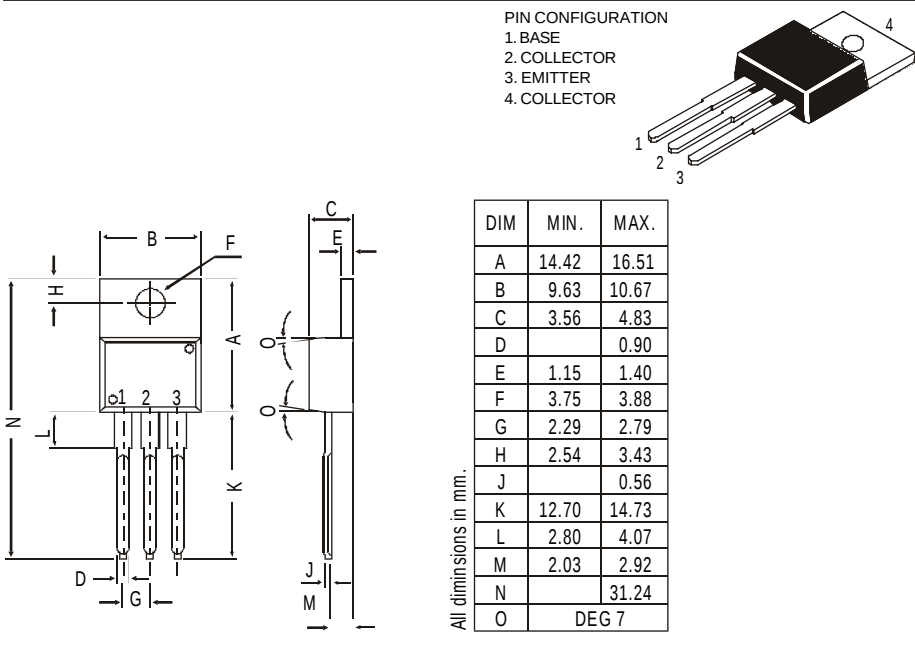


Boca Semiconductor Corp (BSC)

TIP 41, 41A, 41B, 41C NPN PLASTIC POWER TRANSISTORS
TIP 42, 42A, 42B, 42C PNP PLASTIC POWER TRANSISTORS
General Purpose Amplifier and Switching Applications



ABSOLUTE MAXIMUM RATINGS

		41	41A	41B	41C	
		42	42A	42B	42C	
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)

		41	41A	41B	41C	
		42	42A	42B	42C	
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°C		max.	0.52	W/°C
Total power dissipation up to $T_A = 25^\circ\text{C}$	P_{tot}	max.	2.0	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	$R_{th\ j-c}$		1.92	°C/W

CHARACTERISTICS

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

			41	41A	41B	41C	
			42	42A	42B	42C	
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 $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

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