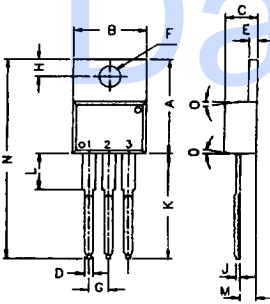
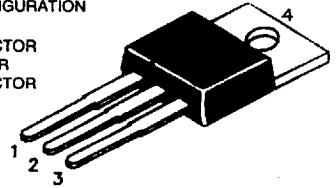


TIP29, 29A, 29B, 29C NPN PLASTIC POWER TRANSISTORS  
TIP30, 30A, 30B, 30C PNP PLASTIC POWER TRANSISTORS  
General Purpose Amplifier and Switching Applications

PIN CONFIGURATION

- 1. BASE
- 2. COLLECTOR
- 3. EMITTER
- 4. COLLECTOR



ALL DIMENSIONS ARE IN M.M.

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

ABSOLUTE MAXIMUM RATINGS

		29	29A	29B	29C	
		30	30A	30B	30C	
Collector-base voltage (open emitter)	$V_{CB0}$	max. 40	60	80	100	V
Collector-emitter voltage (open base)	$V_{CE0}$	max. 40	60	80	100	V
Collector current	$I_C$	max.	1.0			A
Total power dissipation up to $T_C = 25^\circ C$	$P_{tot}$	max.	30			W
Junction temperature	$T_j$	max.	150			$^\circ C$
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  $T_A = 25^\circ C$  unless otherwise specified)

Limiting values		29	29A	29B	29C	
		30	30A	30B	30C	
Collector-base voltage (open emitter)	$V_{CB0}$	max. 40	60	80	100	V
Collector-emitter voltage (open base)	$V_{CE0}$	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	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	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	$^\circ\text{C/W}$
From junction to case	$R_{th\ j-c}$		4.167	$^\circ\text{C/W}$

**CHARACTERISTICS**
 $T_{amb} = 25^\circ\text{C}$  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	-	-	mA
$I_B = 0; V_{CE} = 60\text{V}$	$I_{CEO}$	max.	-	-	0.3	0.3	mA
$V_{EB} = 0; V_{CE} = V_{CEO}$	$I_{CES}$	max.			0.2		mA
Emitter cut-off current							
$I_C = 0; V_{EB} = 5\text{V}$	$I_{EBO}$	max.			1.0		mA
Breakdown voltages							
$I_C = 30\text{ mA}; I_B = 0$	$V_{CEO(sus)}^*$	min.	40	60	80	100	V
$I_C = 1\text{ mA}; I_E = 0$	$V_{CBO}$	min.	40	60	80	100	V
$I_E = 1\text{ mA}; I_C = 0$	$V_{EBO}$	min.			5.0		V
Saturation voltages							
$I_C = 1\text{ A}; I_B = 125\text{ mA}$	$V_{CEsat}^*$	max.			0.7		V
Base emitter on voltage							
$I_C = 1\text{ A}; V_{CE} = 4\text{ V}$	$V_{BE(on)}^*$	max.			1.3		V
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  $\leq 300\ \mu\text{s}$ ; duty cycle  $\leq 2\%$ .

(2)  $f_T = |h_{fe}| \cdot f_{test}$ .