

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

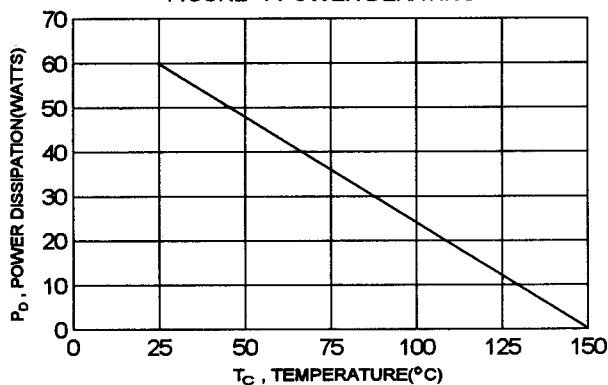
MAXIMUM RATINGS

Characteristic	Symbol	D45H1B	Unit
Collector-Emitter Voltage	V_{CEO}	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°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

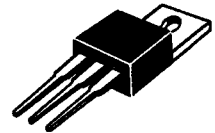
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.08	$^\circ\text{C/W}$

FIGURE -1 POWER DERATING

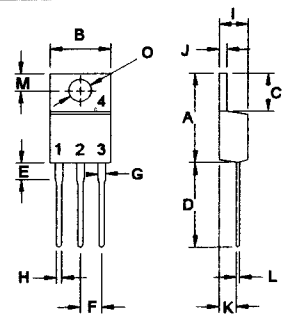


PNP D45H1B

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 ($I_c = 30\text{ mA}$, $I_E = 0$)	$V_{(BR)CEO}$	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	μA
Emitter Cutoff Current ($V_{EB} = 3.0\text{ V}$, $I_C = 0$)	I_{EBO}		20	μA

ON CHARACTERISTICS (1)

DC Current Gain ($I_C = 2.0\text{ A}$, $V_{CE} = 4.0\text{ V}$) ($I_C = 6.0\text{ A}$, $V_{CE} = 4.0\text{ V}$)	h_{FE}	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 = 300 μs , Duty Cycle $\leq 2.0\%$:

FIG-2 DC CURRENT GAIN

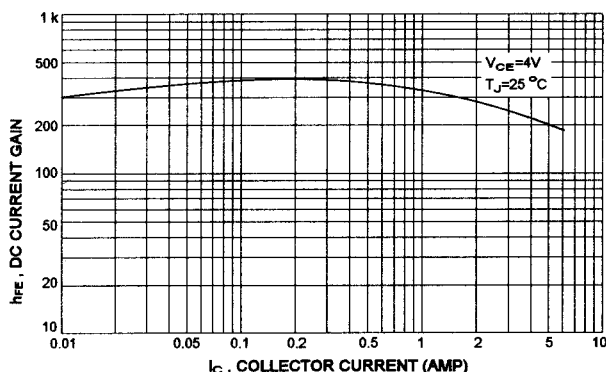


FIG-4 SAFE OPERATING AREA

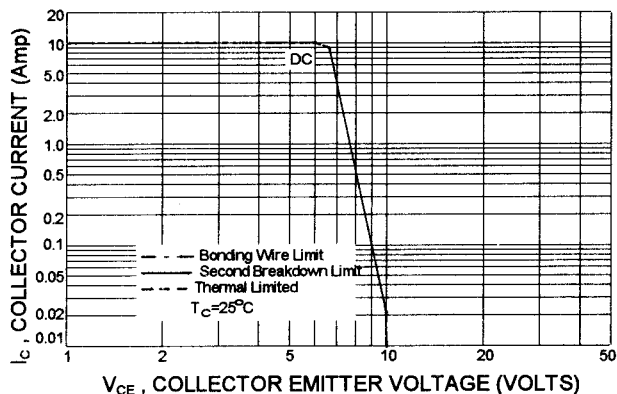
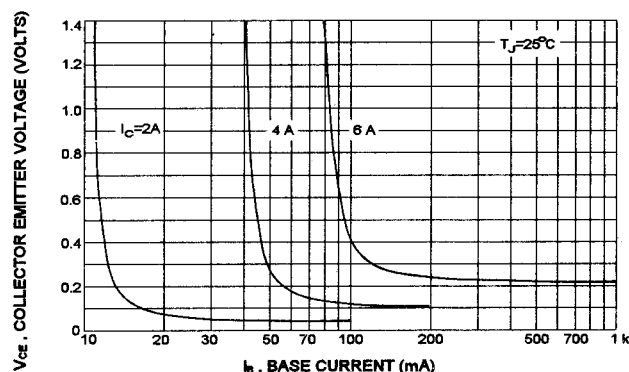


FIG-3 COLLECTOR SATURATION REGION



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.



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