

# D44H11, D45H11



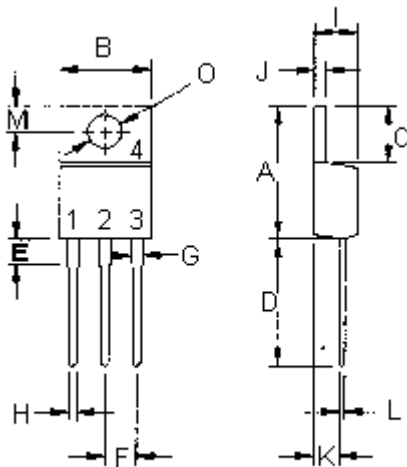
## High Power Bipolar Transistors



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.



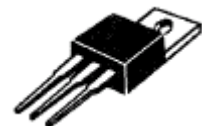
- Pin 1. Base  
2. Collector  
3. Emitter  
4. Collector (Case)

Dimensions	Minimum	Maximum
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

Dimensions : Millimetres

NPN	PNP
D44H11	D45H11

10 Ampere  
Complementary Silicon  
Power Transistors  
80 Volts  
50 Watts



TO-220



# D44H11, D45H11



## High Power Bipolar Transistors

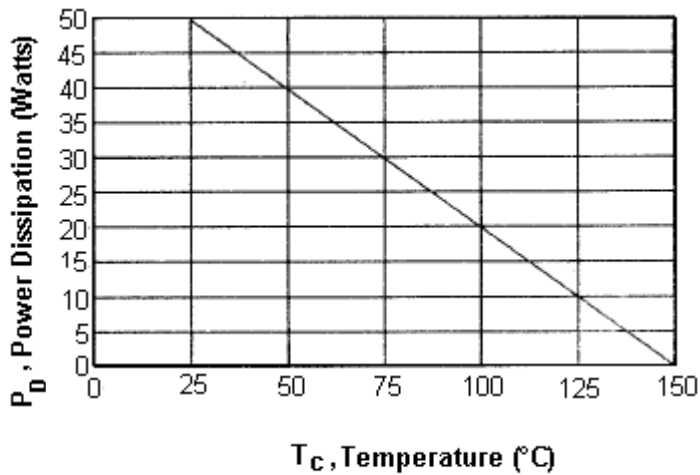
### Maximum Ratings

Characteristic	Symbol	D44H11 D45H11	Unit
Collector-Emitter Voltage	$V_{CE0}$	80	V
Collector-Emitter Voltage	$V_{CES}$		
Emitter-Base Voltage	$V_{EBO}$	5	
Collector Current-Continuous -Peak	$I_C$ $I_{CM}$	10 20	A
Base Current	$I_B$	2	
Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	50 0.4	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

### Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.5	$^\circ\text{C}/\text{W}$

Figure - 1 Power Derating



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## High Power Bipolar Transistors

### Electrical Characteristics ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Minimum	Maximum	Unit
<b>Off Characteristics</b>				
Collector-Emitter Sustaining Voltage ( $I_C = 30\text{mA}$ , $I_B = 0$ )	$V_{CEO(sus)}$	80	-	V
Collector-Emitter Cut off Current ( $V_{CE} = 80\text{V}$ , $V_{BE} = 0$ )	$I_{CES}$	-	10	$\mu\text{A}$
Emitter-Base Cut off Current ( $V_{EB} = 50\text{V}$ , $I_C = 0$ )	$I_{EBO}$	-	100	

### On Characteristics (1)

DC Current Gain ( $I_C = 2\text{A}$ , $V_{CE} = 1.0\text{V}$ ) ( $I_C = 4\text{A}$ , $V_{CE} = 1.0\text{V}$ )	$h_{FE}$	60 40	-	-
Collector-Emitter Saturation Voltage ( $I_C = 8.0\text{A}$ , $I_B = 400\text{mA}$ )	$V_{CE(sat)}$	-	1.0	V
Base-Emitter Saturation Voltage ( $I_C = 8.0\text{A}$ , $I_B = 800\text{mA}$ )	$V_{BE(sat)}$	-	1.5	

### Dynamic Characteristics

Current Gain-Bandwidth Product (2) ( $I_C = 500\text{mA}$ , $V_{CE} = 10\text{V}$ , $f = 0.5\text{MHz}$ )	D44H11 D45H11	$f_T$	15 12	-	MHz
Output Capacitance ( $V_{CB} = 10\text{V}$ , $I_E = 0$ , $f = 1.0\text{MHz}$ )	D44H11 D45H11	$C_{ob}$	220 400	-	PF

### Switching Characteristics

Rise Time	$I_C = 5\text{A}$ , $I_{B1} = -I_{B2} = 500\text{mA}$	D44H11 D45H11	$t_r$	-	0.5 0.6	$\mu\text{s}$
Storage Time		D44H11 D45H11	$t_s$	-	1.0 1.2	
Fall Time		D44H11 D45H11	$t_f$	-	0.4 0.5	

(1) Pulse Test: Pulse Width =  $300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

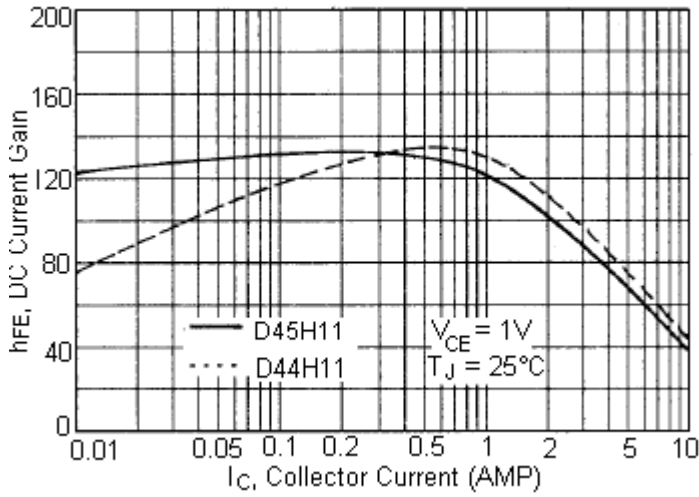
(2)  $f_T = |h_{fe}| \cdot f_{test}$ .

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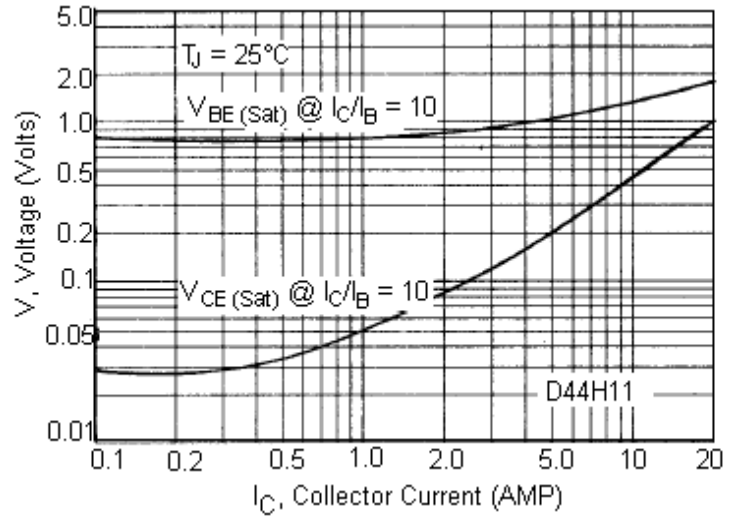


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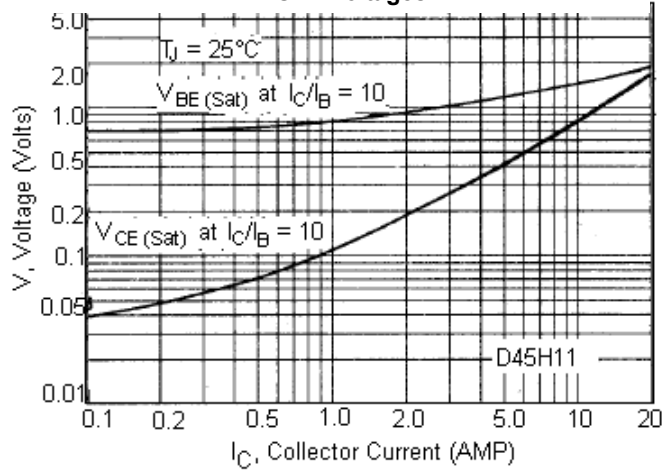
DC Current Gain



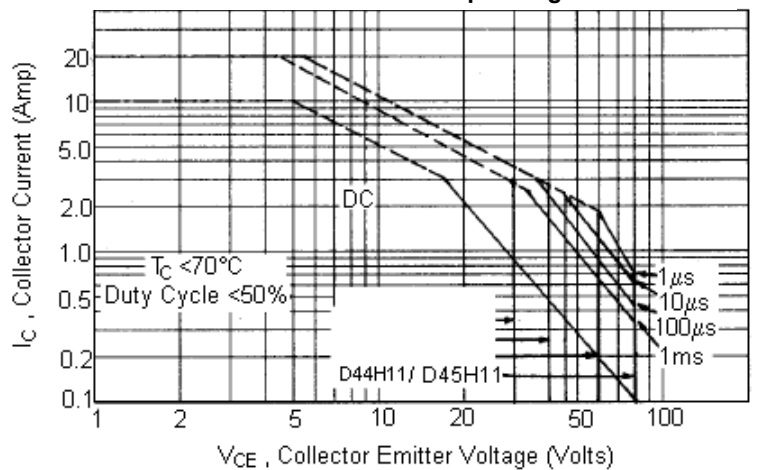
"ON" Voltages



"ON" Voltages



Forward Bias Safe Operating Area



### Specifications

I <sub>C</sub> (av) maximum (A)	V <sub>CEO</sub> maximum (V)	h <sub>FE</sub> minimum at I <sub>C</sub> = 2A	P <sub>tot</sub> at 25°C (W)	Type	Part Number
10	80	60	50	NPN	D44H11
				PNP	D45H11



# D44H11, D45H11

## High Power Bipolar Transistors



### Notes:

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