

D44H11, D45H11



High Power Bipolar Transistors

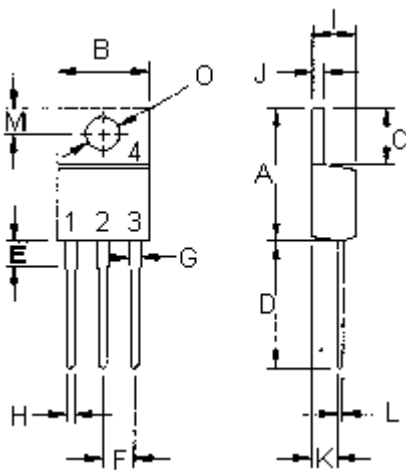


Designed for various specific and general purpose application such as; output and driver stages of amplifiers operating at frequencies from DC to greater than 1 MHz; series, shunt and switching regulators; low and high frequency inverters/converters and many others

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 I_{CM}	10 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	$^\circ\text{C}$

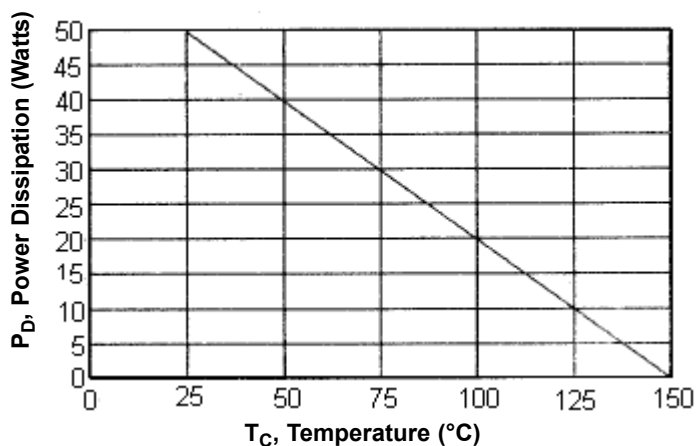
Thermal Characteristics

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

D44H11, D45H11

High Power Bipolar Transistors

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 $\leq 2\%$

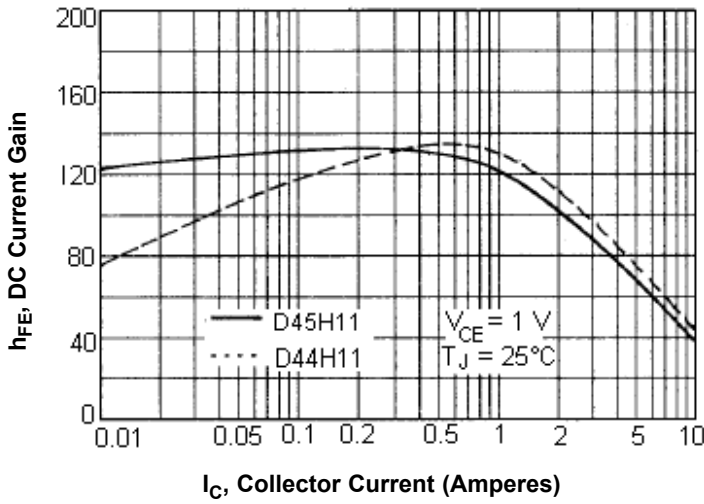
(2) $f_T = |h_{fe}| \cdot f_{test}$

D44H11, D45H11

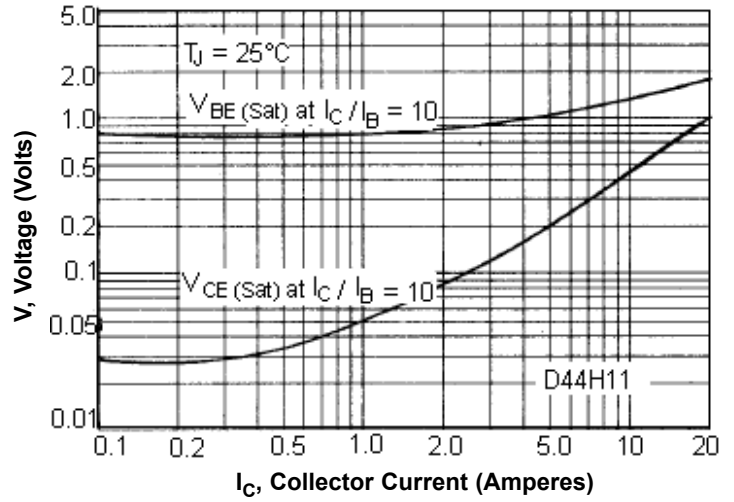


High Power Bipolar Transistors

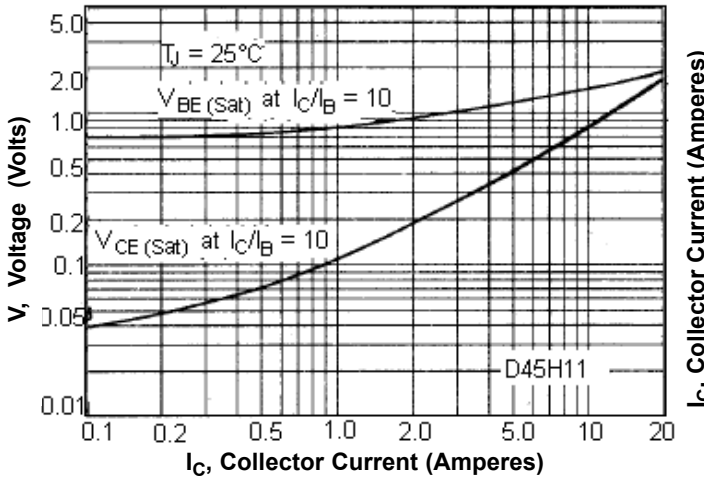
DC Current Gain



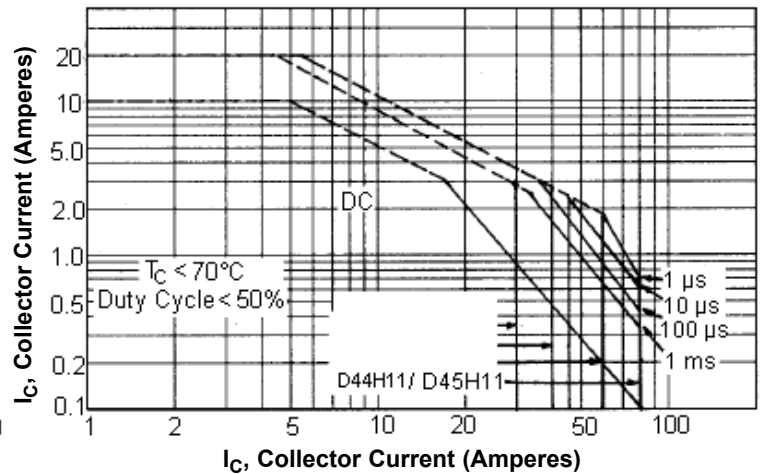
"ON" Voltages



"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

Important Notice : This data sheet and its contents (the "Information") belong to the members of the Premier Farnell group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp is the registered trademark of the Group. © Premier Farnell plc 2011.