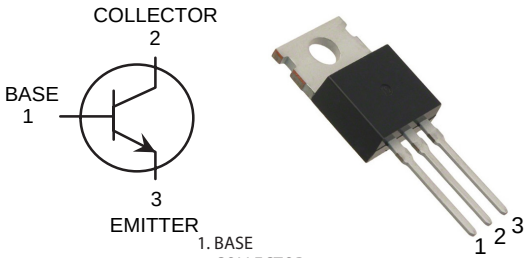
Pb Free Plating Product

TIP29/TIP29A/TIP29B/TIP29C

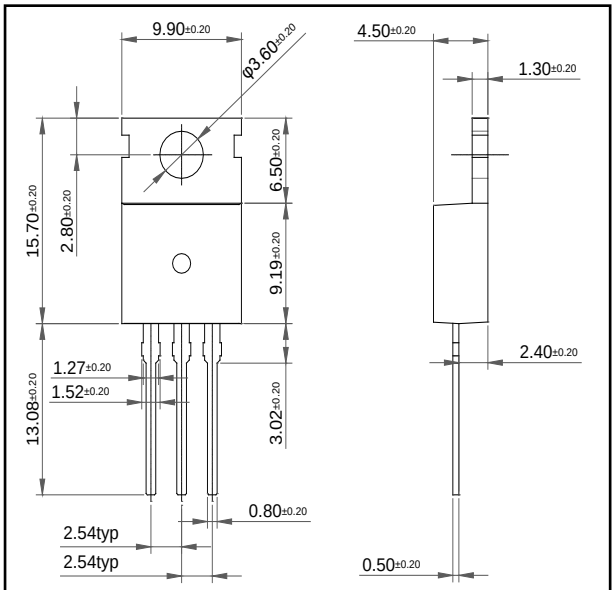
1.0 Ampere NPN Type Epitaxial Silicon Power Transistors

DESCRIPTION

- $R_{th(jc)}$ is 4.167 °C/W, $R_{th(ja)}$ is 62.5 °C/W
- Moisure Sensitivity Level 1
- Complementary to Type TIP30 series
- It is intented for use in power amplifier and switching application.



TO-220C



Package Dimension — Dimensions in Millimeters

Maximum Ratings

Symbol	Rating		Rating	Unit
V_{CEO}	Collector-Emitter Voltage	TIP29, TIP30	40	V
		TIP29A, TIP30A	60	
V_{CBO}	Collector-Base Voltage	TIP29B, TIP30B	80	
		TIP29C, TIP30C	100	
V_{EB}	Emitter-Base Voltage		5.0	V
I_C	Collector Current- Continuous		1.0	A
	Peak (1)		3.0	
I_B	Base Current-Continuous		0.4	A
P_D	Total power dissipation @T_C=25 °C		30	W
	Derate above 25 °C		0.24	W/°C
T_J,	Junction Temperature		-55 to +150	°C
T_{STG}	Storage Temperature		-55 to +150	°C

Notes:1. High Temperature Solder Exemption Applied, see EU Directive Annex 7.
2. Pulse Test: Pulse Width=300us, Duty Cycle <2.0%
3. $f_T = |h_{fe}| \times f_{test}$

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage(note 2) (I_C=30mAdc, I_B=0) TIP29, TIP30 TIP29A, TIP30A TIP29B, TIP30B TIP29C, TIP30C	 40 60 80 100	 --- --- --- ---	Vdc
I_{EBO}	Emitter-Base Cutoff Current (V_{EB}=5.0Vdc, I_C=0)	---	1.0	mAdc
I_{CES}	Collector Cutoff Current (V_{CE}=40V, V_{EB}=0) TIP29, TIP30 (V_{CE}=60V, V_{EB}=0) TIP29A, TIP30A (V_{CE}=80V, V_{EB}=0) TIP29B, TIP30B (V_{CE}=100V, V_{EB}=0) TIP29C, TIP30C	 --- --- --- ---	 200 200 200 200	uAdc
I_{CEO}	Collector Cutoff Current (V_{CE}=30Vdc, I_B=0) TIP29, TIP29A, TIP30, TIP30A (V_{CE}=60Vdc, I_B=0) TIP29B, TIP29C, TIP30B, TIP30C	 --- ---	 0.3 0.3	mAdc
ON CHARACTERISTICS (2)				
$h_{FE(1)}$	DC Current Gain (I_C=0.2Adc, V_{CE}=4.0Vdc) (I_C=1.0Adc, V_{CE}=4.0Vdc)	 40 15	 --- 75	----
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C=1.0Adc, I_B=125mAdc)	---	0.7	Vdc
$V_{BE(ON)}$	Base-Emitter On Voltage (I_C=1.0Adc,V_{CE}=4.0Adc)	---	1.3	Vdc
f_T	Current-Gain-Bandwidth Product(note 3) (I_C=200mAdc, V_{CE}=10Vdc, f=1.0MHz)	3.0	---	MHz
h_{fe}	Small-Signal Current Gain (I_C=0.2Adc, V_{CE}=10Vdc, f=1.0KHz)	20	---	---

RATINGS AND CHARACTERISTIC CURVES TIP29 SERIES

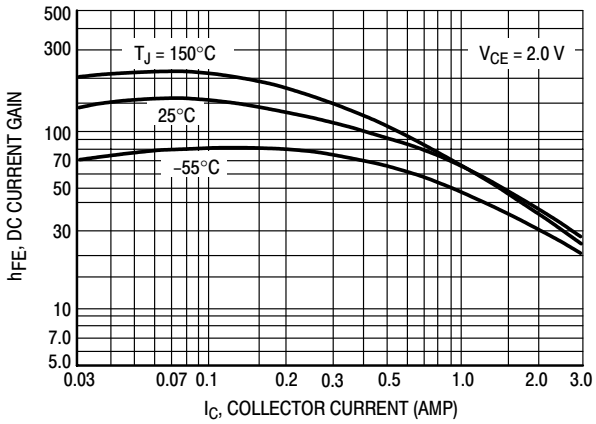


Figure 1. DC Current Gain

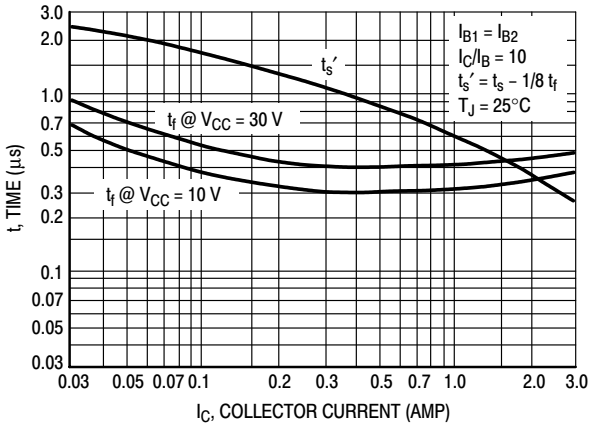


Figure 2. Turn–Off Time

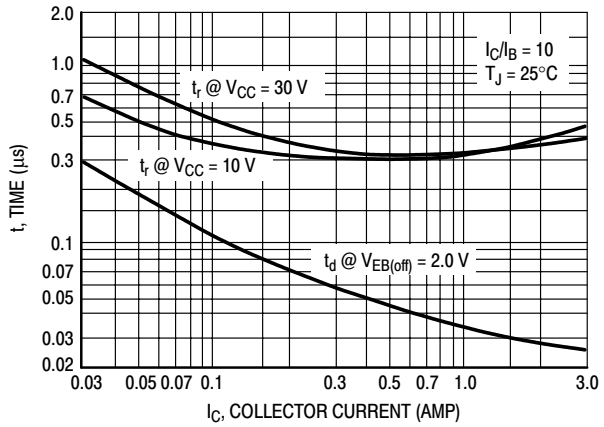


Figure 3. Turn–On Time

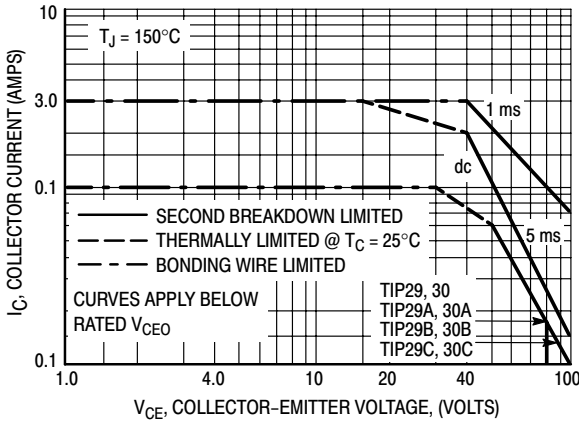


Figure 4. Active Region Safe Operating Area