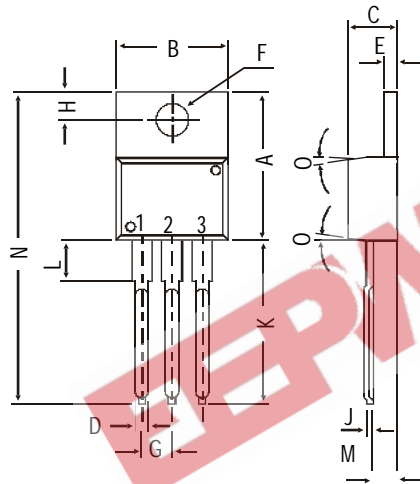
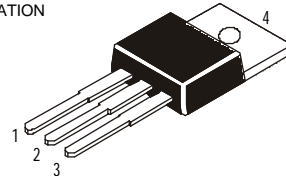


**TO-220 Plastic Package**

**TIP29, TIP29A, TIP29B, TIP29C  
TIP30, TIP30A, TIP30B, TIP30C**

*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 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**

		<b>29</b>	<b>29A</b>	<b>29B</b>	<b>29C</b>	
		<b>30</b>	<b>30A</b>	<b>30B</b>	<b>30C</b>	
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 $T_C = 25^\circ C$	$P_{tot}$	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)

		<b>29</b>	<b>29A</b>	<b>29B</b>	<b>29C</b>	
		<b>30</b>	<b>30A</b>	<b>30B</b>	<b>30C</b>	
Limiting values						
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

**TIP29, TIP29A, TIP29B, TIP29C  
TIP30, TIP30A, TIP30B, TIP30C**

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

			<b>29</b>	<b>29A</b>	<b>29B</b>	<b>29C</b>	
			<b>30</b>	<b>30A</b>	<b>30B</b>	<b>30C</b>	
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							
$I_C = 30 \text{ mA}; I_B = 0$	$V_{CEO(sus)}^*$	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)  $f_T = |h_{fe}| \cdot f_{test}$ .