20 STERN AVE. SPRINGFIELD, NEW JERSEY 07081 U.S.A.

**D44T Series** 

250-300 VOLTS 2 AMP, 31.2 WATTS TELEPHONE: (973) 376-2922

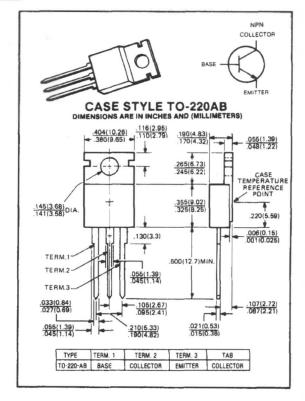
(212) 227-6005

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# HIGH VOLTAGE NPN POWER TRANSISTORS

#### Features:

- Very low collector saturation voltage
- Excellent linearity
- Fast switching



## maximum ratings (T<sub>A</sub> = 25°C) (unless otherwise specified)

RATING	SYMBOL	D44T1,2	D44T3,4	UNITS
Collectc -Emitter Voltage	VCEO	250	300	Volts
Collector-Emitter Voltage	V <sub>CES</sub>	300	400	Volts
Emitter Base Voltage	V <sub>EBO</sub>	5	5	Volts
Collector Current — Continuous	lc	2	2	A
Base Current — Continuous	I <sub>B</sub>	0.5	0.5	A
Total Power Dissipation @ T <sub>A</sub> = 25°C @ T <sub>C</sub> = 25C	PD	2.1 31.2	2.1 31.2	Watts
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	-55 to +150	°C

#### thermal characteristics

Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	60	60	°C/W
Thermal Resistance, Junction to Case	R <sub>ØJC</sub>	, 4	4	°C/W
Maximum Lead Temperature for Soldering Purpose: %" from Case for 5 Seconds	TL	260	260	°C

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

**Quality Semi-Conductors** 

## electrical characteristics (T<sub>C</sub> = 25°C) (unless otherwise specified)

CHARACTERISTIC		SYMBOL	MIN	TYP	MAX	UNIT
off characteristics(1)						
Collector-Emitter Breakdown Voltage (I <sub>C</sub> = 10 μA)	D44T1,2 D44T3,4	BVCES	300 400	_	_	Volts
Collector Cutoff Current (VCE = Rated VECS)		ICES	_		10	μА
Emitter Cutoff Current (V <sub>EB</sub> = 5V)		I <sub>EBO</sub>	_		10	μΑ

#### second breakdown

Second Breakdown with Base Forward Biased	FBSOA	SEE FIGURE 5

#### on characteristics(1)

DC Current Gain (I <sub>C</sub> = 500mA, V <sub>CE</sub> = 10V) (I <sub>C</sub> = 50mA, V <sub>CE</sub> = 10V) (I <sub>C</sub> = 500mA, V <sub>CE</sub> = 10V) (I <sub>C</sub> = 50mA, V <sub>CE</sub> = 10V)	D44T1,3 D44T2,4	hFE	30 40 75 40	<u>-</u>	  175 	
Collector-Emitter Saturation Voltage (I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA)		V <sub>CE(sat)</sub>	_		1.0	V
Base Emitter Saturation Voltage (I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA)		V <sub>BE(sat)</sub>			1.2	V

### dynamic characteristics

Collector Capacitance (V <sub>CB</sub> = 10V, f = 1 MHz)	C <sub>cb</sub>	_	25	_	pF
Current Gain — Bandwidth Product (IC = 100mA, VCE = 10V, ftest = 1.0 MHz))	f <sub>T</sub>	_	45	_	MHz

## switching characteristics

Resistive Load						
Delay Time + Rise Time	I <sub>C</sub> = 500mA, I <sub>B1</sub> = I <sub>B2</sub> = 50mA	t <sub>d</sub> + t <sub>r</sub>	_	0.2		μS
Storage Time	$V_{CC} = 50V, t_p = 25\mu sec$	ts	_	3.3	_	
Fall Time		tf	_	0.6	_	

<sup>(1)</sup> Pulse Test: Pulse Width -  $300\mu s$  Duty Cycle  $\leq 2\%$ .

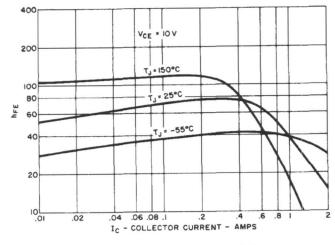


FIG. 1 TYPICAL hFE VS. IC

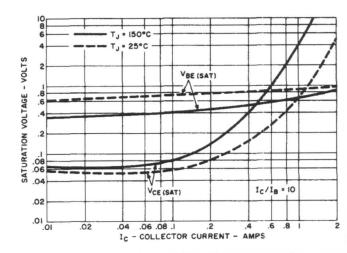


FIG. 2 TYPICAL SATURATION VOLTAGE CHARACTERISTICS