

TIP29, 29A, 29B, 29C

NPN PLASTIC POWER TRANSISTORS

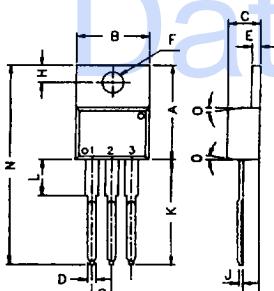
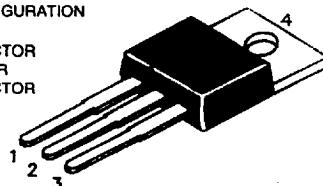
TIP30, 30A, 30B, 30C

PNP PLASTIC POWER TRANSISTORS

General Purpose Amplifier and Switching Applications

## PIN CONFIGURATION

1. BASE
2. COLLECTOR
3. Emitter
4. COLLECTOR



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	—	6,35
M	2,03	2,92
N	—	31,24
O	7	DEG

ALL DIMENSIONS ARE IN MM.

## ABSOLUTE MAXIMUM RATINGS

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

RATINGS (at  $T_A=25^\circ\text{C}$  unless otherwise specified)

Limiting values	29	29A	29B	29C			
	30	30A	30B	30C			
Collector-base voltage (open emitter)	VCBO	max.	40	60	80	100	V
Collector-emitter voltage (open base)	VCEO	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 $T_C=25^\circ\text{C}$	$P_{tot}$	max.	30	W
Derate above $25^\circ\text{C}$		max.	0.24	$\text{W}/^\circ\text{C}$
Total power dissipation upto $T_A=25^\circ\text{C}$	$P_{tot}$	max.	2	W
Derate above $25^\circ\text{C}$		max.	0.016	$\text{W}/^\circ\text{C}$
Junction temperature	$T_j$	max.	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-65 to +150	$^\circ\text{C}$

**THERMAL RESISTANCE**

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

**CHARACTERISTICS**T<sub>amb</sub> = 25°C unless otherwise specified

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

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