D44H11, D45H11

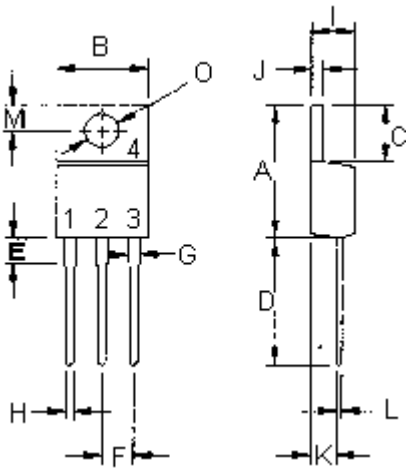
High Power Bipolar Transistors

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 **PNP**
D44H11 **D45H11**

10 Amperes
Complementary Silicon
Power Transistors
80 Volts
50 Watts

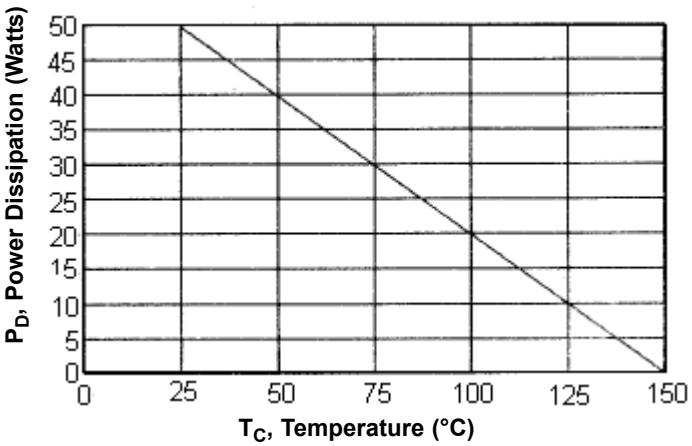
Maximum Ratings

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°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	Maximum	Unit
Thermal resistance junction to case	Rθjc	2.5	°C/W

Figure - 1 Power Derating



Electrical Characteristics (T_C = 25°C Unless Otherwise Noted)

Characteristic			Symbol	Minimum	Maximum	Unit
OFF Characteristics						
Collector - emitter sustaining voltage (I_C = 30 mA, I_B = 0)			$V_{CEO\ (SUS)}$	80	-	V
Collector - emitter cut off current (V_{CE} = 80 V, V_{BE} = 0)			I_{CES}	-	10	µA
Emitter - base cut off current (V_{EB} = 5 V, I_C = 0)			I_{EBO}	-	100	µA
ON Characteristics (1)						
DC current gain (I_C = 2 A, V_{CE} = 1 V) (I_C = 4 A, V_{CE} = 1 V)			h_{FE}	60 40	-	-
Collector - emitter saturation voltage (I_C = 8 A, I_B = 400 mA)			$V_{CE\ (sat)}$	-	1	V
Base - emitter saturation voltage (I_C = 8 A, I_B = 800 mA)			$V_{BE\ (sat)}$	-	1.5	V
Dynamic Characteristics						
Current gain - bandwidth product (2) (I_C = 500 mA, V_{CE} = 10 V, f = 0.5 MHz)		D44H11 D45H11	f_T	15 12	-	MHz
Small - signal current gain (V_{CB} = 200 mA, I_E = 10 V, f = 1 MHz)		D44H11 D45H11	C_{ob}	220 400	-	-
Switching Characteristics						
Rise Time	I_C = 5 A, I_{B1} = -I_{B2} = 500 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 ≤ 2%

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

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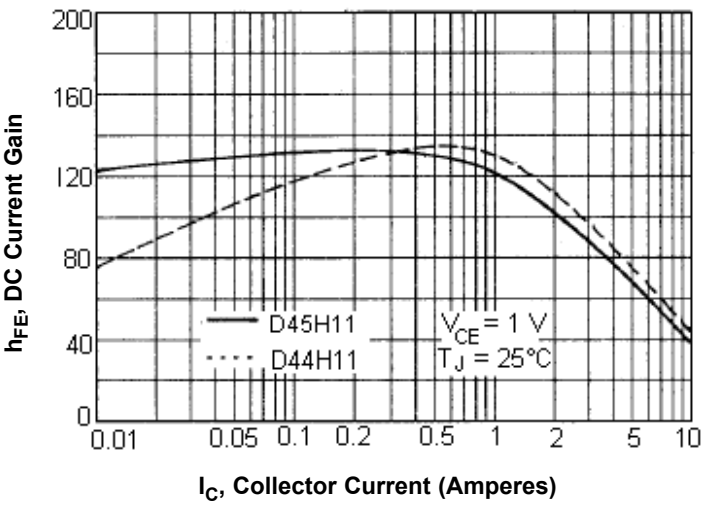
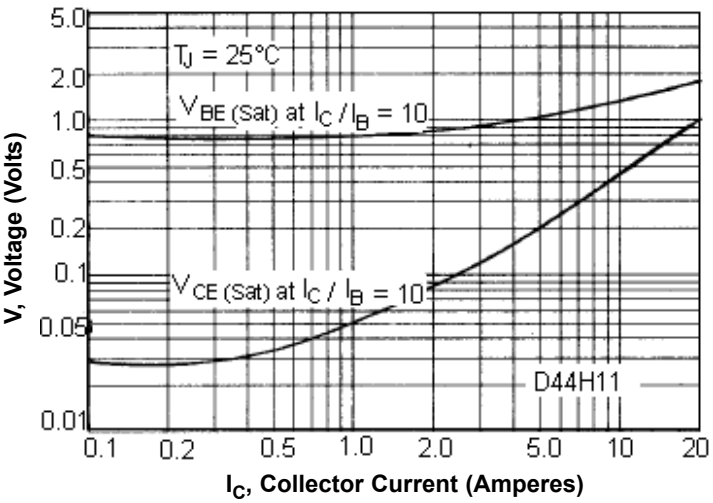
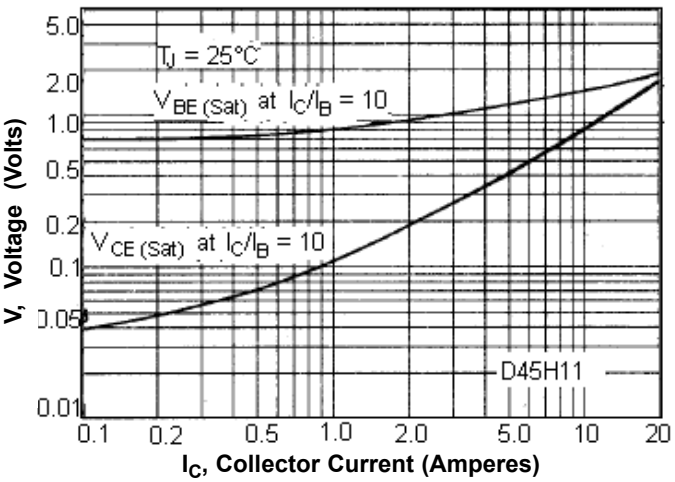
DC Current Gain



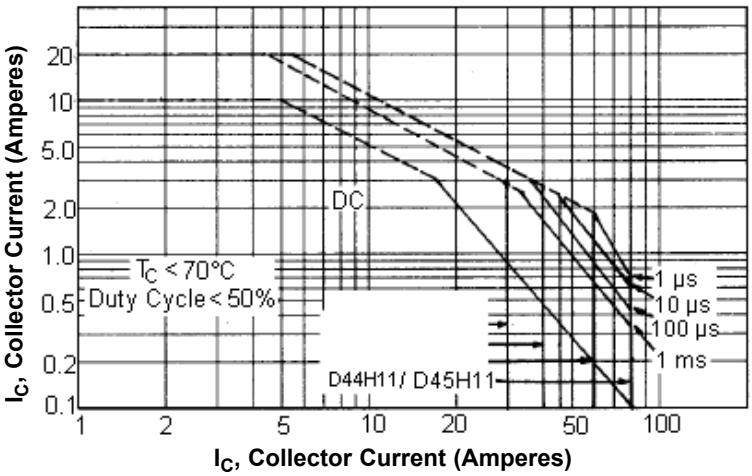
"ON" Voltages



"ON" Voltages



Forward Bias Safe Operating Area



Specification Table

Description	$I_{C(av)}$ Maximum (A)	V_{CEO} Maximum (V)	h_{FE} Minimum at at I_C = 2 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