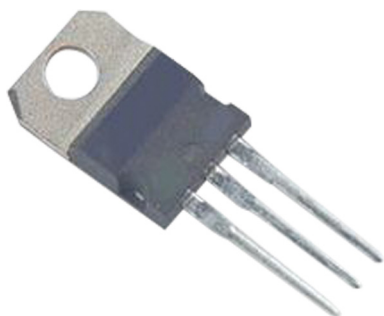


High Power Bipolar Transistor



Description:

Designed for various specific and general purpose application such as; output and driver stages of amplifiers operating at frequencies from DC to greater than 1MHz; 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

Maximum Ratings

Characteristic	Symbol	BU406	Unit
Collector-Emitter Voltage	V_{CEO}	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°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	Max.	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.5	$^\circ\text{C}/\text{W}$

High Power Bipolar Transistor

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 $I_C = 30\text{mA}$, $I_B = 0$	$V_{CEO(sus)}$	80	-	V
Collector-Emitter Cut off Current $V_{CE} = 80\text{V}$, $V_{BE} = 0$	I_{CES}	-	10	μA
Emitter-Base Cut off Current $V_{EB} = 50\text{V}$, $I_C = 0$	I_{EBO}	-	100	

On Characteristics (1)

DC Current Gain $I_C = 2\text{A}$, $V_{CE} = 1\text{V}$ $I_C = 4\text{A}$, $V_{CE} = 1\text{V}$	hFE	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	

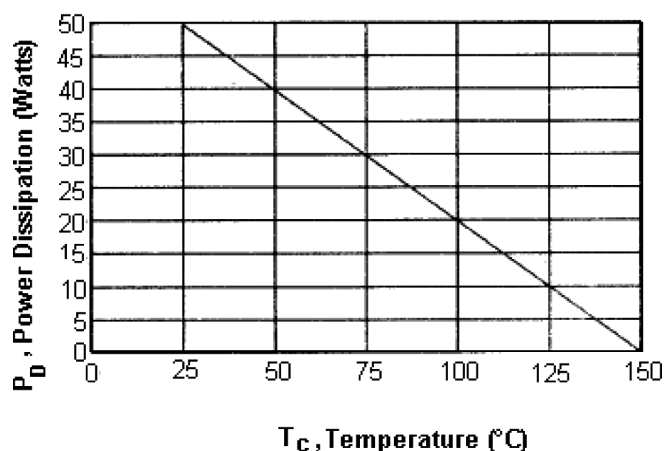
Dynamic Characteristics

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
Output Capacitance $V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$	D44H11 D45H11	C_{ob}	220 400	-	PF

Switching Characteristics

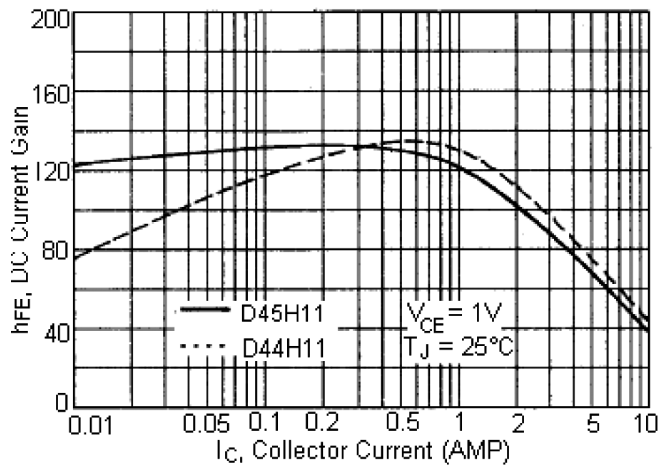
Rise Time	$I_C = 5\text{A}$, $I_{B1} = -I_{B2} = 500\text{mA}$	D44H11 D45H11	t_r	-	0.5 0.6	μs
Storage Time		D44H11 D45H11	t_s	-	1 1.2	
Fall Time		D44H11 D45H11	t_f	-	0.4 0.5	

Figure - 1 Power Derating

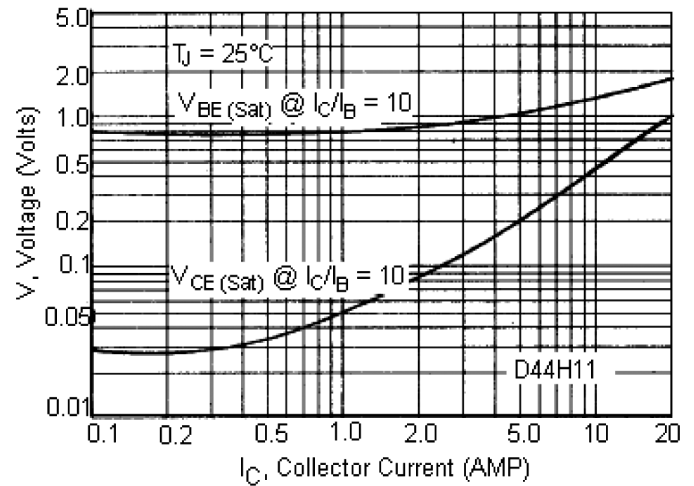


High Power Bipolar Transistor

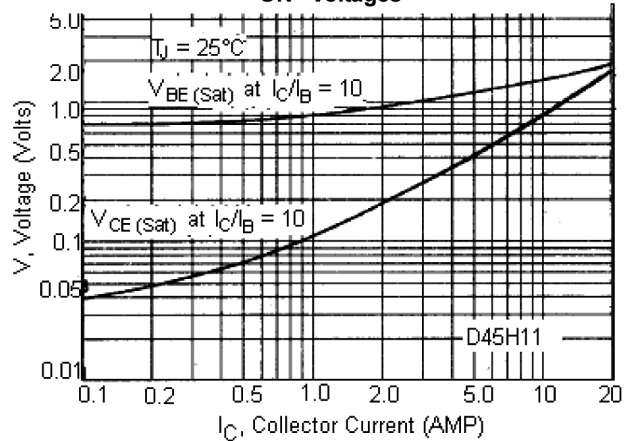
DC Current Gain



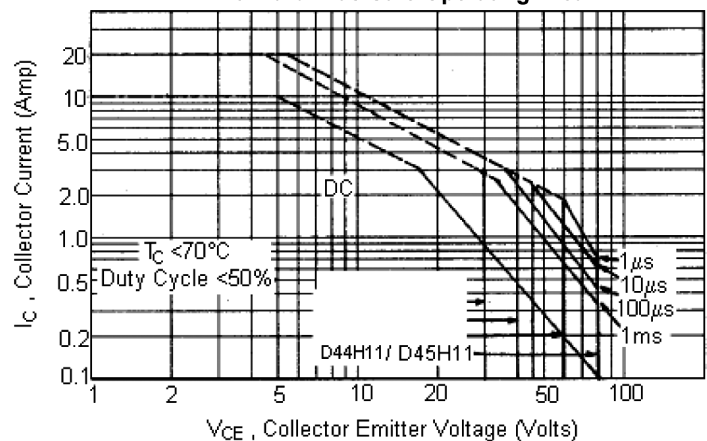
"ON" Voltages



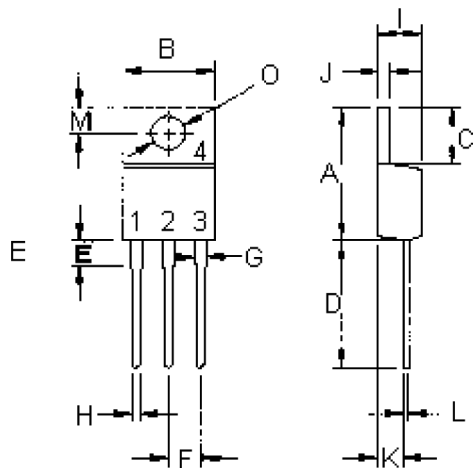
"ON" Voltages



Forward Bias Safe Operating Area



High Power Bipolar Transistor



Pin Configuration:

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

Dimensions	Min.	Max.
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

Part Number Table

Description	Part Number
Transistor, NPN, TO-220	D44H11
Transistor, PNP, TO-220	D45H11

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