



Micro Commercial Components

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 20736 Marilla Street Chatsworth
 CA 91311
 Phone: (818) 701-4933
 Fax: (818) 701-4939

TIP29,A,B,C(NPN) TIP30,A,B,C(PNP)

Features

- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Marking: Type Number
- $R_{th(jc)}$ is 4.167°C/W, $R_{th(ja)}$ is 62.5°C/W
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0

Maximum Ratings

Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	TIP29, TIP30	40
		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
		Peak ⁽¹⁾	3.0
I_B	Base Current-Continuous	0.4	A
P_D	Total power dissipation @ $T_C=25^\circ C$		30
		Derate above 25°C	0.24
$T_{J,}$	Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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OFF CHARACTERISTICS

$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage ^(note 2) ($I_C=30mA$, $I_B=0$)	TIP29, TIP30	40	---	Vdc
		TIP29A, TIP30A	60	---	
		TIP29B, TIP30B	80	---	
		TIP29C, TIP30C	100	---	
I_{EBO}	Emitter-Base Cutoff Current ($V_{EB}=5.0V$, $I_C=0$)	---	1.0	mAdc	
I_{CES}	Collector Cutoff Current ($V_{CE}=40V$, $V_{EB}=0$)	TIP29, TIP30	---	200	uAdc
		TIP29A, TIP30A	---	200	
		TIP29B, TIP30B	---	200	
		TIP29C, TIP30C	---	200	
I_{CEO}	Collector Cutoff Current ($V_{CE}=30V$, $I_B=0$)	TIP29, TIP29A, TIP30, TIP30A	---	0.3	mAdc
		TIP29B, TIP29C, TIP30B, TIP30C	---	0.3	

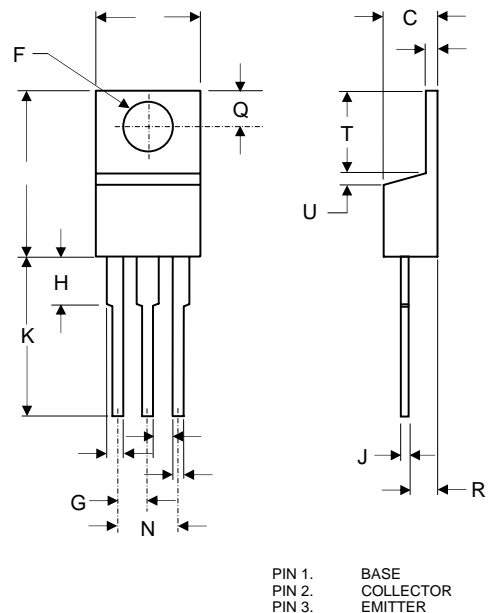
ON CHARACTERISTICS⁽²⁾

$h_{FE(1)}$	DC Current Gain ($I_C=0.2Adc$, $V_{CE}=4.0V$) ($I_C=1.0Adc$, $V_{CE}=4.0V$)	40 15	---	75	----
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=1.0Adc$, $I_B=125mA$)	---	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) ($I_C=200mA$, $V_{CE}=10V$, $f=1.0MHz$)	3.0	---	MHz	
h_{fe}	Small-Signal Current Gain ($I_C=0.2Adc$, $V_{CE}=10V$, $f=1.0KHz$)	20	---	---	

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

1.0 Amp Complementary Silicon Power Transistors

TO-220



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.560	.625	14.22	15.88	
B	.380	.420	9.65	10.67	
C	.140	.190	3.56	4.82	
D	.020	.045	0.51	1.14	
F	.139	.161	3.53	4.09	∅
G	.190	.110	2.29	2.79	
H	---	.250	---	6.35	
J	.012	.025	0.30	0.64	
K	.500	.580	12.70	14.73	
L	.045	.060	1.14	1.52	
N	.190	.210	4.83	5.33	
Q	.100	.135	2.54	3.43	
R	.080	.115	2.04	2.92	
S	.045	.055	1.14	1.39	
T	.230	.270	5.84	6.86	
U	-----	.050	-----	1.27	
V	.045	-----	1.15	-----	

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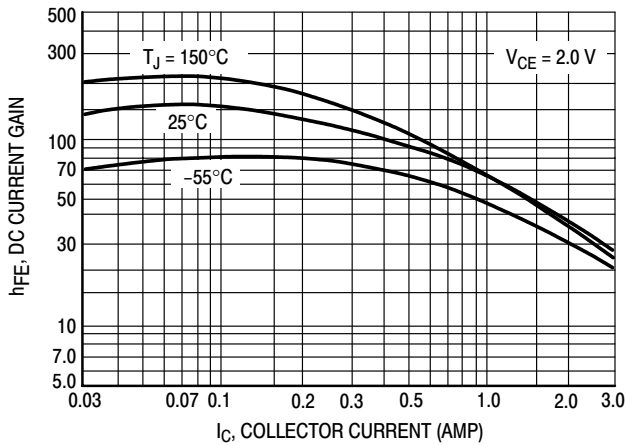


Figure 1. DC Current Gain

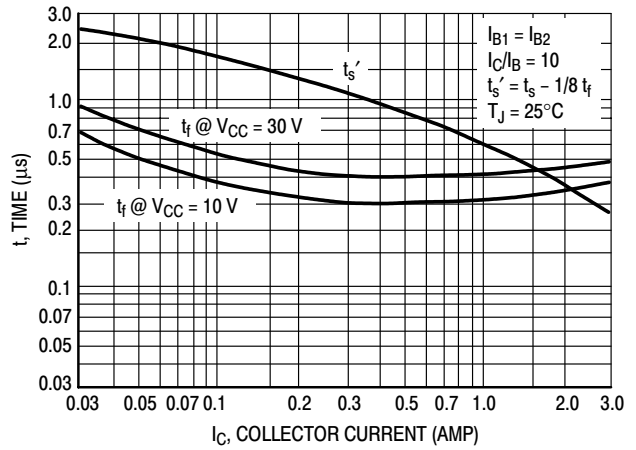


Figure 2. Turn-Off Time

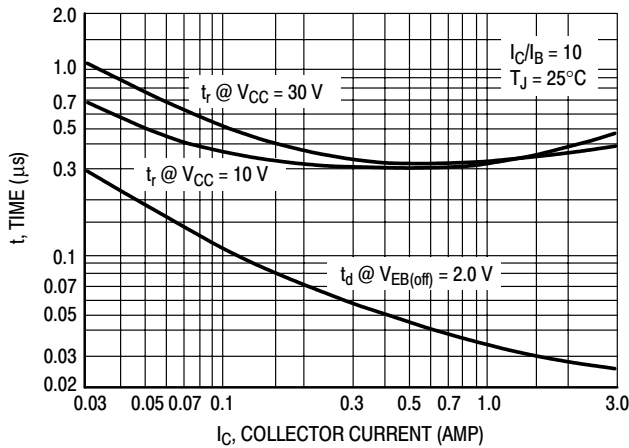


Figure 3. Turn-On Time

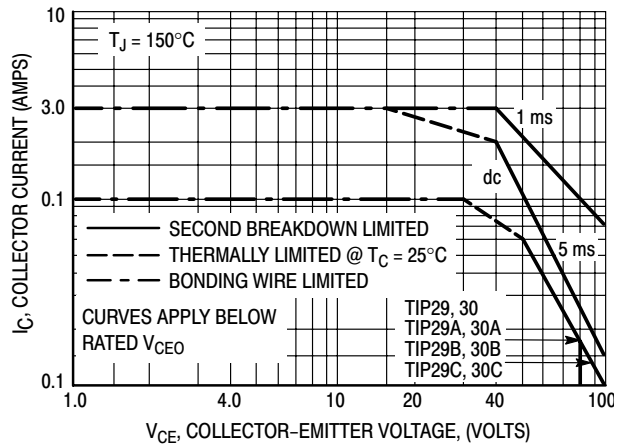


Figure 4. Active Region Safe Operating Area



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Ordering Information

Device	Packing
(Part Number)-BP	Bulk;1Kpcs/Box

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