

## PNP SILICON POWER TRANSISTORS

D45H1B transistor is designed for use in low voltage and low drop-out regulator switching circuits application

### FEATURES:

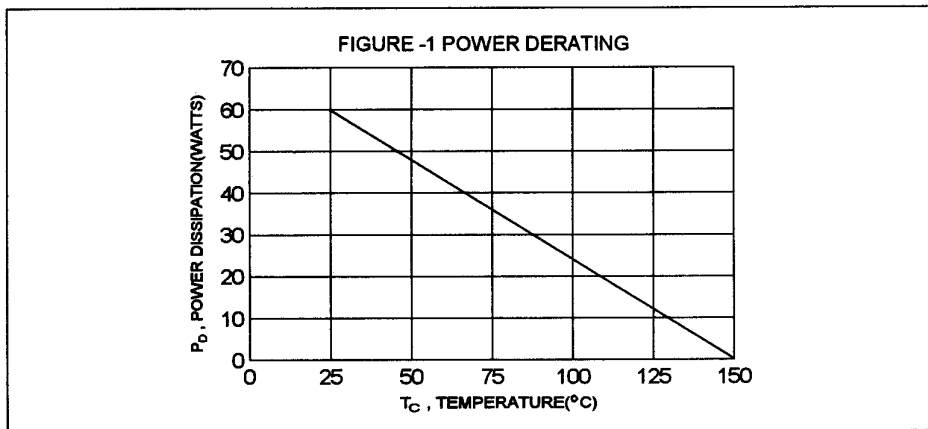
- \* Collector-Emitter Voltage  
 $V_{CE0} = 10V(\text{Min})$
- \* High Current Power Transistors
- \* DC Current Gain  
 $hFE = 80 (\text{Min.}) @ I_C = 6.0A$

### MAXIMUM RATINGS

Characteristic	Symbol	D45H1B	Unit
Collector-Emitter Voltage	$V_{CE0}$	10	V
Collector-Base Voltage	$V_{CBO}$	20	V
Emitter-Base Voltage	$V_{EBO}$	5.0	V
Collector Current - Continuous - Peak	$I_C$ $I_{CM}$	10 20	A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	60 0.48	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

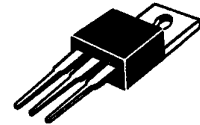
### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.08	$^\circ\text{C/W}$

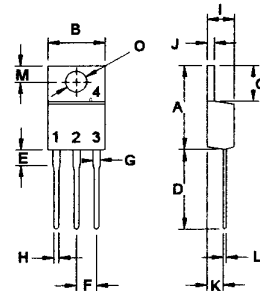


## PNP D45H1B

10 AMPERE  
POWER  
TRANSISTORS  
10 VOLTS  
60 WATTS



TO-220



PIN 1.BASE  
2.COLLECTOR  
3.EMITTER  
4.COLLECTOR(CASE)

DIM	MILLIMETERS	
	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	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

**ELECTRICAL CHARACTERISTICS (  $T_c = 25^\circ\text{C}$  unless otherwise noted )**

Characteristic	Symbol	Min	Max	Unit
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**OFF CHARACTERISTICS**

Collector- Emitter Breakdown Voltage ( $I_C = 30\text{ mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	10		V
Collector - Base Breakdown Voltage ( $I_C = 100\text{ }\mu\text{A}$ , $I_E = 0$ )	$V_{(BR)CBO}$	20		V
Emitter - Base Breakdown Voltage ( $I_C = 100\text{ }\mu\text{A}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5.0		V
Collector Cutoff Current ( $V_{CB} = 20\text{ V}$ , $I_E = 0$ )	$I_{CBO}$		20	$\mu\text{A}$
Emitter Cutoff Current ( $V_{EB} = 3.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$		20	$\mu\text{A}$

**ON CHARACTERISTICS (1)**

DC Current Gain ( $I_C = 2.0\text{ A}$ , $V_{CE} = 4.0\text{ V}$ ) ( $I_C = 6.0\text{ A}$ , $V_{CE} = 4.0\text{ V}$ )	hFE	80 80		
Collector-Emitter Saturation Voltage ( $I_C = 6.0\text{ A}$ , $I_B = 600\text{ mA}$ )	$V_{CE(sat)}$		0.6	V
Base-Emitter On Voltage ( $I_C = 6.0\text{ A}$ , $V_{CE} = 4.0\text{ V}$ )	$V_{BE(on)}$		1.5	V

(1) Pulse Test: Pulse Width  $\approx 300\text{ }\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ :

FIG-2 DC CURRENT GAIN

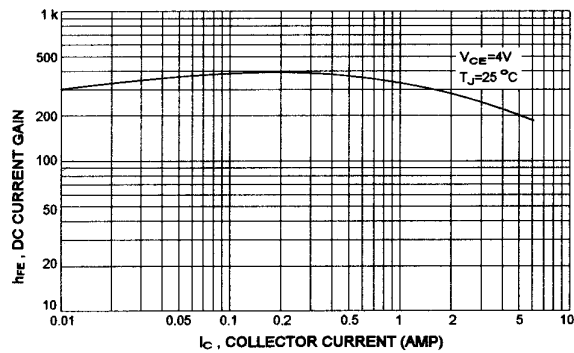


FIG-3 COLLECTOR SATURATION REGION

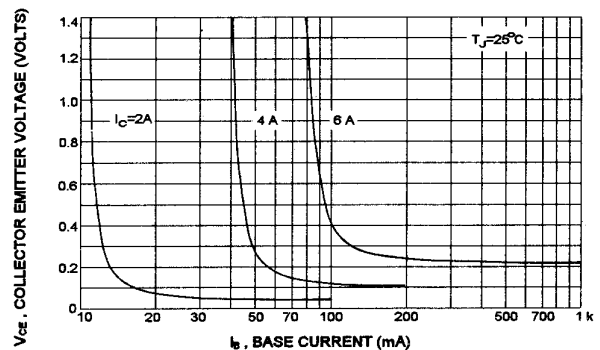
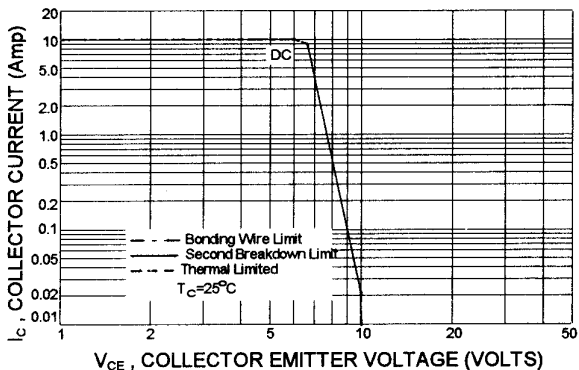


FIG-4 SAFE OPERATING AREA



There are two limitation on the power handling ability of a transistor: average junction temperature and second breakdown safe operating area curves indicate  $I_C$ - $V_{CE}$  limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than curves indicate.

The data of FIG-4 is base on  $T_{J(PK)} = 150^\circ\text{C}$ ;  $T_c$  is variable depending on power level. second breakdown pulse limits are valid for duty cycles to 10% provided  $T_{J(PK)} < 150^\circ\text{C}$ . At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.