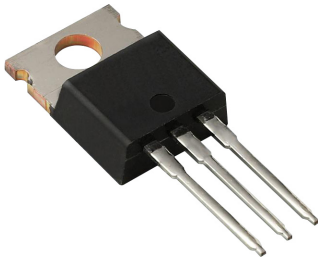
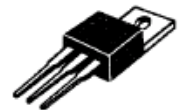


High Power Bipolar Transistors **multicomp** PRO



NPN
TIP29A
TIP29C
1A
Complementary Silicon
Power Transistors
60 - 100V
30W



TO-220

Features

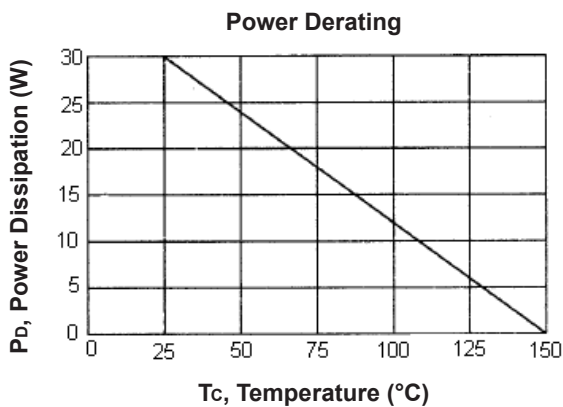
- Collector-Emitter sustaining voltage - $V_{CEO} (sust) = 60V$ (Minimum) - TIP29A
= 100V (Minimum) - TIP29C
- Collector-Emitter saturation voltage - $V_{CE} (sat) = 0.7V$ (Maximum) at $I_C = 1A$
- Current gain-bandwidth product $f_T = 3MHz$ (Minimum) at $I_C = 200mA$

Maximum Ratings

Characteristic	Symbol	TIP29A	TIP29C	Unit
Collector-Emitter Voltage	V_{CEO}	60	100	V
Collector-Base Voltage	V_{CBO}			
Emitter-Base Voltage	V_{EBO}	5		
Collector Current - Continuous - Peak	I_C	1 3		A
Base Current	I_B	0.4		
Total Power Dissipation at $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	30 0.24		W W / $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150		$^\circ C$

Thermal Characteristics

Characteristic	Symbol	Max.	Unit
Thermal Resistance Junction to Case	$R_{\theta JC}$	4.167	$^\circ C / W$



Newark.com/multicomp-pro
Farnell.com/multicomp-pro
Element14.com/multicomp-pro

multicomp PRO

High Power Bipolar Transistors **multicomp** PRO

Electrical Characteristics (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Min.	Max.	Unit
-----------	--------	------	------	------

OFF Characteristics

Collector - Emitter Breakdown Voltage (Note 1) (I _C = 30mA, I _B = 0) TIP29A TIP29C	V _{CEO(sus)}	60 100	-	V
Collector Cut-off Current V _{CE} = 30V, I _B = 0 TIP29A V _{CE} = 60V, I _B = 0 TIP29C	I _{CEO}	-	0.3 0.3	mA
Collector Cut-off Current V _{CE} = 60V, V _{EB} = 0 TIP29A V _{CE} = 100V, V _{EB} = 0 TIP29C	I _{CES}	-	0.2 0.2	
Emitter Cut-off Current (V _{EB} = 5V, I _C = 0)	I _{EBO}	-	1	

ON Characteristics (Note 1)

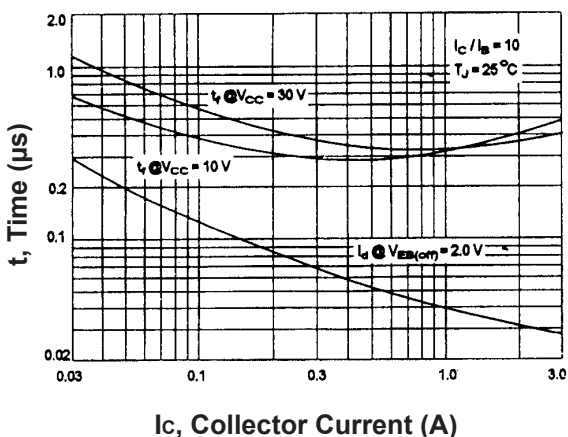
DC Current Gain (I _C = 0.2A, V _{CE} = 4V) (I _C = 1A, V _{CE} = 4V)	h _{FE}	40 15	75	-
Collector - Emitter Saturation Voltage (I _C = 1A, I _B = 125mA)	V _{CE(sat)}	-	0.7	V
Base - Emitter On Voltage (I _C = 1A, V _{CE} = 4V)	V _{BE(on)}	-	1.3	

Dynamic Characteristics

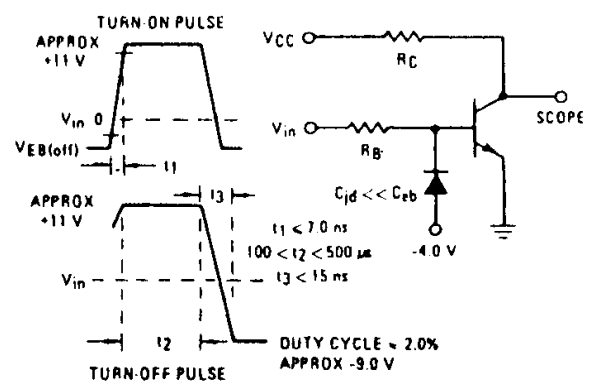
Current Gain-Bandwidth Product (2) (I _C = 200mA, V _{CE} = 10V, f = 1MHz)	f _T	3	-	MHz
Small-Signal Current Gain (I _C = 200mA, V _{CE} = 10V, f = 1kHz)	h _{fe}	20	-	-

- (1) Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%
 (2) f_T = |h_{FE}| ° f_{Test}

Turn - On Time

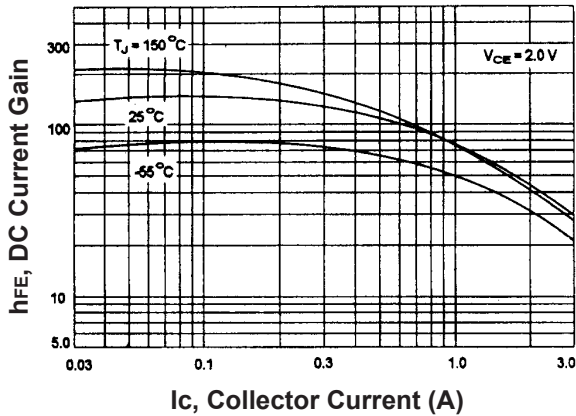


Switching Time Equivalent Circuit

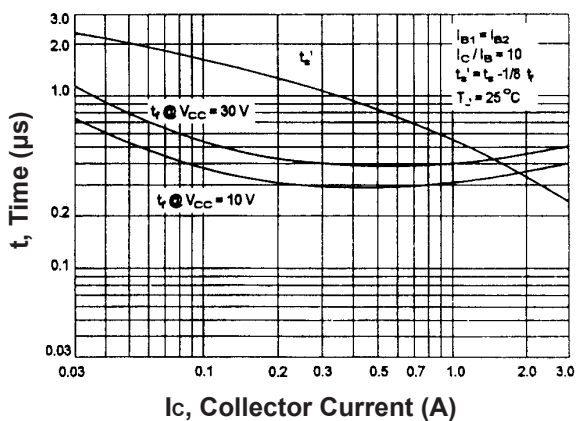


R_B and R_C Varied to Obtain Desired Current Levels

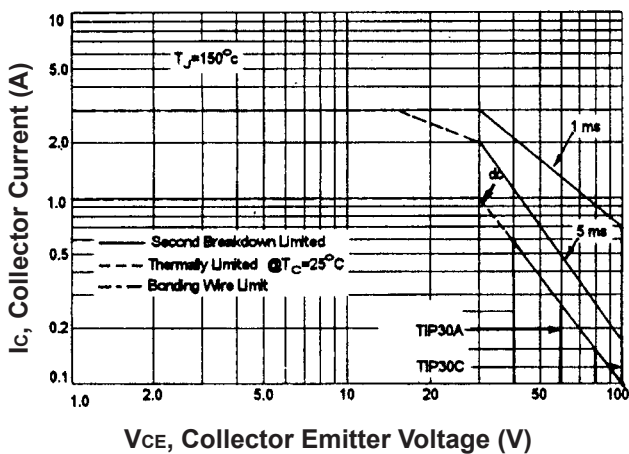
DC Current Gain



Turn-Off Time



Active Region Safe Operating Area

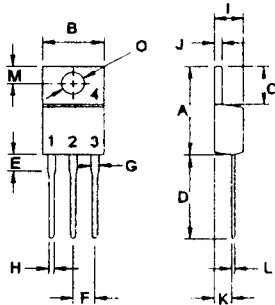


There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation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

The data of beside 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 $T_{J(PK)} = 150^\circ\text{C}$. At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown

High Power Bipolar Transistors **multicomp** PRO

Diagram



Dim.	Min.	Max.
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

Dim.	Min.	Max.
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.2	2.97
L	0.33	0.55
M	2.48	2.98
O	3.7	3.9

Pin Configuration:

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

Dimensions : Millimetres

Part Number Table

Description	Part Number
Power Transistor, NPN, 60V, TO-220	TIP29A
Power Transistor, NPN, 100V, TO-220	TIP29C

Important Notice : This data sheet and its contents (the "Information") belong to the members of the AVNET group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp Pro is the registered trademark of Premier Farnell Limited 2019.

Newark.com/multicomp-pro
 Farnell.com/multicomp-pro
 Element14.com/multicomp-pro

multicomp PRO