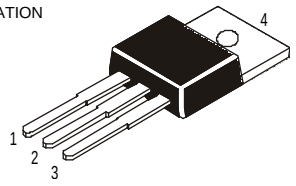
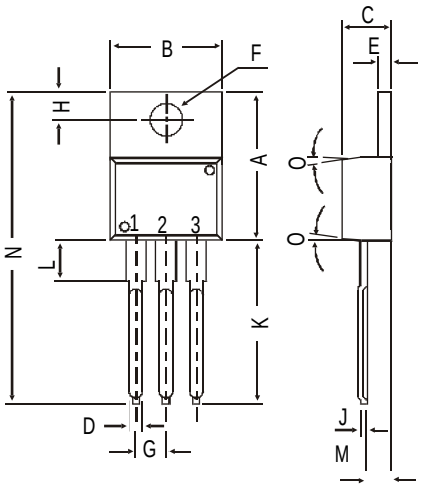
Boca Semiconductor Corp. BSC

TIP29, 29A, 29B, 29C NPN PLASTIC POWER TRANSISTORS
TIP30, 30A, 30B, 30C PNP PLASTIC POWER TRANSISTORS
General Purpose Amplifier and Switching Applications

PIN CONFIGURATION
1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR





All diminsions in mm.

DIM	MIN.	MAX.
A	14.42	16.51
B	9.63	10.67
C	3.56	4.83
D		0.90
E	1.15	1.40
F	3.75	3.88
G	2.29	2.79
H	2.54	3.43
J		0.56
K	12.70	14.73
L	2.80	4.07
M	2.03	2.92
N		31.24
O	DEG 7	

ABSOLUTE MAXIMUM RATINGS

			29 ***30***	***29A*** ***30A***	***29B*** ***30B***	***29C*** ***30C***	
Collector-base voltage (open emitter)	V_{CBO}	*max.*	*40*	*60*	*80*	*100*	*V*
Collector-emitter voltage (open base)	V_{CEO}	*max.*	*40*	*60*	*80*	*100*	*V*
Collector current	I_C	*max.*		*1.0*			*A*
Total power dissipation up to T_C = 25°C	P_{tot}	*max.*		*30*			*W*
Junction temperature	T_j	*max.*		*150*			*°C*
Collector-emitter saturation voltage							
I_C = 1 A; I_B = 125 mA	V_{CEsat}	*max.*		*0.7*			*V*
D.C. current gain							
I_C = 1 A; V_{CE} = 4 V	h_{FE}	*min.*		*15*			
		max.		*75*			

RATINGS *(at T_A=25°C unless otherwise specified)*

Limiting values			***29*** ***30***	***29A*** ***30A***	***29B*** ***30B***	***29C*** ***30C***	
Collector-base voltage (open emitter)	V_{CBO}	*max.*	*40*	*60*	*80*	*100*	*V*
Collector-emitter voltage (open base)	V_{CEO}	*max.*	*40*	*60*	*80*	*100*	*V*

Emitter-base voltage (open collector)	V_{EBO}	*max.*	*5.0*	*V*
Collector current	I_C	*max.*	*1.0*	*A*
Collector current (Peak)	I_{CM}	*max.*	*3.0*	*A*
Base current	I_B	*max.*	*0.4*	*A*
Total power dissipation upto T_C=25°C	P_{tot}	*max.*	*30*	*W*
Derate above 25°C		*max.*	*0.24*	*W/°C*
Total power dissipation upto T_A=25°C	P_{tot}	*max.*	*2*	*W*
Derate above 25°C		*max.*	*0.016*	*W/°C*
Junction temperature	T_j	*max.*	*150*	*°C*
Storage temperature	T_{stg}		*–65 to +150*	*°C*

THERMAL RESISTANCE

From junction to ambient	$R_{th\ j-a}$	*62.5*	*°C/W*
From junction to case	$R_{th\ j-c}$	*4.167*	*°C/W*

CHARACTERISTICS

T_{amb} = 25°C unless otherwise specified

			29 30	***29A 30A***	***29B 30B***	***29C 30C***	
Collector cutoff current							
I_B = 0; V_{CE} = 30V	I_{CEO}	*max.*	*0.3*	*0.3*	*–*	*–*	*mA*
I_B = 0; V_{CE} = 60V	I_{CEO}	*max.*	*–*	*–*	*0.3*	*0.3*	*mA*
V_{EB} = 0; V_{CE} = V_{CEO}	I_{CES}	*max.*		*0.2*			*mA*
Emitter cut-off current							
I_C = 0; V_{EB} = 5 V	I_{EBO}	*max.*		*1.0*			*mA*
Breakdown voltages							
I_C = 30 mA; I_B = 0	$V_{CEO(sus)}$*	*min.*	*40*	*60*	*80*	*100*	*V*
I_C = 1 mA; I_E = 0	V_{CBO}	*min.*	*40*	*60*	*80*	*100*	*V*
I_E = 1 mA; I_C = 0	V_{EBO}	*min.*		*5.0*			*V*
Saturation voltages							
I_C = 1 A; I_B = 125 mA	V_{CEsat}*	*max.*		*0.7*			*V*
Base emitter on voltage							
I_C = 1 A; V_{CE} = 4 V	$V_{BE(on)}$*	*max.*		*1.3*			*V*
D.C. current gain							
I_C = 0.2 A; V_{CE} = 4 V	h_{FE}*	*min.*		*40*			
I_C = 1 A; V_{CE} = 4 V	h_{FE}*	*min.*		*15*			
		max.		*75*			
Small-signal current gain							
I_C = 0.2A; V_{CE} = 10V; f = 1 KHz	h_{fe}	*min.*		*20*			
Transition frequency							
I_C = 0.2A; V_{CE} = 10V; f = 1 MHz	f_T (2)	*min.*		*3*			*MHz*

** Pulse test: pulse width ≤ 300 µs; duty cycle ≤ 2%.*
(2) $f_T = |h_{fe}| \cdot f_{test}$.