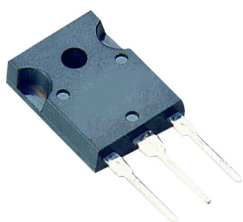


Description

Switchmode Series NPN Power Transistors is designed for use in high-voltage,high-speed, power switching regulators, converters, inverters, motor control system application



Features

- Collector-Emitter Sustaining Voltage-
 $V_{CEO(SUS)} = 400\text{ V (Min)}$
- Collector-Emitter Saturation Voltage -
 $V_{CE(sat)} = 1.5\text{ V (Max.) @ } I_c = 10\text{ A}$
- Switching Time- $t_r = 0.8\text{ us (Max.) @ } I_c = 10\text{ A}$

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	400	V
Collector-Emitter Voltage ($V_{BE} = -2.5\text{V}$)	V_{CEX}	850	
Emitter-Base Voltage	V_{EBO}	7	
Collector Current - Continuous -Peak	I_c I_{CM}	15 30	A
Base Current	I_B	4	
Total Power Dissipation @ $T_c = 25^\circ\text{C}$ Derate above 25°C	P_D	150 1	W $^\circ\text{C/W}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +175	$^\circ\text{C}$

Thermal Characteristics

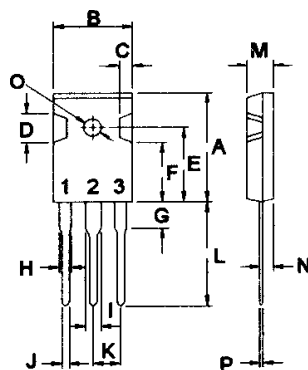
Parameter	Symbol	Value	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1	$^\circ\text{C/W}$

Electrical Characteristics ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Max.	Unit
Off Characteristics				
Collector-Emitter Sustaining Voltage (1) Ic= 200mA, IB=0, L=25mH)	VCEQ(SUS)	400 450	-	V
Collector Cut-off Current VCE= VCEX, VBE = -2.5V) VCE= VCEX, VBE = -2.5V), TC=125°C	ICEX		0.2 2	mA
Collector Cut-off Current VCE= VCEX, RBE < 10Ω) VCE= VCEX, RBE < 10Ω), TC=125°C	ICER		0.5 4	
Emitter Cut-off Current VEB=5V, IC=0	IEBO		1	
On Characteristics (1)				
Collector-Emitter Saturation Voltage (Ic= 10A, IB=2A) (Ic= 15A, IB=3A)	VCE(SAT)		1.5 5	V
Base-Emitter Saturation Voltage (Ic= 10A, IB=2A)	VBE(SAT)	-	1.6	
Switching Characteristics				
Turn On Time	Ic= 10A, IB1= 2A IB2= -2.0A VCC= 150V	ton	1	us
Storage Time		ts	3	
Fall Time		tr	0.8	

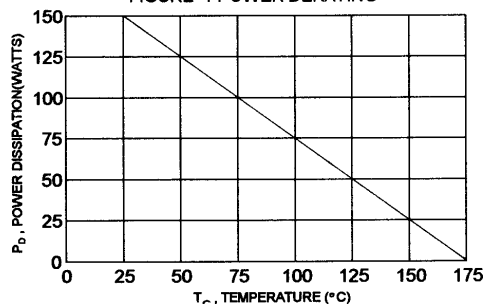
(1) Pulse Test: Pulse width = 300, us, Duty Cycle $\leq 2\%$

Dimensions



PIN 1. Base
2. Collector
3. Emitter

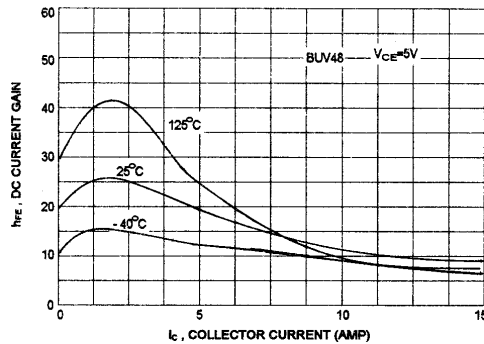
FIGURE -1 POWER DERATING



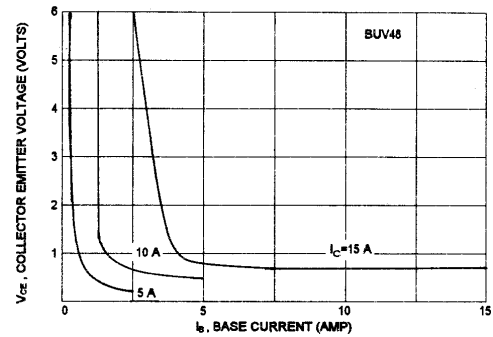
Dim	Min.	Max.
A	20.63	22.38
B	15.38	16.2
C	1.9	2.7
D	5.1	6.1
E	14.81	15.22
F	11.72	12.84
G	4.2	4.5
H	1.82	2.46
I	2.92	3.23
J	0.89	1.53
K	5.26	5.66
L	18.5	21.5
M	4.68	5.36
N	2.4	2.8
O	3.25	3.65
P	0.55	0.7

Dimensions : Millimetres

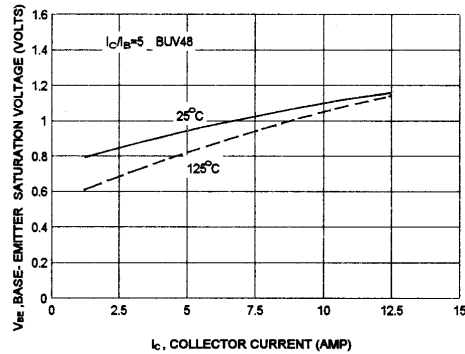
DC CURRENT GAIN



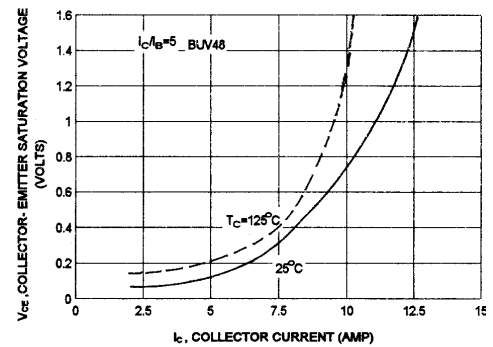
COLLECTOR SATURATION REGION



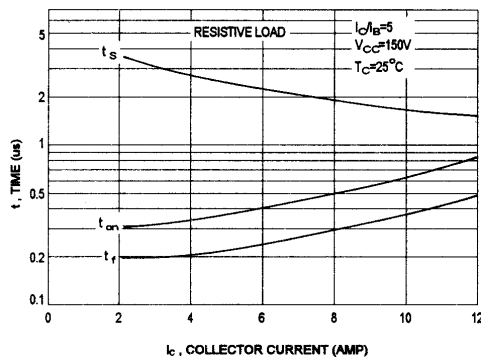
BASE-EMITTER SATURATION VOLTAGE



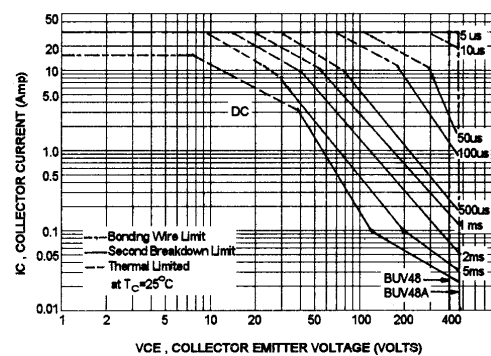
COLLECTOR-EMITTER SATURATION VOLTAGE



SWITCHING TIME



ACTIVE-REGION SAFE OPERATING AREA



Part Number Table

Description	Part Number
Transistor, NPN, 15A, 400V, 150W, TO-247	MP008586

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