COMPLEMENTARY SILICON POWER TRANSISTORS

...designed for various specific and general purpose application such as;output and driver stages of amplifiers operating at frequencies from DC to greater than 1.0MHz series,shunt and switching regulators; low and high frequency inverters/converters and many others.

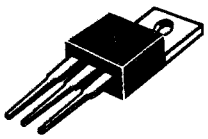
FEATURES:

* Very Low Collector Saturation Voltage
* Excellent Linearity
* Fast Switching
* PNP Values are Negative,Observe Proper Polarity.

Boca Semiconductor Corp.
BSC
http://www.bocasemi.com

NPN	PNP
D44C Series	D45C Series

4 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
30-80 VOLTS
30 WATTS



TO-220

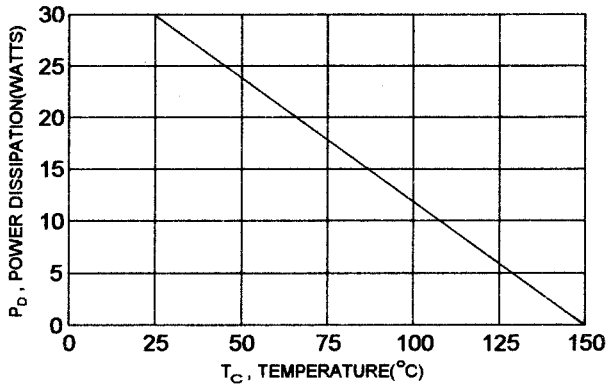
MAXIMUM RATINGS

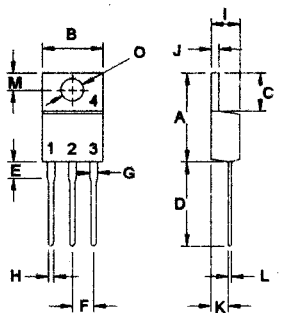
Characteristic	Symbol	D44C1,2,3 D45C1,2,3	D44C4,5,6 D45C4,5,6	D44C7,8,9 D45C7,8,9	D44C10,11,12 D45C10,11,12	Unit
Collector-Emitter Voltage	V_{CEO}	30	45	60	80	V
Collector-Emitter Voltage	V_{CES}	40	55	70	90	V
Emitter-Base Voltage	V_{EBO}	5.0				V
Collector Current - Continuous Peak	I_C I_{CM}	4.0 6.0				A
Base Current	I_B	1.0				A
Total Power Dissipation @T_C = 25°C Derate above 25 °C	P_D	30 0.24				W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150				°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	RθjC	4.2	°C/W

FIGURE -1 POWER DERATING





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

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	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

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Base Cutoff Current (V_{CE}= Rated V_{CES})		I_{CES}		10	uA
Emitter-Base Cutoff Current (V_{EB}= 5.0 V, I_C = 0)		I_{EBO}		100	uA
ON CHARACTERISTICS(1)					
DC Current Gain		hFE			
(I_C= 0.2 A, V_{CE}= 1.0 V)	D44C3,6,9,12/ D45C3,6,9,12		40	120	
	D44C2,5,8,11		100	220	
	D45C2,5,8,11		40	120	
	D44C1,4,7,10/D45C1,4,7,10		25		
(I_C= 1.0 A, V_{CE}= 1.0 V)	D44C1,4,7,10/D45C1,4,7,10		10		
	D45C2,5,8,11		20		
(I_C= 2.0 A, V_{CE}= 1.0 V)	D44C3,6,9,12/ D45C3,6,9,12		20		
	D44C2,5,8,11		20		
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$			V
(I_C= 1.0 A, I_B= 50 mA)	D44C2,3,5,6,8,9,11,12			0.5	
	D45C2,3,5,6,8,9,11,12			0.5	
(I_C= 1.0 A, I_B= 100 mA)	D44C1,4,7,10/D45C1,4,7,10			0.5	
Base-Emitter Saturation Voltage (I_C= 1.0 A, I_B= 100 mA)	All Devices	$V_{BE(sat)}$		1.3	V
DYAMIC CHARATERISTICS					
Current-Gain Bandwidth Product (2) (I_C= 20 mA, V_{CE}= 4.0 V, f = 1.0 MHz)	D44C Series	f_T	50(typ)		MHz
	D45C Series		40(typ)		

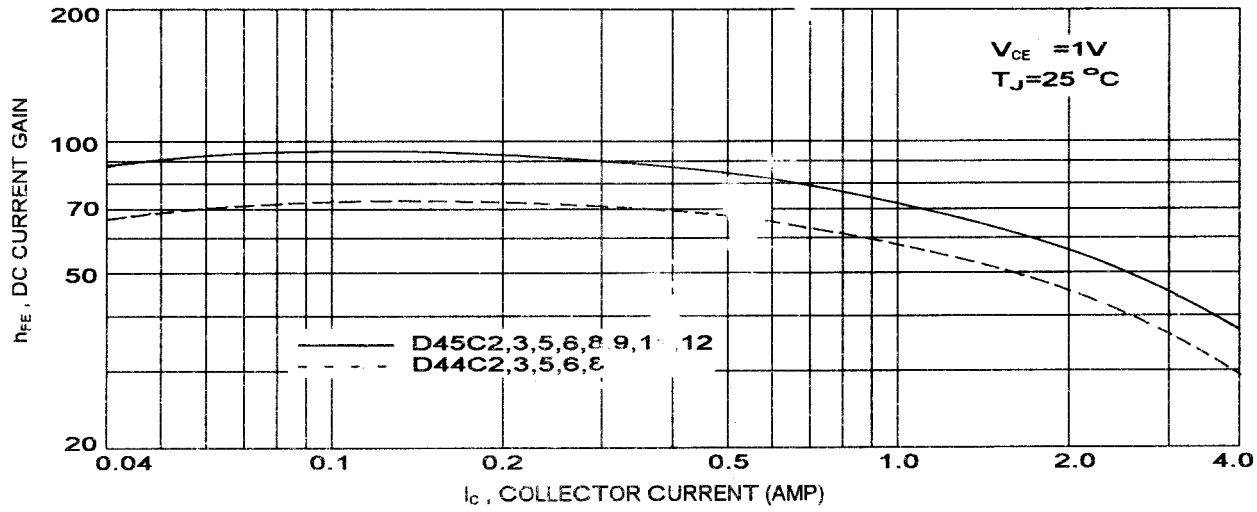
SWITCHING CHARATERISTICS

Rise Time	V_{CC}=20 V	D44C Series	t_r		0.3	us
		D45C Series			0.2	
Storage Time	I_C= 1.0 A,	D44C Series	t_s		0.7	us
		D45C Series			0.6	
Fall Time	I_{B1}= -I_{B2} = 100mA	D44C Series	t_f		0.4	us
		D45C Series			0.3	

(1) Pulse Test: Pulse width = 300 us , Duty Cycle ≦ 2.0%

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

DC CURRENT GAIN



FORWARD BIAS SAFE OPERATING AREA

