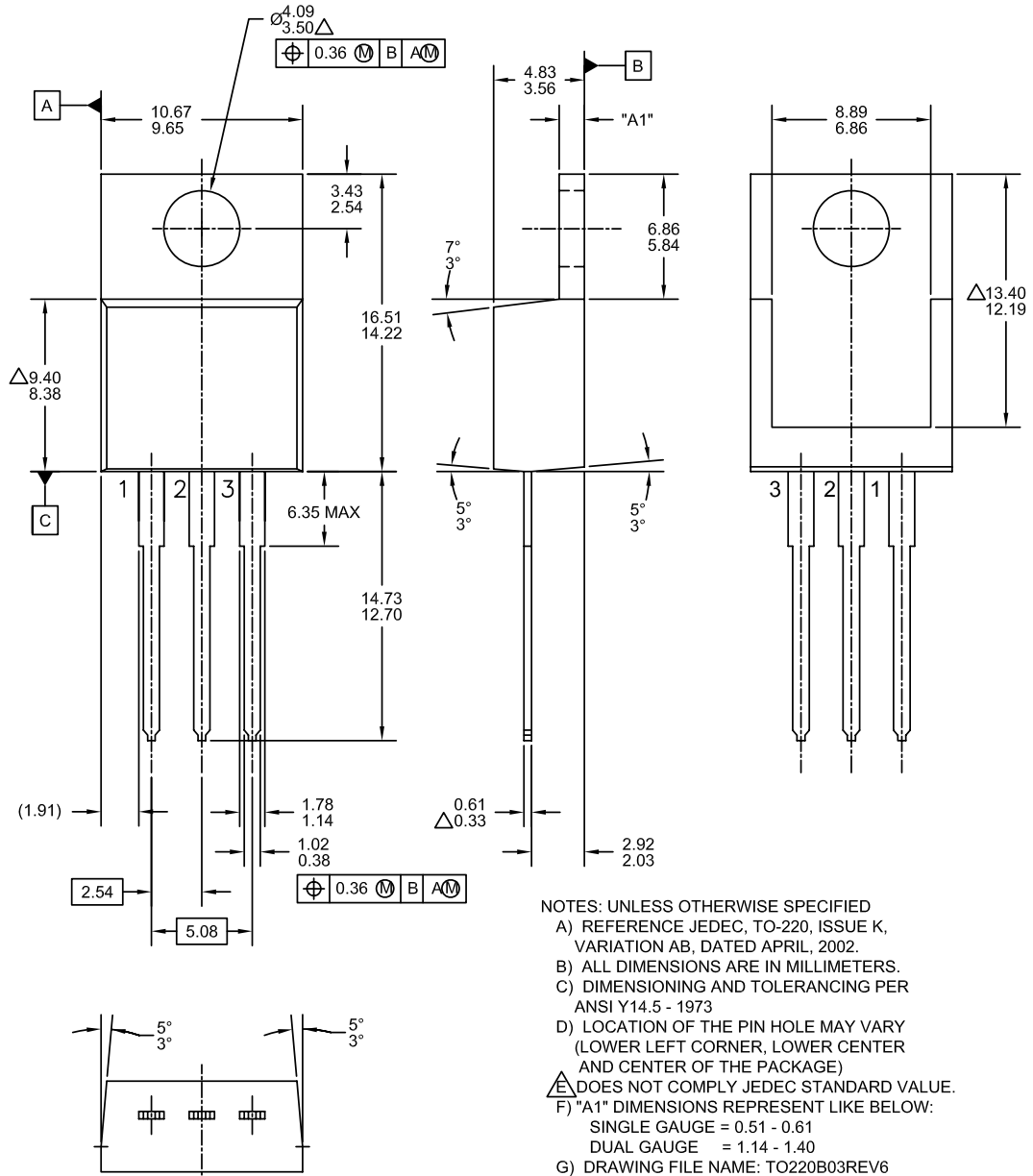


Figure 4. Power Derating

Mechanical Dimensions

TO220



- 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)
 Δ 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



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Rev. I35