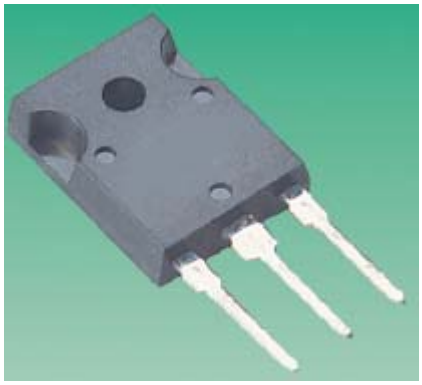
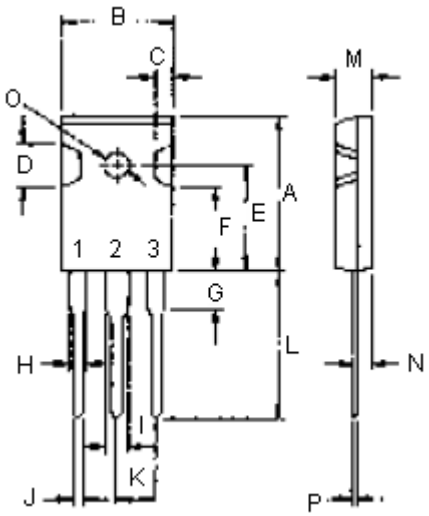
Power Transistor



Switchmode series NPN power transistors are designed for use in high-voltage, high-speed, power switching regulators, converters, inverters, motor control system application

Features:

- Collector-emitter sustaining voltage - $V_{CEO\ (SUS)}$ = 450 V (minimum)
- Collector-emitter saturation voltage - $V_{CE\ (sat)}$ = 1.5 V (maximum) at I_C = 8 A
- Switching time - t_f = 0.8 µs (maximum) at I_C = 8 A



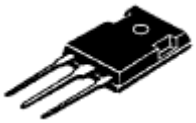
Pin 1. Base
2. Collector
3. Emitter

Dimensions	Minimum	Maximum
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

NPN
BUV48A

15 A
Power
Transistor
450 V
150 W



TO-247

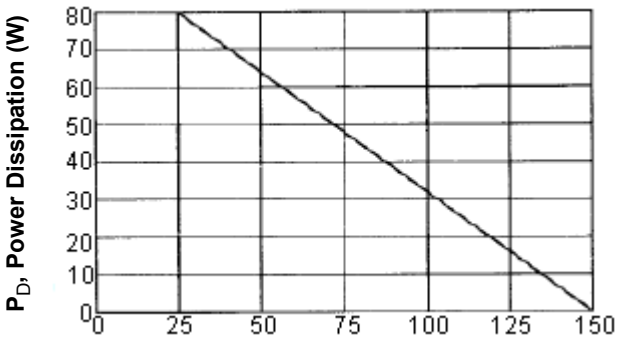
Maximum Ratings

Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	450	V
Collector-Emitter Voltage (V_{BE} = -2.5 V)	V_{CEX}	1,000	
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 at T_C = 25°C Derate above 25°C	P_D	150 1	W W / °C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +175	°C

Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	Rθjc	1	°C / W

Power Derating

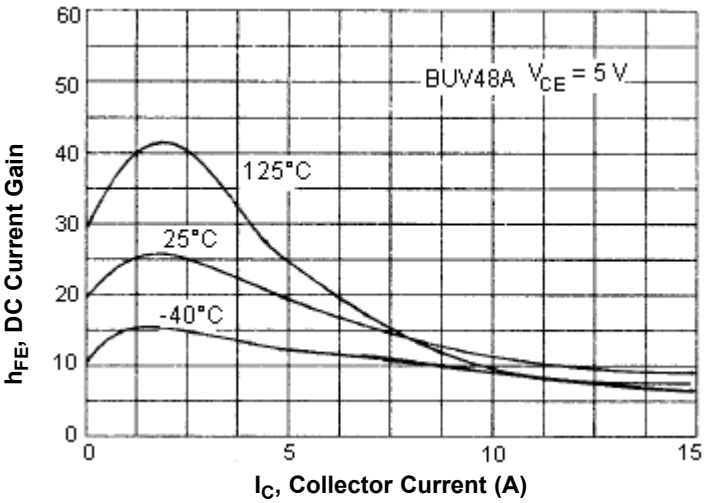


Electrical Characteristics (T_C = 25°C unless otherwise noted)

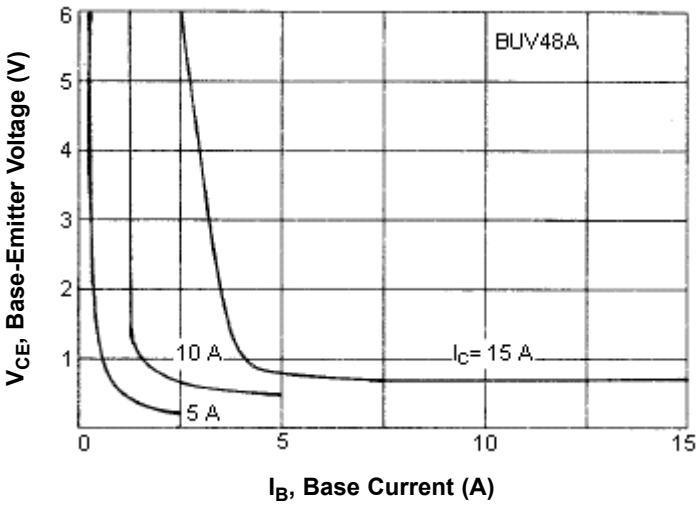
Parameter		Symbol	Minimum	Maximum	Unit
Off Characteristics					
Collector-Emitter Sustaining Voltage (1) (I_C =200 mA, I_B = 0, L = 25 mH)		$V_{CEO\ (SUS)}$	450	-	V
Collector Cut off Current (V_{CE} = V_{CEX}, V_{BE} = -2.5 V) (V_{CE} = V_{CEX}, V_{BE} = -2.5 V, T_C = 125°C)		I_{CEX}	-	0.2 2	mA
Collector Cut off Current (V_{CE} = V_{CEX}, R_{BE} <10 Ω) (V_{CE} = V_{CEX}, R_{BE} <10 Ω, T_C = 125°C)		I_{CER}	-	0.5 4	
Emitter Cut off Current (V_{EB} = 5 V, I_C = 0)		I_{EBO}	-	1	
On Characteristics (1)					
Collector-Emitter Saturation Voltage (I_C = 8 A, I_B = 1.6 A) (I_C = 12 A, I_B = 2.4 A)		$V_{CE\ (sat)}$	-	1.5 5	V
Base-Emitter Saturation Voltage (I_C = 8 A, I_B = 1.6 A)		$V_{BE\ (sat)}$	-	1.6	
Switching Characteristics					
Turn on Time	I_C = 8 A, I_{B1} = 1.6 A, I_{B2} = -1.6 A	t_{on}	-	1	µs
Storage Time		t_s	-	3	
Fall Time		t_f	-	0.8	

1) Pulse Test : Pulse width : 300 µs, duty cycle ≤2%

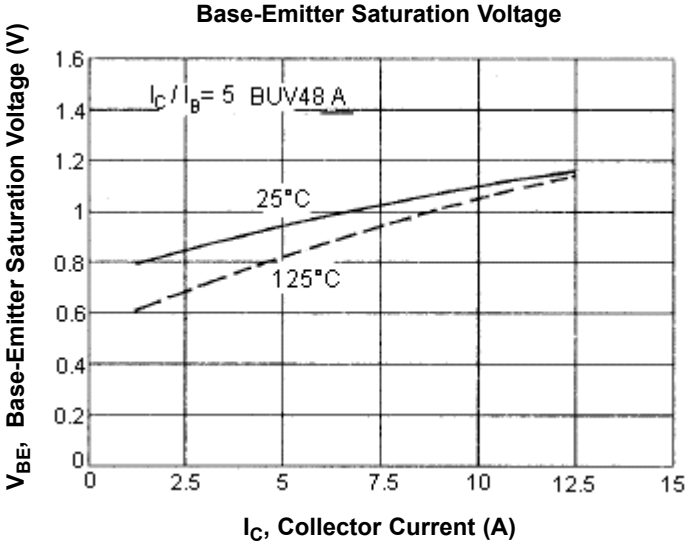
DC Current Gain



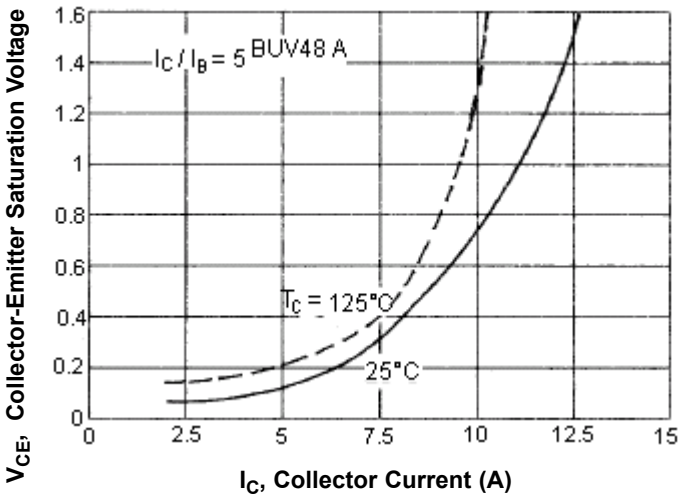
Collector Saturation Region



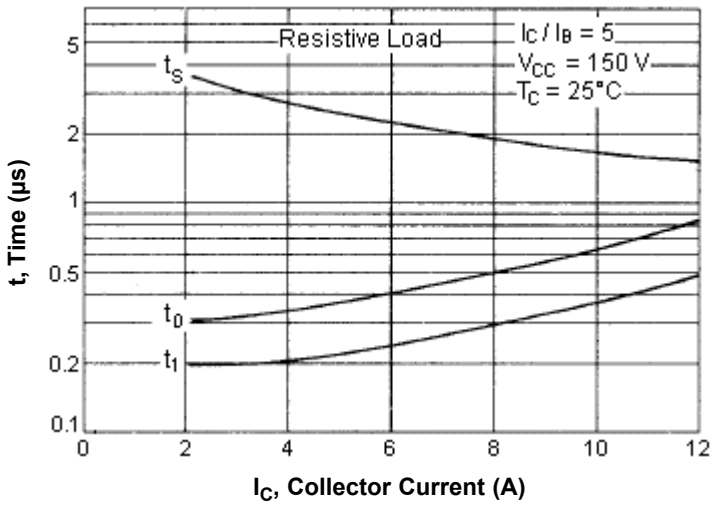
Base-Emitter Saturation Voltage



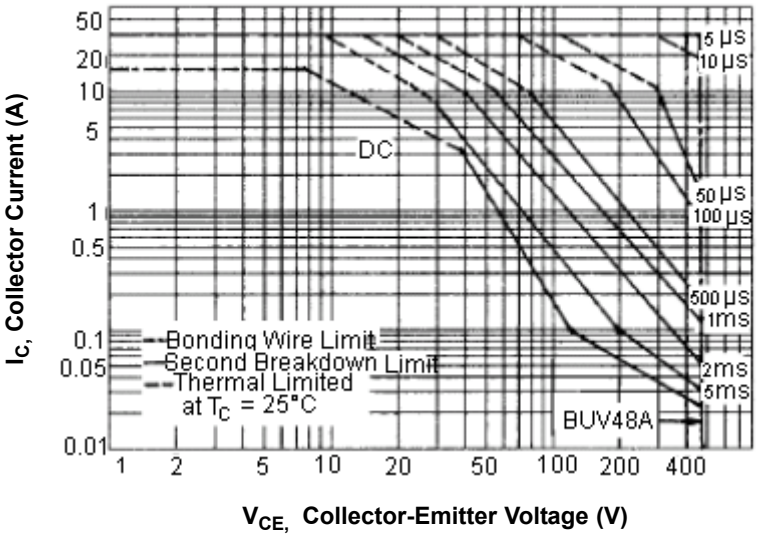
Collector-Emitter Saturation Voltage



Switching Time



Active Region Safe Operating Area



Specification Table

$I_{C\ (av)}$ Maximum (A)	V_{CEO} Maximum (V)	V_{CEX} Maximum (V)	$V_{CE\ (Sat)}$ (V) at I_C = 12 A	t_f Maximum (µs)	P_{tot} at 25°C (W)	Package	Type	Part Number
15	450	1,000	5	0.8	150	TO-247	NPN	BUV48A