

**Boca Semiconductor Corp (BSC)**

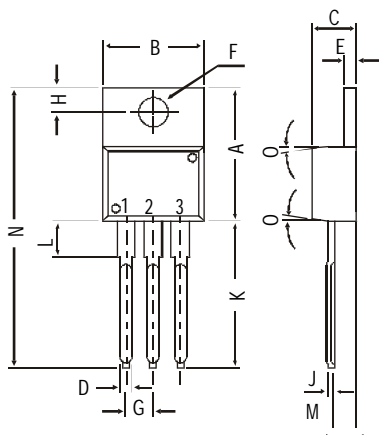
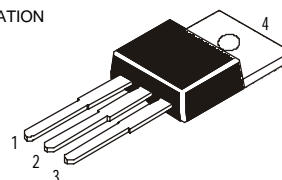
TIP 41, 41A, 41B, 41C NPN PLASTIC POWER TRANSISTORS

TIP 42, 42A, 42B, 42C 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	2.80	4.07
M	2.03	2.92
N		31.24
O		DEG 7

All dimensions in mm.

**ABSOLUTE MAXIMUM RATINGS**

		<b>41</b>	<b>41A</b>	<b>41B</b>	<b>41C</b>	
		<b>42</b>	<b>42A</b>	<b>42B</b>	<b>42C</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.		6.0		A
Total power dissipation up to $T_C = 25^\circ\text{C}$	$P_{tot}$	max.		65		W
Junction temperature	$T_j$	max.		150		$^\circ\text{C}$
Collector-emitter saturation voltage						
$I_C = 6\text{ A}; I_B = 0.6\text{ A}$	$V_{CEsat}$	max.		1.5		V
D.C. current gain						
$I_C = 3\text{ A}; V_{CE} = 4\text{ V}$	$h_{FE}$	min.		15		
		max.		75		

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

		<b>41</b>	<b>41A</b>	<b>41B</b>	<b>41C</b>	
		<b>42</b>	<b>42A</b>	<b>42B</b>	<b>42C</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
Emitter-base voltage (open collector)	$V_{EBO}$	max.		5.0		V
Collector current	$I_C$	max.		6.0		A

**TIP41, TIP41A, TIP41B, TIP41C  
TIP42, TIP42A, TIP42B, TIP42C**

Collector current (Peak value)	$I_{CM}$	max.	10	A
Base current	$I_B$	max.	2.0	A
Total power dissipation up to $T_C = 25^\circ\text{C}$	$P_{tot}$	max.	65	W
Derate above $25^\circ\text{C}$		max.	0.52	W $^\circ\text{C}$
Total power dissipation up to $T_A = 25^\circ\text{C}$	$P_{tot}$	max.	2.0	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	$R_{th\ j-c}$		1.92	$^\circ\text{C/W}$

**CHARACTERISTICS**

$T_{amb} = 25^\circ\text{C}$  unless otherwise specified

			<b>41</b>	<b>41A</b>	<b>41B</b>	<b>41C</b>	
			<b>42</b>	<b>42A</b>	<b>42B</b>	<b>42C</b>	
Collector cutoff current							
$I_B = 0; V_{CE} = 30\text{ V}$	$I_{CEO}$	max.	0.7	0.7	-	-	mA
$I_B = 0; V_{CE} = 60\text{ V}$	$I_{CEO}$	max.	-	-	0.7	0.7	mA
$V_{BE} = 0; V_{CE} = V_{CEO}$	$I_{CES}$	max.		0.4			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 voltage							
$I_C = 6\text{ A}; I_B = 0.6\text{ A}$	$V_{CEsat}^*$	max.		1.5			V
Base-emitter on voltage							
$I_C = 6\text{ A}; V_{CE} = 4\text{ V}$	$V_{BE(on)}^*$	max.		2.0			V
D.C. current gain							
$I_C = 0.3\text{ A}; V_{CE} = 4\text{ V}$	$h_{FE}^*$	min.		30			
$I_C = 3\text{ A}; V_{CE} = 4\text{ V}$	$h_{FE}^*$	min.		15			
		max.		75			
Small-signal current gain							
$I_C = 0.5\text{ A}; V_{CE} = 10\text{ V}; f = 1\text{ KHz}$	$ h_{fe} $	min.		20			
Transition frequency							
$I_C = 0.5\text{ A}; V_{CE} = 10\text{ V}; f = 1\text{ MHz}$	$f_T$	min. (1)		3			MHz

\* Pulse test: pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .

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