

COMPLEMENTARY SILICON PLASTIC POWER TRANSISTORS

... designed for use in general purpose power amplifier and switching applications.

FEATURES:

- * Collector-Emitter Sustaining Voltage -
 $V_{CEO(MIN)} = 45V$ (Min)- BD241,BD242
 60V(Min)- BD241A,BD242A
 80V(Min)- BD241B,BD242B
 100V(Min)- BD241C,BD242C

* DC Current Gain $hFE = 25$ (Min)@ $I_C = 1.0A$

* Current Gain-Bandwidth Product $fT = 3.0$ MHz (Min)@ $I_C = 500mA$

Boca Semiconductor Corp.
BSC

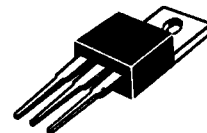
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NPN	PNP
BD241	BD242
BD241A	BD242A
BD241B	BD242B
BD241C	BD242C

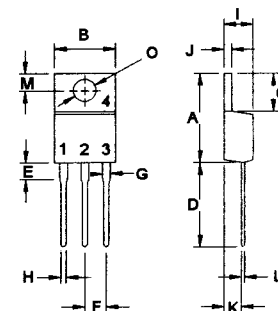
3 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
45 -100 VOLTS
40 WATTS

MAXIMUM RATINGS

Characteristic	Symbol	BD241	BD241A	BD241B	BD241C	Unit
		BD242	BD242A	BD242B	BD242C	
Collector-Emitter Voltage	V_{CEO}	45	60	80	100	V
Collector-Base Voltage	V_{CBO}	55	70	90	115	V
Emitter-Base Voltage	V_{EBO}	5.0				V
Collector Current - Continuous - Peak	I_C	3.0 5.0				A
Base Current	I_B	1.0				A
Total Power Dissipation@ $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	40 0.32				W W/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150				$^\circ C$



TO-220



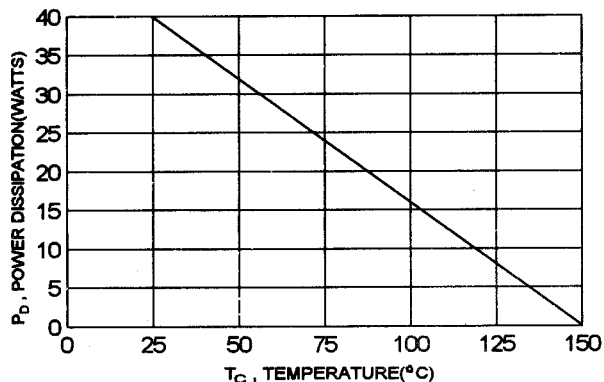
PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	3.125	$^\circ C/W$

DIM	MILLIMETERS	
	MIN	MAX
A	14.98	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

FIGURE -1 POWER DERATING



ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Sustaining Voltage(1) ($I_C = 30\text{mA}, I_B = 0$)	BD241, BD242 BD241A, BD242A BD241B, BD242B BD241C, BD242C	$V_{CEO(sus)}$	45 60 80 100	V
Collector Cutoff Current ($V_{CE} = 30\text{V}, I_B = 0$) ($V_{CE} = 60\text{V}, I_B = 0$)	BD241/42/41A/42A BD241B/42B/41C/42C	I_{CEO}	0.3 0.3	mA
Collector Cutoff Current ($V_{CE} = 45\text{V}, V_{EB} = 0$) ($V_{CE} = 60\text{V}, V_{EB} = 0$) ($V_{CE} = 80\text{V}, V_{EB} = 0$) ($V_{CE} = 100\text{V}, V_{EB} = 0$)	BD241/42 BD241A/42A BD241B/42B BD241C/42C	I_{CES}	0.2 0.2 0.2 0.2	mA
Emitter Cutoff Current ($V_{EB} = 5\text{V}, I_C = 0$)		I_{EBO}	1.0	mA

ON CHARACTERISTICS (1)

DC Current Gain ($V_{CE} = 4.0\text{V}, I_C = 1.0\text{A}$) ($V_{CE} = 4.0\text{V}, I_C = 3.0\text{A}$)		hFE	25 10	
Collector-Emitter Saturation Voltage ($I_C = 3.0\text{A}, I_B = 600\text{mA}$)		$V_{CE(sat)}$	1.2	V
Base-Emitter On Voltage ($I_C = 3.0\text{A}, V_{CE} = 4.0\text{V}$)		$V_{BE(On)}$	1.8	V

DYNAMIC CHARACTERISTICS

Current Gain-Bandwidth Product (2) ($I_C = 500\text{mA}, V_{CE} = 10\text{V}, f = 1\text{MHz}$)		f_T	3.0	MHz
Small-Signal Current Gain ($I_C = 500\text{mA}, V_{CE} = 10\text{V}, f = 1\text{KHz}$)		hfe	20	

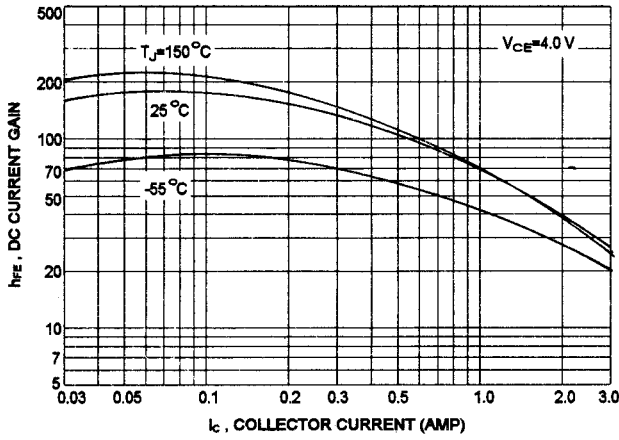
(1) Pulse Test: Pulse width = $300\mu\text{s}$, Duty Cycle $\leq 2.0\%$ (2) $f_T = |h_{fe}| \cdot f_{test}$

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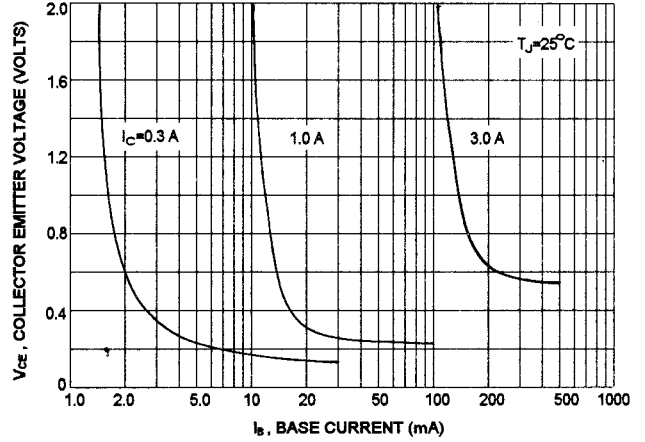
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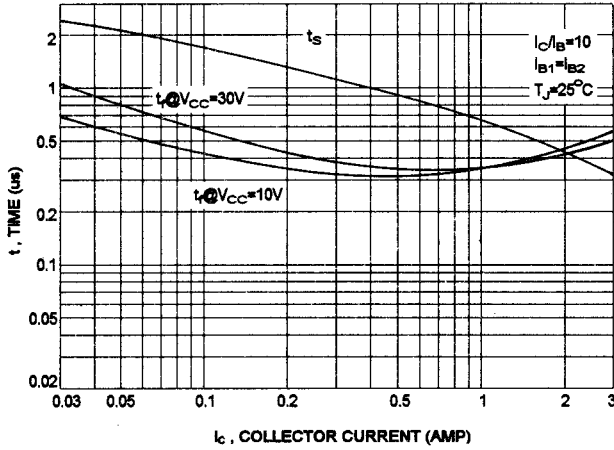
DC CURRENT GAIN



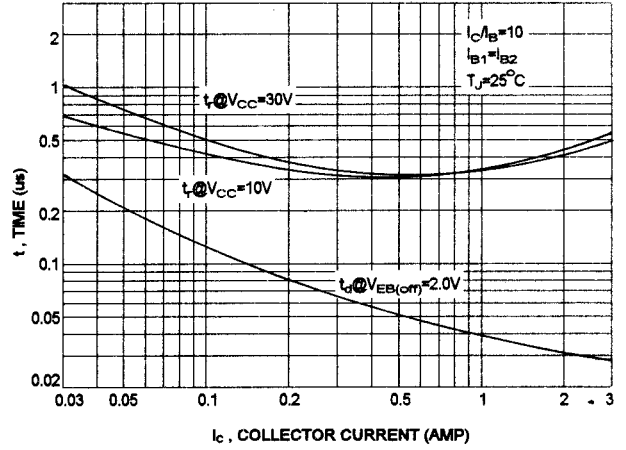
COLLECTOR SATURATION REGION



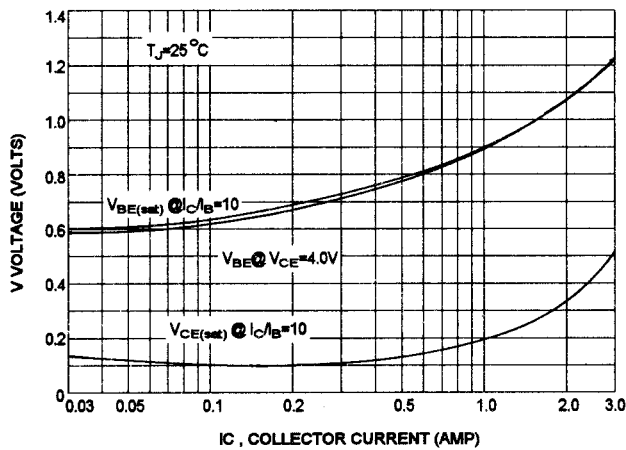
TURN-OFF TIME



TURN-ON TIME



"ON" VOLTAGES



ACTIVE REGION SAFE OPERATING AREA

