COMPLEMENTARY MEDIUM-POWER HIGH VOLTAGE POWER TRANSISTORS

... designed for high-speed switching and linear amplifier application for high-voltage operational amplifiers,switching regulators,convertors, deflection stages and high fidelity amplifiers.

FEATURES:

* Continuous Collector Current - I_C = 2 A
* Power Dissipation - P_D = 35 W @ T_C = 25°C
* $V_{CE(SAT)}$ = 0.75 V (Max.) @ I_C = 1.0 A, I_B = 125 mA

NPN	PNP
2N3583	2N6420
2N3584	2N6421
2N3585	2N6422
2N4240	2N6423

1.0 AND 2.0 AMPERE
POWER TRANSISTOR
COMPLEMENTARY SILICON
175-300 VOLTS
35 WATTS

Boca Semiconductor Corp.

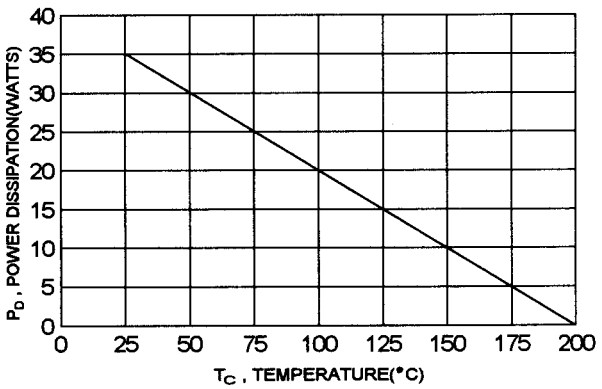
MAXIMUM RATINGS

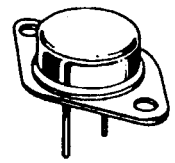
Characteristic	Symbol	2N3583 2N6420	2N3584 2N6421	2N3585 2N6422	2N4240 2N6423	Unit
Collector-Emitter Voltage	V_{CEO}	175	250	300	300	V
Collector-Base Voltage	V_{CBO}	250	375	500	500	V
Emitter-Base Voltage	V_{EBO}	6				V
Collector Current-Continuous Peak	I_C	1.0 5.0	2.0 5.0			A
Base Current	I_B	1.0				A
Total Power Dissipation @T_C=25°C Derate above 25°C	P_D	35 0.2				W W/°C
Operating and Storage Junction Temperature Range	T_J , T_{STG}	-65 to +200				°C

THERMAL CHARACTERISTICS

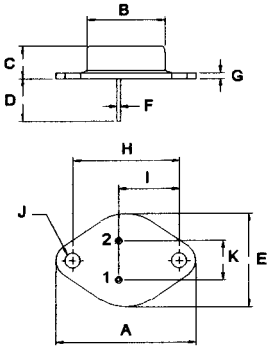
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	5.0	°C/W

FIGURE -1 POWER DERATING





TO-66



PIN 1.BASE
2.EMITTER
COLLECTOR (CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	30.60	32.52
B	13.85	14.16
C	6.54	7.22
D	9.50	10.50
E	17.26	18.46
F	0.76	0.92
G	1.38	1.65
H	24.16	24.78
I	13.84	15.60
J	3.32	3.92
K	4.86	5.34

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

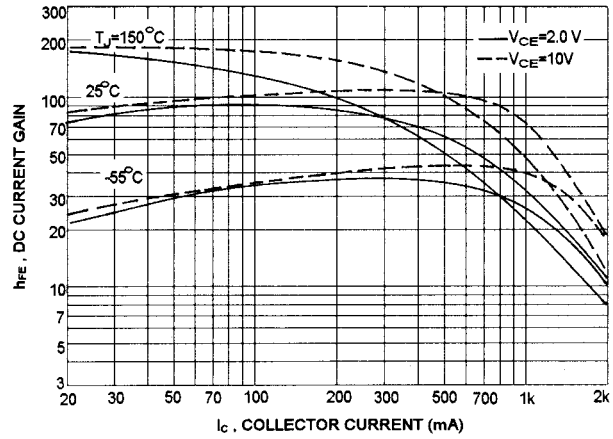
Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector - Emitter Sustaining Voltage (1)		$V_{CEO(SUS)}$			V
(I_C = 200 mA, I_B = 0) NPN	2N3583,2N6420		175		
	2N3584,2N6421		250		
(I_C = 50 mA, I_B = 0) PNP	2N3585,2N6422		300		
	2N4240,2N6423		300		
Collector Cutoff Current		I_{CEO}			mA
(V_{CE} = 150 V, I_B = 0)	2N3583,2N6420			10	
	2N3584,2N6421			5.0	
	2N3585,2N6422			5.0	
	2N4240,2N6423			5.0	
Collector Cutoff Current		I_{CEX}			mA
(V_{CE} = 225 V, $V_{BE(off)}$ = 1.5 V)	2N3583,2N6420			1.0	
(V_{CE} = 340 V, $V_{BE(off)}$ = 1.5 V)	2N3584,2N6421			1.0	
(V_{CE} = 450 V, $V_{BE(off)}$ = 1.5 V)	2N3585,2N6422			1.0	
	2N4240,2N6423			2.0	
(V_{CE} = 225 V, $V_{BE(off)}$ = 1.5 V, T_C = 150°C)	2N3583,2N6420			3.0	
(V_{CE} = 300 V, $V_{BE(off)}$ = 1.5 V, T_C = 150°C)	2N3584,2N6421			3.0	
	2N3585,2N6422			3.0	
	2N4240,2N6423			5.0	
Emitter Cutoff Current		I_{EBO}			mA
(V_{EB} = 6.0 V, I_C = 0)	2N3583,2N6420			5.0	
	2N3584,2N6421			0.5	
	2N3585,2N6422			0.5	
	2N4240,2N6423			0.5	
ON CHARACTERISTICS (1)					
DC Current Gain		hFE			
(I_C = 0.1 A , V_{CE} = 10 V)	All devices		40		
(I_C = 0.5 A , V_{CE} = 10 V)	2N3583,2N6420		40	200	
(I_C = 0.75 A , V_{CE} = 2.0 V)	2N4240,2N6423		10	100	
(I_C = 0.75 A , V_{CE} = 10 V)	2N4240,2N6423		30	150	
(I_C = 1.0 A , V_{CE} = 2.0 V)	2N3584,2N6421		8.0	80	
	2N3585,2N6422		8.0	80	
(I_C = 1.0 A , V_{CE} = 10 V)	2N3583,2N6420		10		
	2N3584,2N6421		25	100	
	2N3585,2N6422		25	100	
Collector - Emitter Saturation Voltage		$V_{CE(sat)}$			V
(I_C = 0.75 A , I_B = 75 mA)	2N4240,2N6423			1.0	
(I_C = 1.0 A , I_B = 125 mA)	2N3583,2N6420			5.0	
	2N3584,2N6421			0.75	
	2N3585,2N6422			0.75	
Base - Emitter Saturation Voltage		$V_{BE(sat)}$			V
(I_C = 0.75 A , I_B = 75 mA)	2N4240,2N6423			1.8	
(I_C = 1.0 A , I_B = 100 mA)	2N3584,2N6421			1.4	
	2N3585,2N6422			1.4	
Base - Emitter On Voltage		$V_{BE(on)}$			V
(I_C = 1.0 A , V_{CE} = 10 V)	All devices			1.4	

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

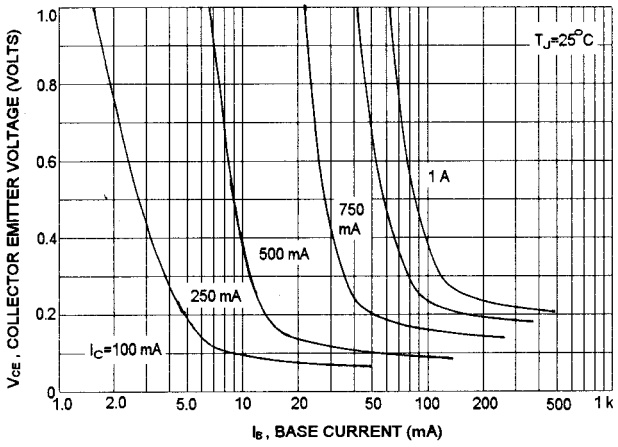
http://www.bocasemi.com

2N3583 thru 2N3585,2N4240

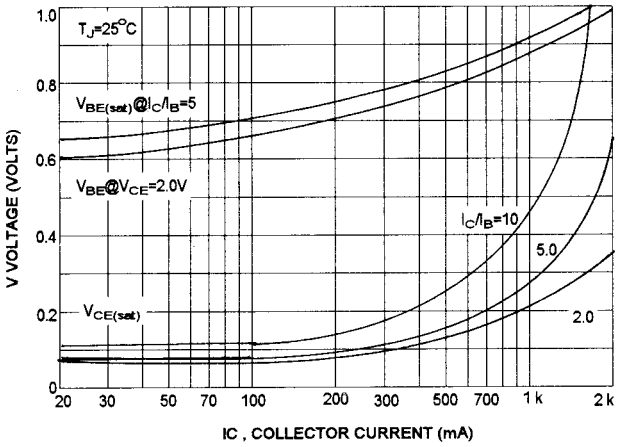
DC CURRENT GAIN



COLLECTOR SATURATION REGION

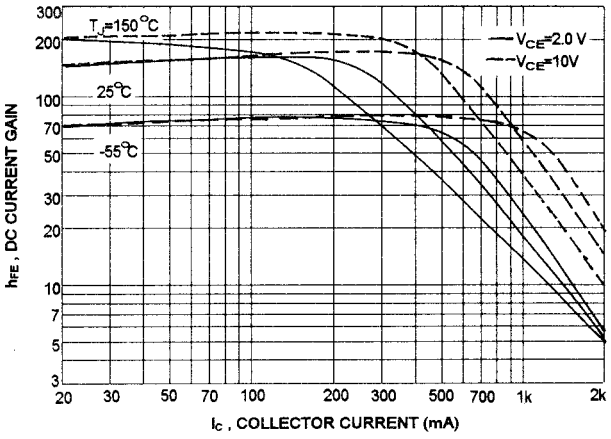


"ON" VOLTAGES

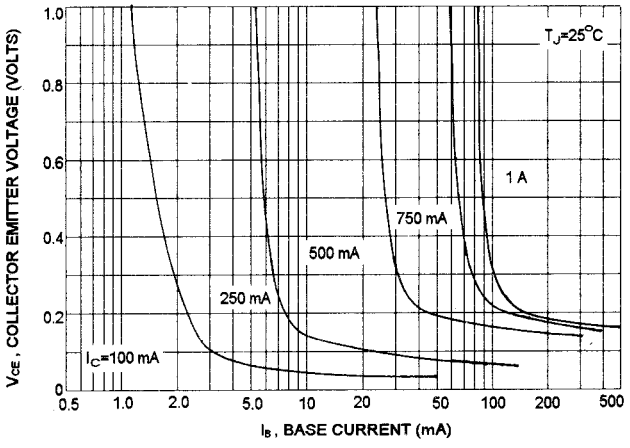


2N6420 thru 2N6423

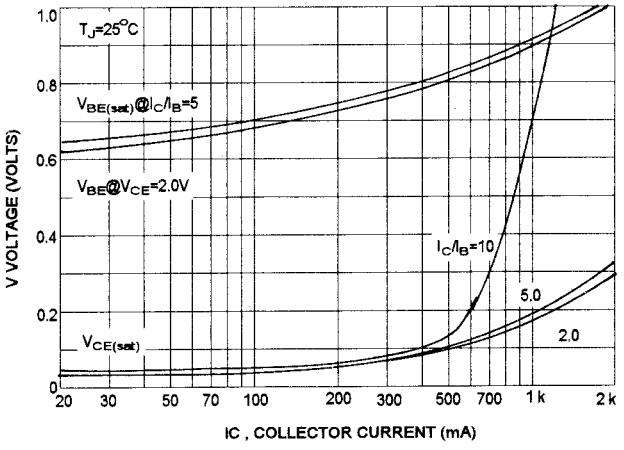
DC CURRENT GAIN



COLLECTOR SATURATION REGION

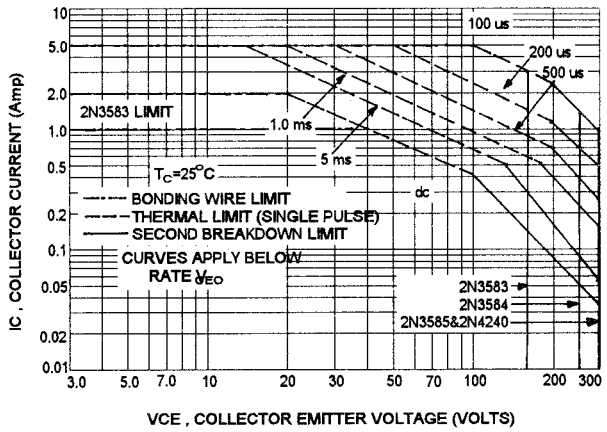


"ON" VOLTAGES



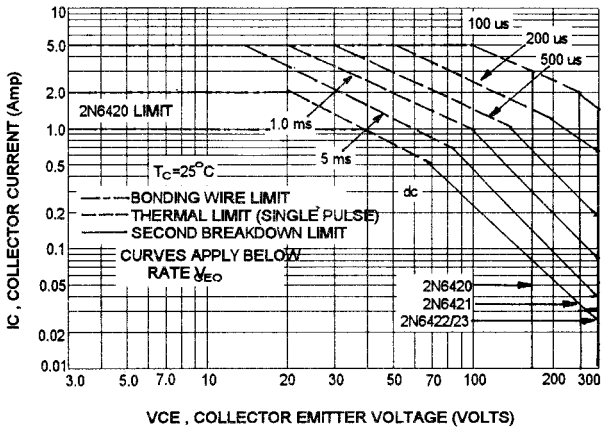
2N3583 thru 2N3585,2N4240

ACTIVE REGION SAFE OPERATING AREA

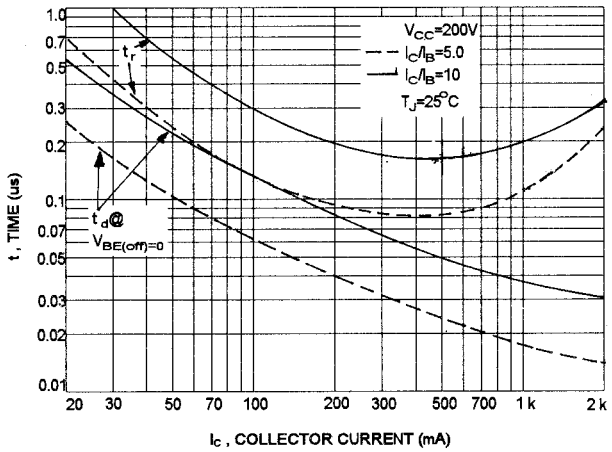


2N6420 thru 2N6423

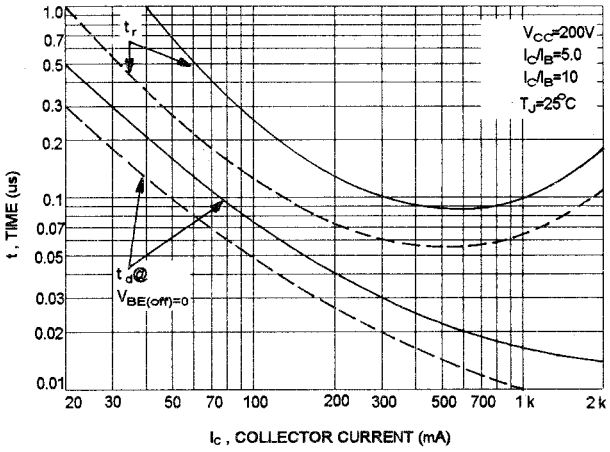
ACTIVE REGION SAFE OPERATING AREA



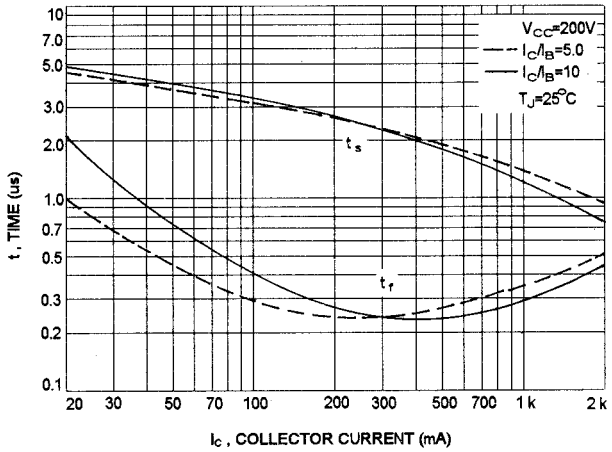
TURN-ON TIME



TURN-ON TIME



TURN-OFF TIME



TURN-OFF TIME

