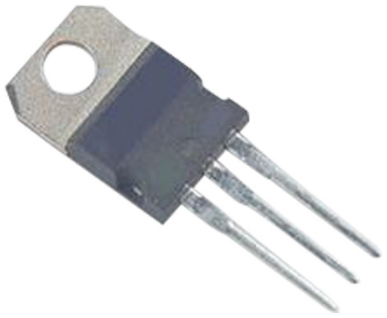
High Power Bipolar Transistor



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°C Derate above 25°C	P_D	50 0.4	W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	°C

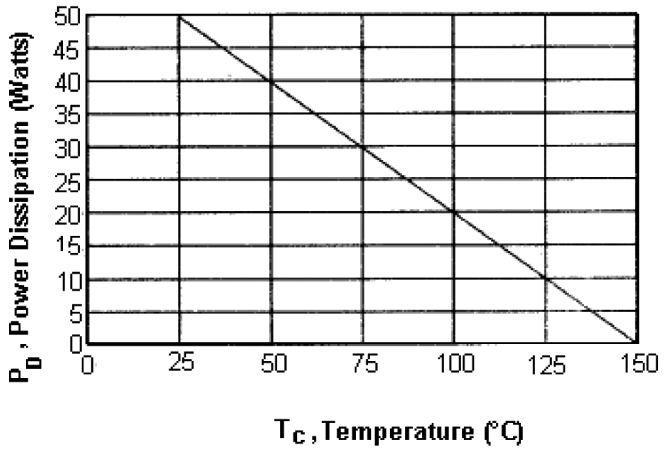
Thermal Characteristics

Characteristic	Symbol	Max.	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.5	°C/W

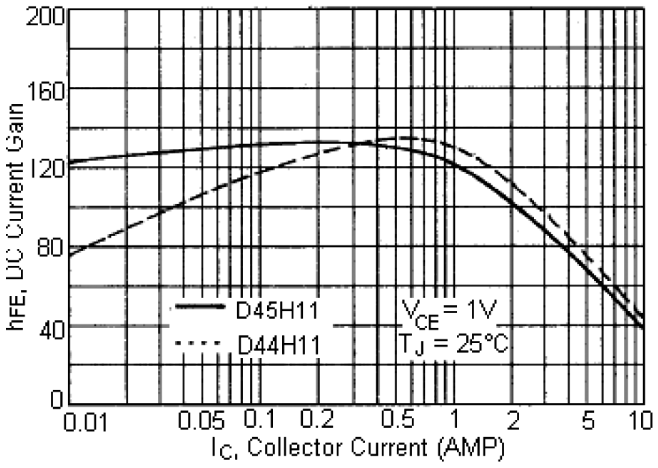
Electrical Characteristics (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min.	Max.	Unit
Off Characteristics					
Collector-Emitter Sustaining Voltage I_C = 30mA, I_B = 0		$V_{CEO\ (sus)}$	80	-	V
Collector-Emitter Cut off Current V_{CE} = 80V, V_{BE} = 0		I_{CES}	-	10	µA
Emitter-Base Cut off Current V_{EB} = 50V, I_C = 0		I_{EBO}	-	100	
On Characteristics (1)					
DC Current Gain I_C = 2A, V_{CE} = 1V I_C = 4A, V_{CE} = 1V		hFE	60 40	-	-
Collector-Emitter Saturation Voltage I_C = 8A, I_B = 400mA		$V_{CE\ (sat)}$	-	1	V
Base-Emitter Saturation Voltage I_C = 8A, I_B = 800mA		$V_{BE\ (sat)}$	-	1.5	
Dynamic Characteristics					
Current Gain-Bandwidth Product (2) I_C = 500mA, V_{CE} = 10V, f = 0.5MHz	D44H11 D45H11	f_T	15 12	-	MHz
Output Capacitance V_{CB} = 10V, I_E = 0, f = 1MHz	D44H11 D45H11	C_{ob}	220 400	-	PF
Switching Characteristics					
Rise Time	I_C = 5A, I_{B1} = -I_{B2} = 500mA	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	

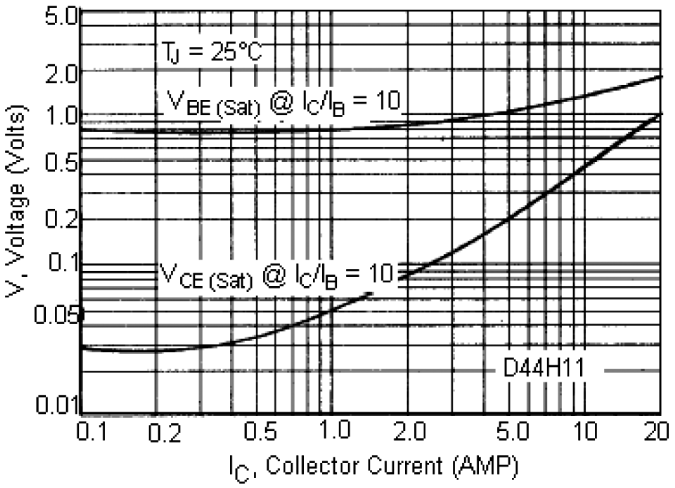
Figure - 1 Power Derating



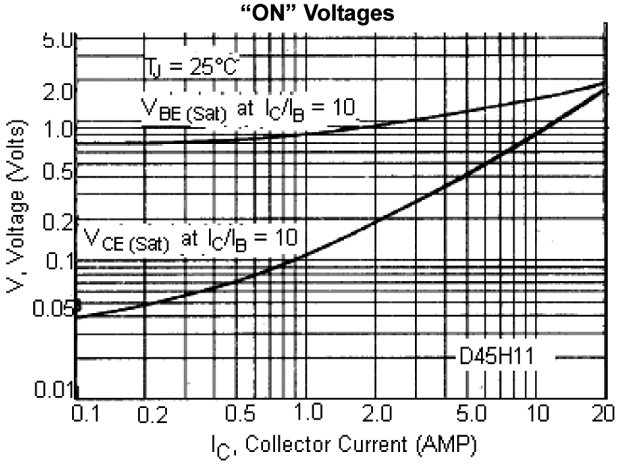
DC Current Gain



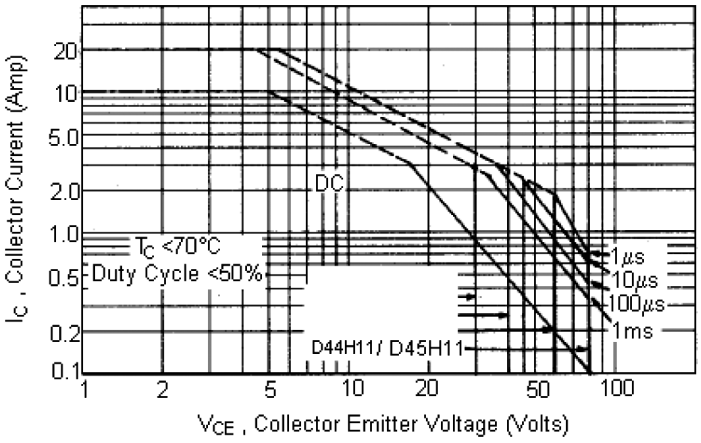
"ON" Voltages

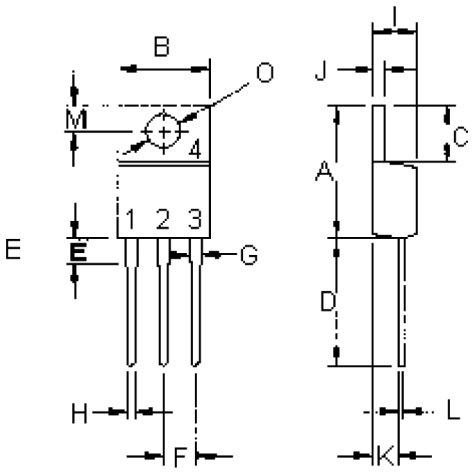


"ON" Voltages



Forward Bias Safe Operating Area





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