

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

1.0 Amp
Complementary
Silicon Power
Transistors

Features

- Mounting Torque: 5 in-lbs Maximum
- 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
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

Maximum Ratings

Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	TIP29, TIP30	40
		TIP29A, TIP30A	60
		TIP29B, TIP30B	80
V_{CBO}	Collector-Base Voltage	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 W/°C
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
--------	-----------	-----	-----	-------

OFF CHARACTERISTICS

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

ON CHARACTERISTICS⁽²⁾

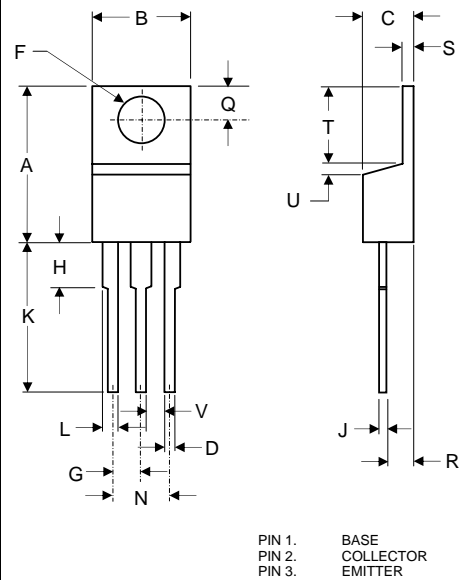
$h_{FE(1)}$	DC Current Gain ($I_C=0.2A_{dc}$, $V_{CE}=4.0V_{dc}$) ($I_C=1.0A_{dc}$, $V_{CE}=4.0V_{dc}$)	40	---	----
		15	75	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=1.0A_{dc}$, $I_B=125mA_{dc}$)	---	0.7	Vdc
$V_{BE(ON)}$	Base-Emitter On Voltage ($I_C=1.0A_{dc}$, $V_{CE}=4.0A_{dc}$)	---	1.3	Vdc
f_T	Current-Gain-Bandwidth Product ^(note 3) ($I_C=200mA_{dc}$, $V_{CE}=10V_{dc}$, $f=1.0MHz$)	3.0	---	MHz
h_{fe}	Small-Signal Current Gain ($I_C=0.2A_{dc}$, $V_{CE}=10V_{dc}$, $f=1.0KHz$)	20	---	---

Notes:1.High Temperature Solder Exemption Applied, see EU Directive Annex 7.

2. Pulse Test: Pulse Width=300us, Duty Cycle <2.0%

3. $f_T = |h_{fe}| \times f_{test}$

TO-220



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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	----	

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

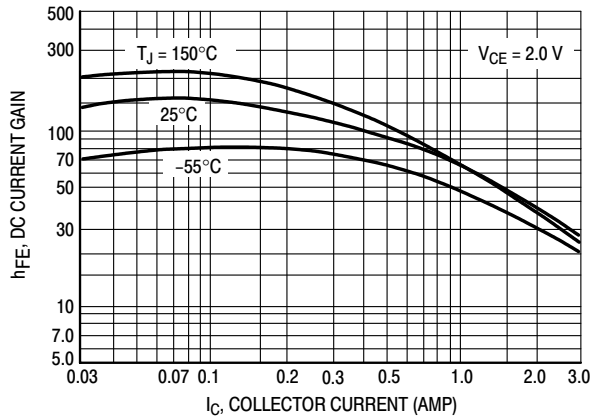


Figure 1. DC Current Gain

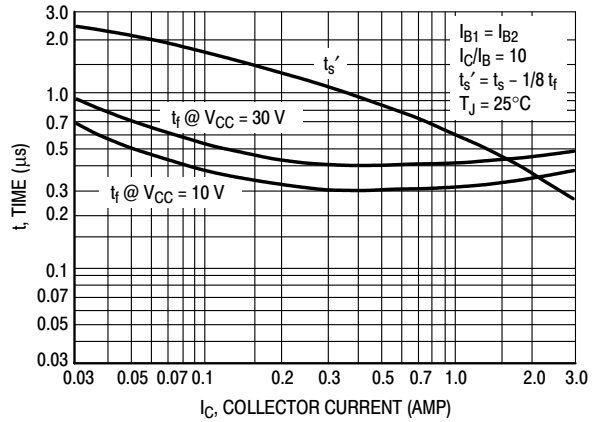


Figure 2. Turn-Off Time

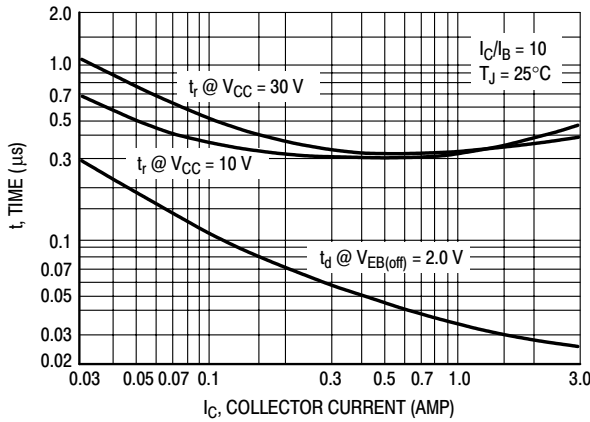


Figure 3. Turn-On Time

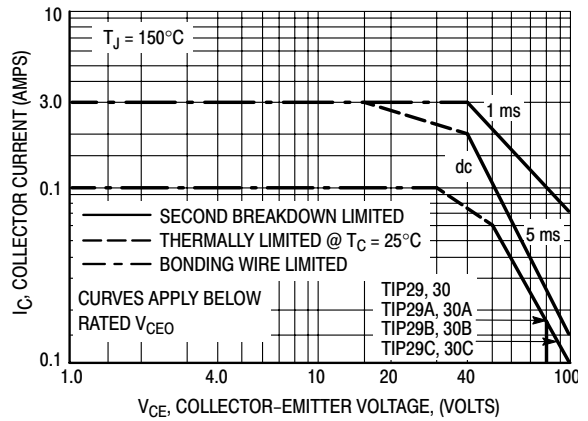


Figure 4. Active Region Safe Operating Area



Micro Commercial Components

Ordering Information :

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

*****IMPORTANT NOTICE*****

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications, enhancements, improvements, or other changes. **Micro Commercial Components Corp.** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp.** and all the companies whose products are represented on our website, harmless against all damages.

*****LIFE SUPPORT*****

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

*****CUSTOMER AWARENESS*****

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

www.mccsemi.com