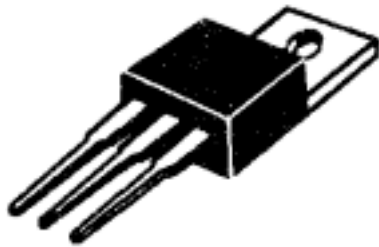


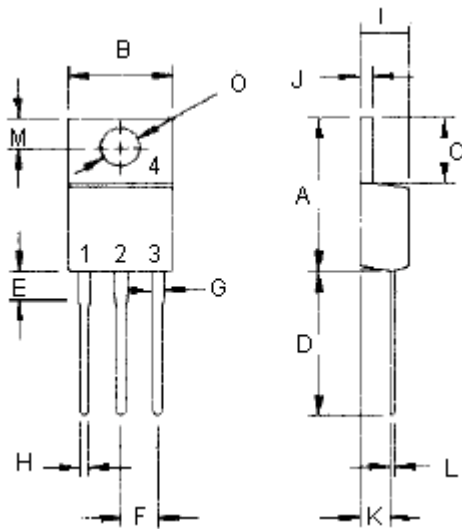
# Silicon Power Transistor

TO-220



## Features:

- Very Low Collector Saturation Voltage
- Excellent Linearity
- Fast Switching



- Pin**
1. Base
  2. Collector
  3. Emitter
  4. Collector (Case)

Dimensions	Millimetres	
	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	4.96
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

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

## Maximum Ratings

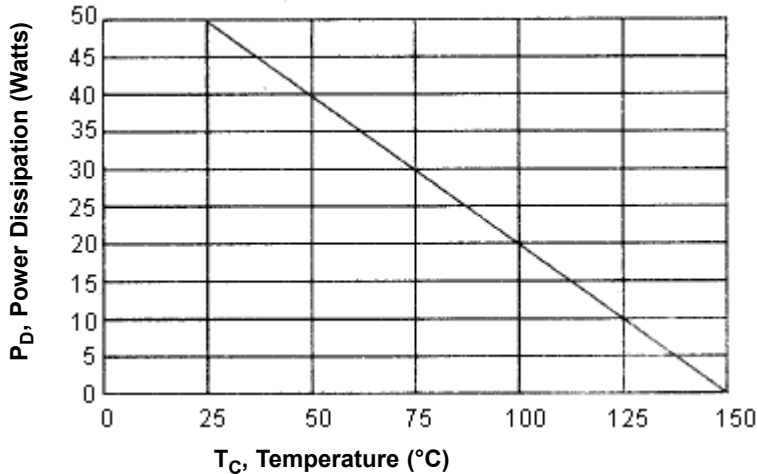
Characteristics	Symbol	D44H8	Unit
Collector-Emitter Voltage	$V_{CEO}$	60	V
Collector-Emitter Voltage	$V_{CES}$	60	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current - Continuous	$I_C$	10	A
Peak	$I_{CM}$	20	A
Base Current	$I_B$	2	A
Total Power Dissipation at $T_c = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	50 0.4	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

# Silicon Power Transistor

## Maximum Ratings

Characteristics	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.5	°C/W

Figure 1 Power Derating



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

Characteristics	Symbol	Minimum	Maximum	Unit
<b>OFF Characteristics</b>				
Collector-Emitter Sustaining Voltage ( $I_C = 300\text{ mA}$ , $I_B = 0$ )	D44H, 8 $V_{CEO(SUS)}$	60		V
Collector-Emitter Cutoff Current ( $V_{CE} = 60\text{ V}$ , $V_{BE} = 0$ )	D44H, 8 $I_{CES}$		10	uA
Emitter-Base Cutoff Current ( $V_{BE} = 5\text{ V}$ , $I_C = 0$ )	D44H, 8 $I_{EBO}$		100	uA
<b>ON Characteristics (1)</b>				
DC Current Gain ( $I_C = 2\text{ A}$ , $V_{CE} = 1\text{ V}$ ) ( $I_C = 4\text{ A}$ , $V_{CE} = 1\text{ V}$ )	D44H, 8 hFE	60		
Collector-Emitter Saturation Voltage ( $I_C = 8\text{ A}$ , $I_B = 800\text{ mA}$ ) ( $I_C = 8\text{ A}$ , $I_B = 400\text{ mA}$ )	D44H, 8 $V_{CE(Sat)}$		1	V
Base-Emitter Saturation Voltage ( $I_C = 8\text{ A}$ , $I_B = 800\text{ mA}$ )	All Devices $V_{BE(sat)}$		1.5	V
<b>Dynamic Characteristics</b>				
Current-Gain Bandwidth Product (2) ( $I_C = 500\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 0.5\text{ MHz}$ )	D44H Series $f_T$	15		MHz
Output Capacitance ( $V_{CE} = 10\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$ )	$C_{ob}$	220		PF

(1) Pulse Test : Pulse Width = 300 us, Duty Cycle  $\leq$  2%

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

# Silicon Power Transistor

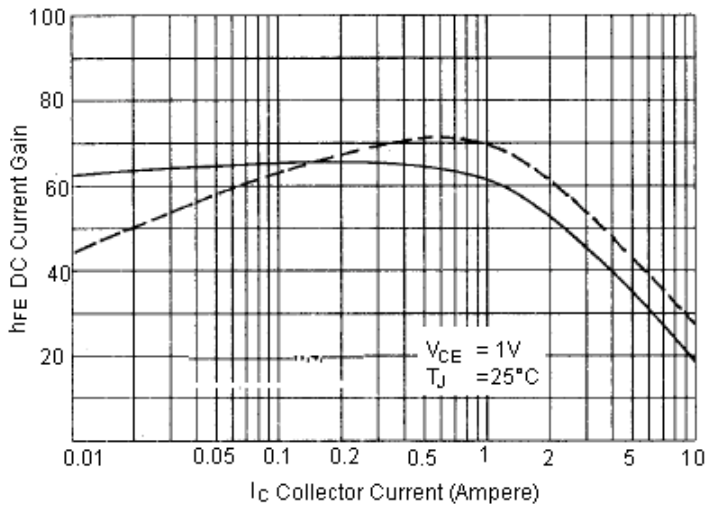


## Electrical Characteristics ( $T_c = 25^\circ\text{C}$ Unless Otherwise Noted)

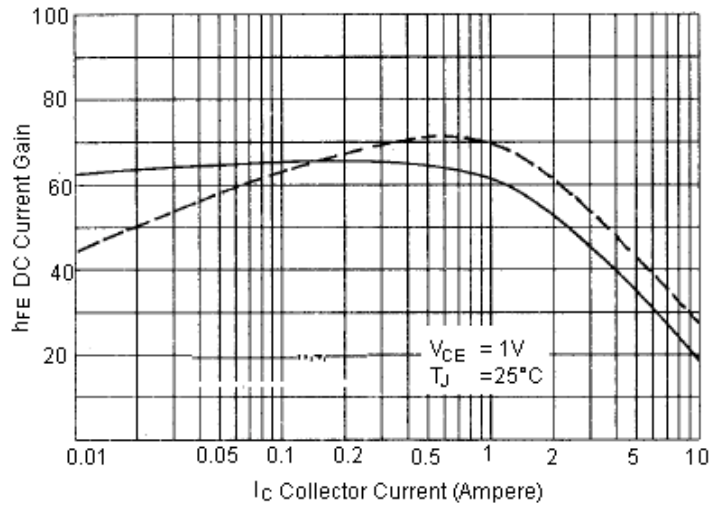
### Switching Characteristics

Rise Time	$I_c = 5\text{ A}$ $I_{B1} = -I_{B2} =$ $500\text{ mA}$	D44H Series	$t_r$	0.5	us
Storage Time		D44H Series	$t_s$	1	us
Fall Time		D44H Series	$t_f$	0.4	us

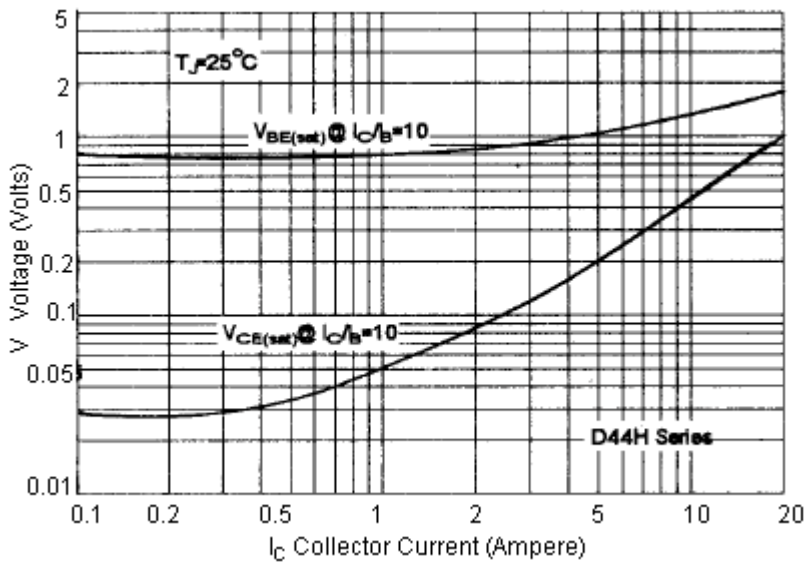
DC Current Gain



DC Current Gain

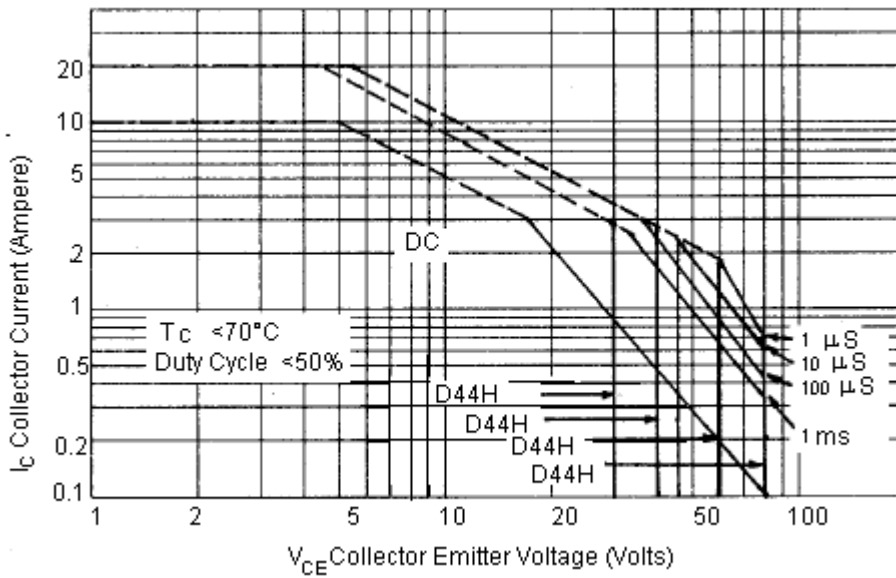


### "ON" Voltages



# Silicon Power Transistor

## Forward BIAS Safe Operating Area



## Part Number Table

Description	Part Number
Silicon Power Transistor	D44H8

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