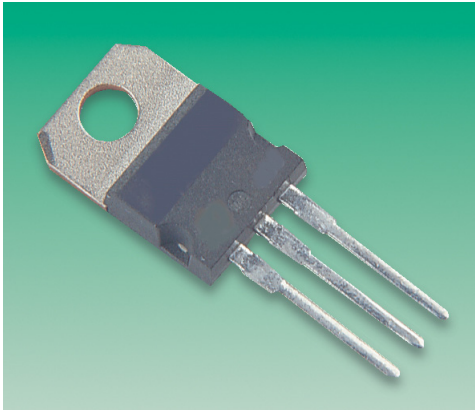


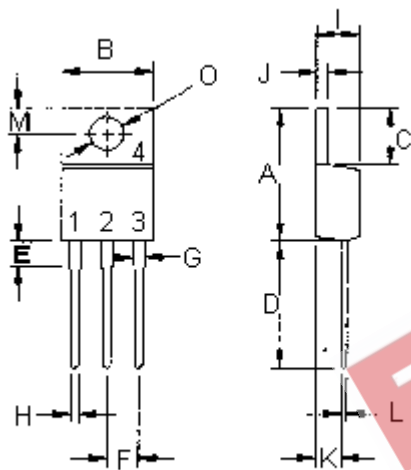
# TIP29, 30

## High Power Bipolar Transistor



### Features:

- Collector-Emitter sustaining voltage-  
 $V_{CE(sus)}$  = 60V (Minimum) - TIP29A, TIP30A  
 = 100V (Minimum) - TIP29C, TIP30C.
- Collector-Emitter saturation voltage-  
 $V_{CE(sat)}$  = 0.7V (Maximum) at  $I_C = 1.0A$ .
- Current gain-bandwidth product  $f_T = 3.0MHz$  (Minimum) at  $I_C = 200mA$ .

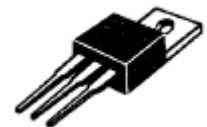


Dimensions	Minimum	Maximum
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

**NPN**  
**TIP29A**  
**TIP29C**

**PNP**  
**TIP30A**  
**TIP30C**

1.0 Ampere  
 Complementary Silicon  
 Power Transistors  
 40 - 100 Volts  
 30 Watts



TO-220

- Pin 1. Base  
 2. Collector  
 3. Emitter  
 4. Collector(Case).

Dimensions : Millimetres



# TIP29, 30

## High Power Bipolar Transistor



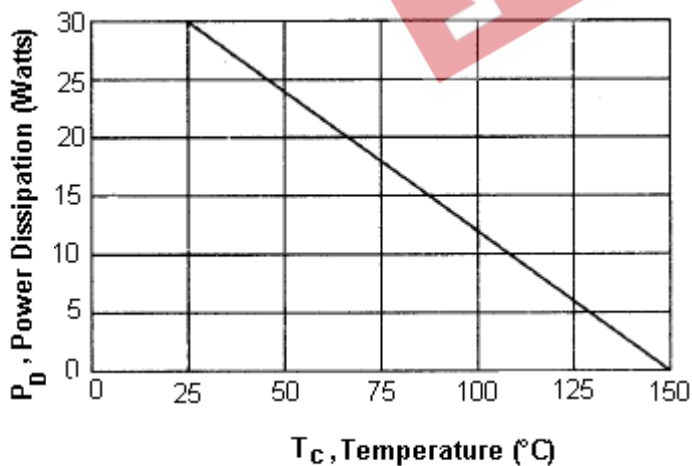
### Maximum Ratings

Characteristic	Symbol	TIP29A TIP30A	TIP29C TIP30C	Unit
Collector-Emitter Voltage	$V_{CEO}$	60	100	V
Collector-Base Voltage	$V_{CBO}$			
Emitter-Base Voltage	$V_{EBO}$	5.0		
Collector Current-Continuous -Peak	$I_C$	1.0 3.0		A
Base Current	$I_B$	0.4		
Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	30 0.24		W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-65 to +150		$^\circ\text{C}$

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	4.167	$^\circ\text{C/W}$

Figure - 1 Power Derating





# TIP29, 30

## High Power Bipolar Transistor



Figure - 2 Turn-On Time

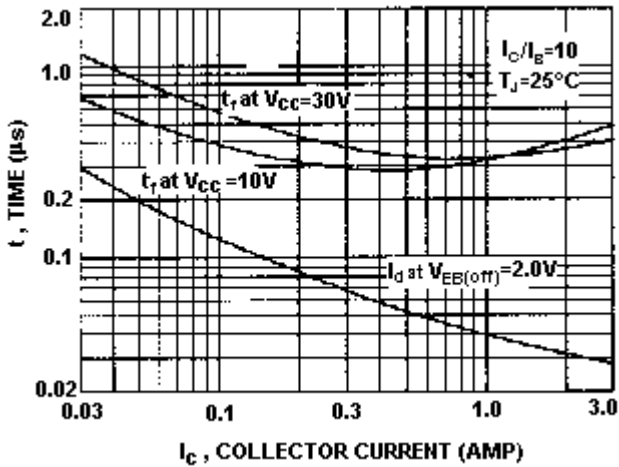


Figure - 3 Switching Time Equivalent Circuit

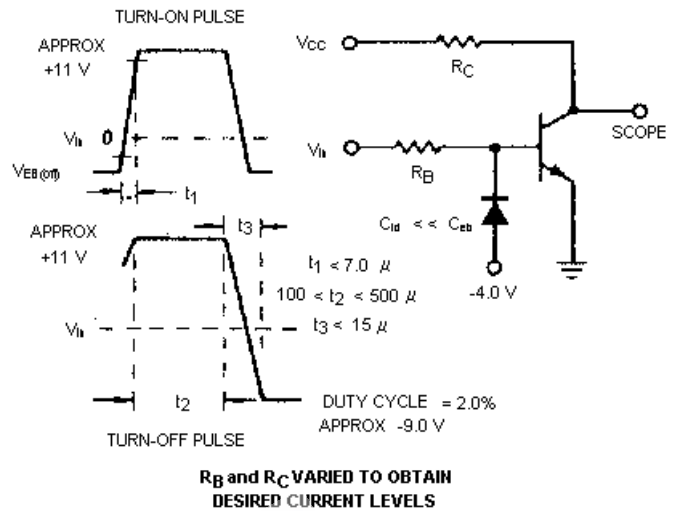


Figure - 4 DC Current Gain

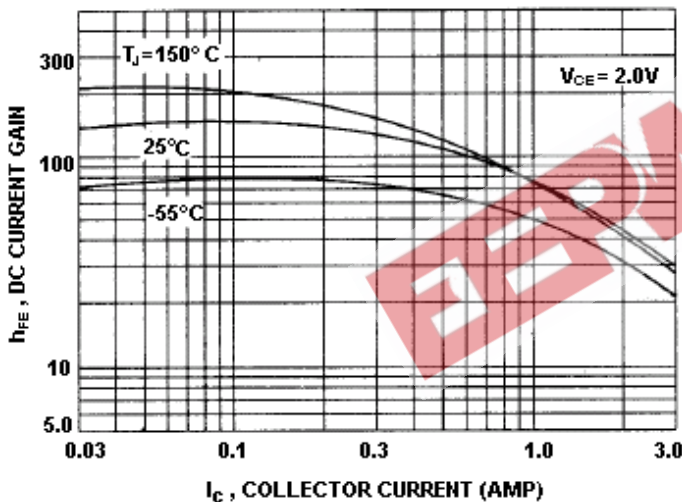


Figure - 5 Turn-Off Time

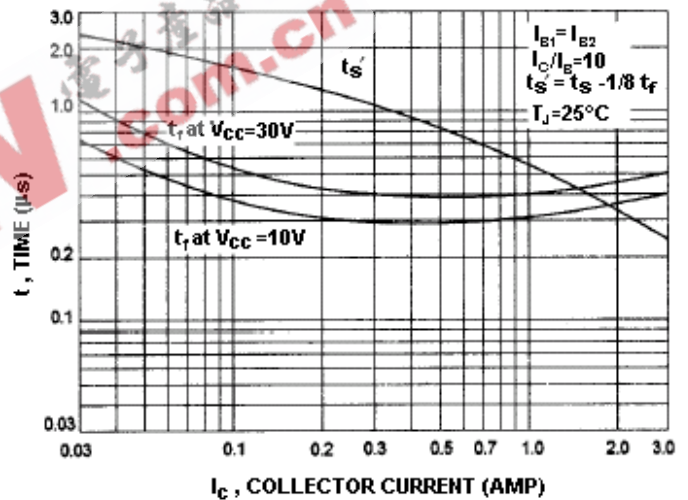
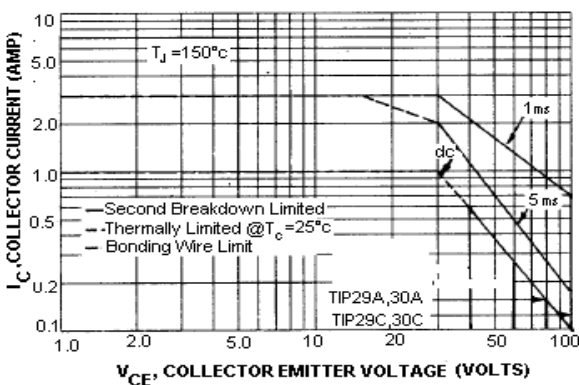


Figure - 6 Active Region Safe Operating Area



There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown safe operating area curves indicate  $I_C$ - $V_{CE}$  limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure - 6 curve is based on  $T_{J(PK)} = 150^\circ\text{C}$ ;  $T_C$  is variable depending on power level. Second breakdown pulse limits are valid for duty cycles to 10% provided  $T_{J(PK)} \leq 150^\circ\text{C}$ . At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.



# TIP29, 30

## High Power Bipolar Transistor



### Specifications

TYPE	Part Number
NPN	TIP29A
	TIP29C
PNP	TIP30A
	TIP30C

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# TIP29, 30

## High Power Bipolar Transistor



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