

D44H11, D45H11



High Power Bipolar Transistors

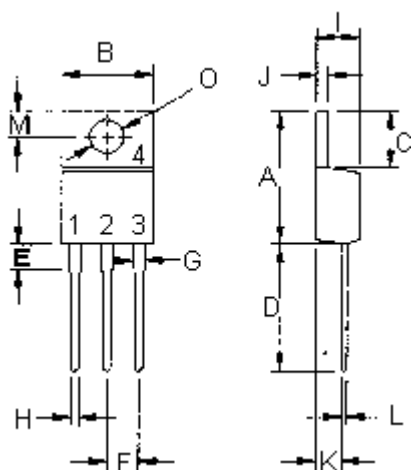


Designed for various specific and general purpose application such as; output and driver stages of amplifiers operating at frequencies from DC to greater than 1 MHz; series, shunt and switching regulators; low and high frequency inverters/converters and many others

Features:

- Very low collector saturation voltage
- Excellent linearity
- Fast switching
- PNP values are negative, observe proper polarity

TO-220



- 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	2.2	2.97
L	0.33	0.55
M	2.48	2.98
O	3.7	3.9

Dimensions : Millimetres

NPN
D44H11 **PNP**
D45H11

10 Amperes
Complementary Silicon
Power Transistors
80 Volts
50 Watts

Maximum Ratings

Characteristic	Symbol	D44H11 D45H11	Unit
Collector - emitter voltage	V_{CEO}	80	V
Collector - base voltage	V_{CES}		
Emitter - base voltage	V_{EBO}	5	A
Collector current - continuous - peak	I_C	10	
	I_{CM}	20	
Base current	I_B	2	
Total power dissipation at $T_C = 25^\circ\text{C}$ derate above 25°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

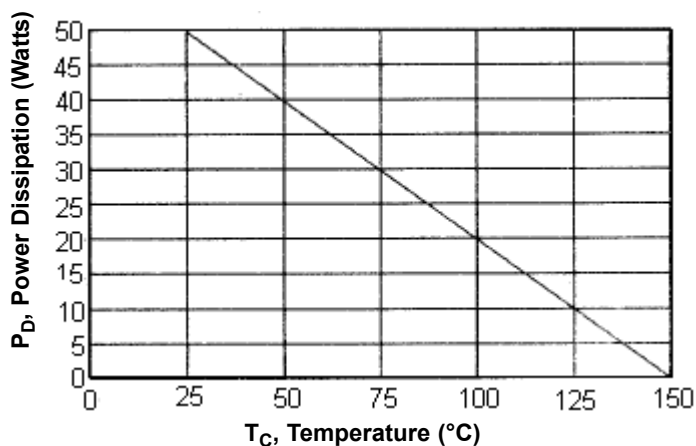
Characteristic	Symbol	Maximum	Unit
Thermal resistance junction to case	$R_{\theta jc}$	2.5	$^\circ\text{C/W}$



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Figure - 1 Power Derating



Electrical Characteristics ($T_C = 25^\circ\text{C}$ Unless Otherwise Noted)

Characteristic	Symbol	Minimum	Maximum	Unit		
OFF Characteristics						
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	μA		
Emitter - base cut off current ($V_{EB} = 5\text{ V}$, $I_C = 0$)	I_{EBO}	-	100			
ON Characteristics (1)						
DC current gain ($I_C = 2\text{ A}$, $V_{CE} = 1\text{ V}$) ($I_C = 4\text{ A}$, $V_{CE} = 1\text{ V}$)	h_{FE}	60 40	-	-		
Collector - emitter saturation voltage ($I_C = 8\text{ A}$, $I_B = 400\text{ mA}$)	$V_{CE(sat)}$	-	1	V		
Base - emitter saturation voltage ($I_C = 8\text{ A}$, $I_B = 800\text{ mA}$)	$V_{BE(sat)}$	-	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	
Small - signal current gain ($V_{CB} = 200\text{ mA}$, $I_E = 10\text{ V}$, $f = 1\text{ MHz}$)	D44H11 D45H11	C_{ob}	220 400	-	-	
Switching Characteristics						
Rise Time	$I_C = 5\text{ A}$, $I_{B1} = -I_{B2} = 500\text{ mA}$	D44H11 D45H11	t_r	-	0.5 0.6	μs
Storage Time		D44H11 D45H11	t_s	-	1 1.2	μs
Fall Time		D44H11 D45H11	t_f	-	0.4 0.5	μs

(1) Pulse Test : Pulse width = 300 μs , duty cycle $\leq 2\%$

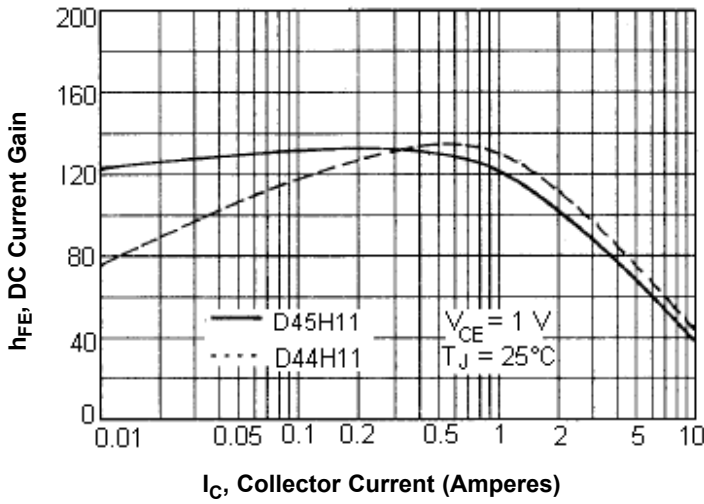
(2) $f_T = |h_{fe}| \cdot f_{test}$

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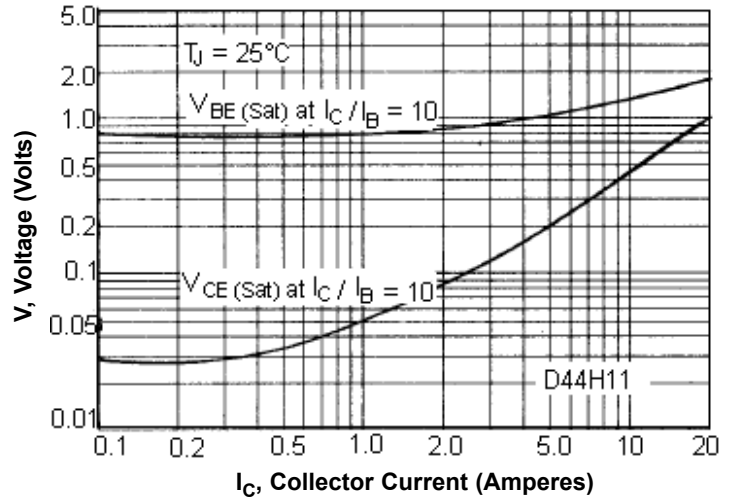


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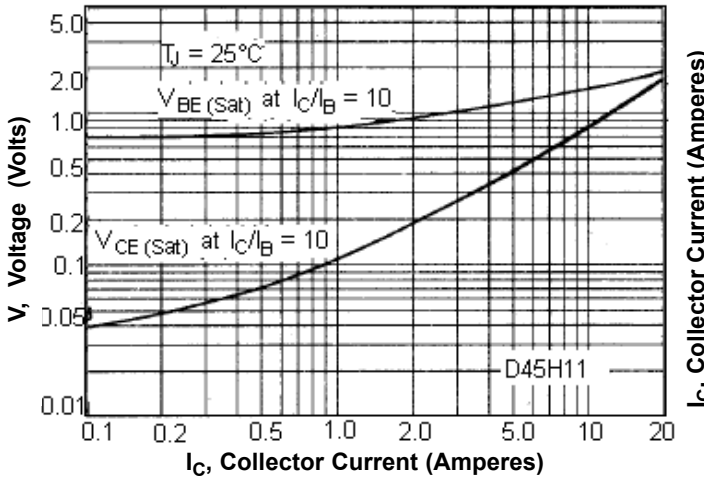
DC Current Gain



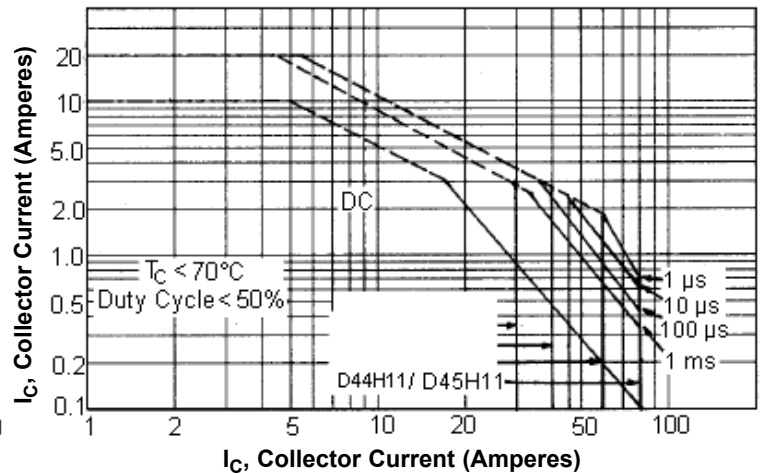
“ON” Voltages



“ON” Voltages



Forward Bias Safe Operating Area



Specification Table

Description	$I_{C(av)}$ Maximum (A)	V_{CE0} Maximum (V)	h_{FE} Minimum at at $I_C = 2\text{ A}$	P_{tot} at 25°C (W)	Type	Part Number
High Power Bipolar Transistor	10	80	60	50	NPN	D44H11
High Power Bipolar Transistor					PNP	D45H11

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