

# SILICON PNP POWER TRANSISTORS

... designed for medium-speed switching and amplifier applications

## FEATURES

- \* Low Gain Ranges:  
hFE(Min)= 15 and 30@ $I_C=3A$  -2N3789,2N3790  
25 and 50@ $I_C=1A$  -2N3791,2N3792

Boca Semiconductor Corp.

BSC

<http://www.bocasemi.com>

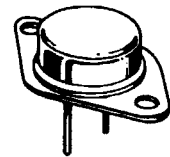
- \* Excellent Safe Operating Areas
- \* Complementary NPN Types Available-2N3713 thru 2N3716

**PNP  
2N3789  
Thru  
2N3792**

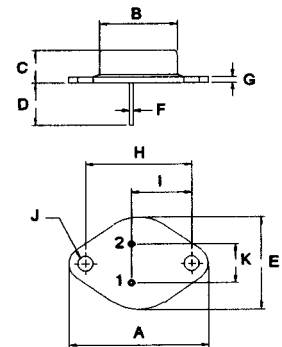
**10 AMPER  
POWER TRANSISTORS  
PNP SILICON  
60-80 VOLTS  
150 WATTS**

## MAXIMUM RATINGS

Characteristic	Symbol	2N3789 2N3791	2N3790 2N3792	Unit
Collector-Base Voltage	$V_{CBO}$	60	80	V
Collector-Emitter Voltage	$V_{CEO}$	60	80	V
Emitter-Base Voltage	$V_{EBO}$	7		V
Collector Current - Continuous	$I_C$	10		A
Base Current-Continuous	$I_B$	4		A
Total Power Dissipation @ $T_C=25^\circ C$ Derate above $25^\circ C$	$P_D$	150 0.857		W W/ $^\circ C$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-65 to +200		$^\circ C$



**TO-3**

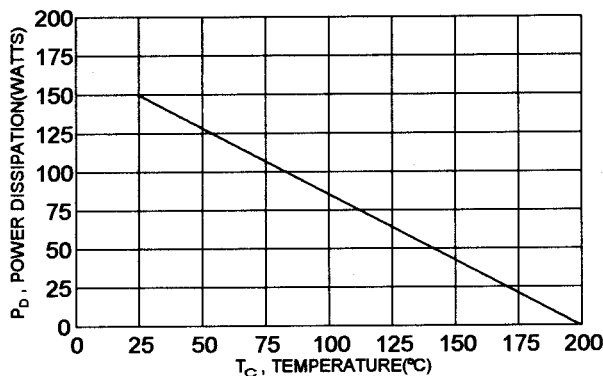


PIN 1.BASE  
2.EMITTER  
COLLECTOR(CASE)

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.17	$^\circ C/W$

FIGURE -1 POWER DERATING



DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

**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) ( $I_C = 200\text{ mA}$ , $I_B = 0$ )	2N3789, 2N3791 2N3790, 2N3792	$V_{CEO(sus)}$	60 80	V
Collector -Emitter Cutoff Current ( $V_{CE} = 60\text{ V}$ , $V_{BE(off)} = -1.5\text{ V}$ ) ( $V_{CE} = 80\text{ V}$ , $V_{BE(off)} = -1.5\text{ V}$ ) ( $V_{CE} = 60\text{ V}$ , $V_{BE(off)} = -1.5\text{ V}$ , $T_c = 150^\circ\text{C}$ ) ( $V_{CE} = 80\text{ V}$ , $V_{BE(off)} = -1.5\text{ V}$ , $T_c = 150^\circ\text{C}$ )	2N3789, 2N3791 2N3790, 2N3792 2N3789, 2N3791 2N3790, 2N3792	$I_{CEX}$	1.0 1.0 5.0 5.0	mA
Emitter-Base Cutoff Current ( $V_{EB} = 7.0\text{ V}$ , $I_C = 0$ )	All Types	$I_{EBO}$	5.0	mA

**ON CHARACTERISTICS (1)**

DC Current Gain ( $I_C = 1.0\text{ A}$ , $V_{CE} = 2.0\text{ V}$ ) ( $I_C = 3.0\text{ A}$ , $V_{CE} = 2.0\text{ V}$ )	2N3789, 2N3790 2N3791, 2N3792 2N3789, 2N3790 2N3791, 2N3792	$h_{FE}$	25 50 15 30	90 180
Collector-Emitter Saturation Voltage ( $I_C = 4.0\text{ A}$ , $I_B = 0.4\text{ A}$ ) ( $I_C = 5.0\text{ A}$ , $I_B = 0.5\text{ A}$ )	2N3789, 2N3790 2N3791, 2N3792	$V_{CE(sat)}$	1.0 1.0	V
Base-Emitter On Voltage ( $I_C = 5.0\text{ A}$ , $V_{CE} = 2.0\text{ V}$ ) ( $I_C = 10\text{ A}$ , $V_{CE} = 4.0\text{ V}$ )	2N3789, 2N3790 2N3791, 2N3791 All Types	$V_{BE(on)}$	2.0 1.8 4.0	V

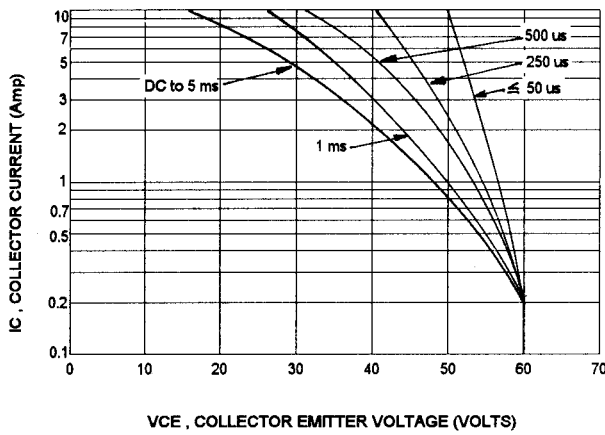
**DYNAMIC CHARACTERISTICS**

Current-Gain Bandwidth Product (2) ( $I_C = 500\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 1\text{ MHz}$ )	$f_T$	4.0	MHz
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(1) Pulse Test: Pulse width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ (2)  $f_T = |h_{fe}| \cdot f_{test}$

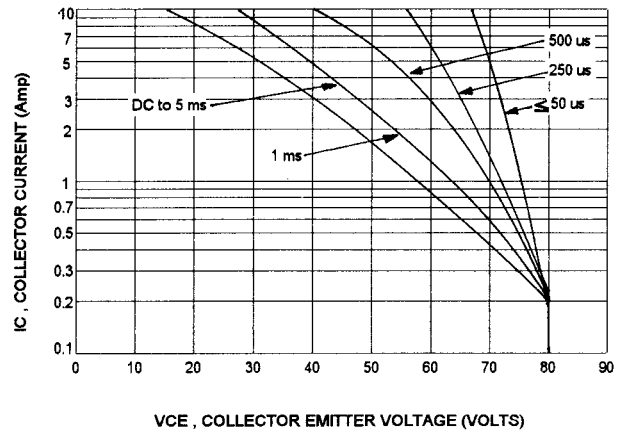
2N3789,2N3791

ACTIVE REGION SAFE OPERATING AREA

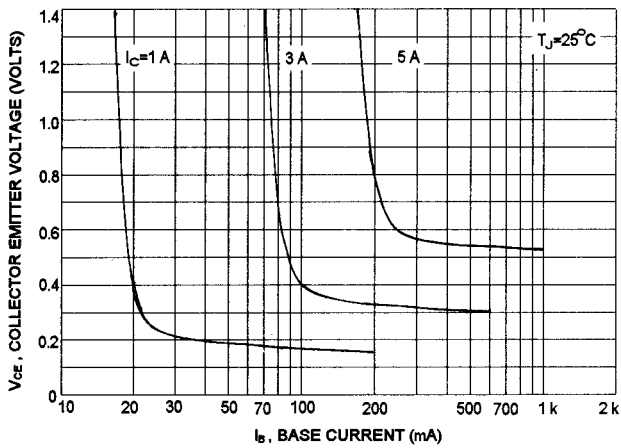


2N3790,2N3792

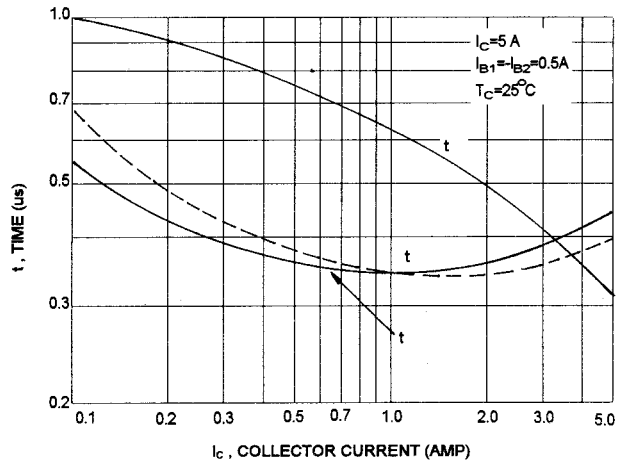
ACTIVE REGION SAFE OPERATING AREA



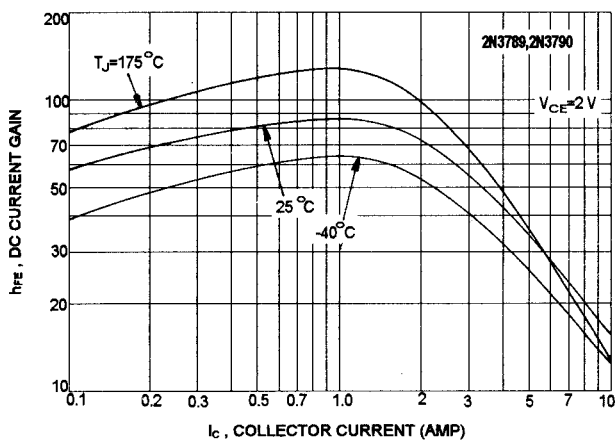
COLLECTOR SATURATION REGION



TYPICAL SWITCHING TIME



DC CURRENT GAIN



DC CURRENT GAIN

