

Silicon NPN Power Transistor



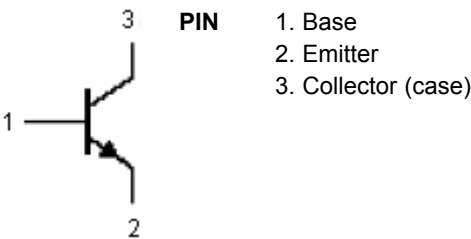
Features:

- High voltage capability
- High current capability
- Fast switching speed

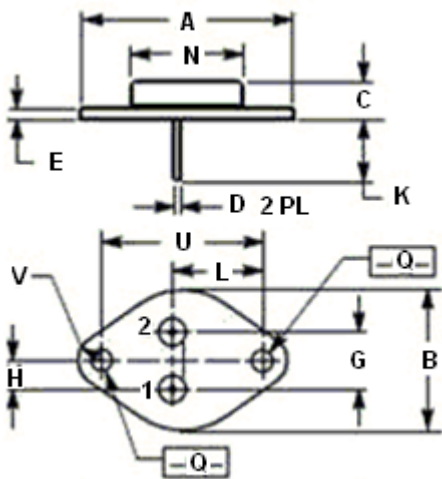
Applications:

Designed for high-voltage, high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line-operated switch mode applications such as:

- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits



TO-3



Dimension	mm	
	Minimum	Maximum
A	39	
B	25.3	26.67
C	7.8	8.3
D	0.9	1.1
E	1.4	1.6
G	10.92	
H	5.46	
K	11.4	13.5
L	16.75	17.5
N	19.4	19.62
Q	4	4.2
U	30	30.2
V	4.3	4.5

Dimensions : Millimetres



Silicon NPN Power Transistor



Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Symbol	Parameter	Value	Unit
V_{CEX}	Collector - emitter voltage ($V_{BE} = -1.5\text{ V}$)	850	V
V_{CEO}	Collector - emitter voltage	400	V
V_{EBO}	Emitter - base voltage	7	V
I_C	Collector current - continuous	15	A
I_{CM}	Collector current - peak	30	A
I_B	Base current - continuous	4	A
I_{BM}	Base current - peak	20	A
P_C	Collector power dissipation at $T_C = 25^\circ\text{C}$	175	W
T_j	Junction temperature	200	$^\circ\text{C}$
T_{stg}	Storage temperature range	-65 to 200	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Maximum	Unit
$R_{th\ j-c}$	Thermal resistance, junction to case	1	$^\circ\text{C/W}$

Electrical Characteristics ($T_C = 25^\circ\text{C}$ Unless Otherwise Specified)

Symbol	Parameter	Conditions	Minimum	Maximum	Unit
$V_{CEO\ (SUS)}$	Collector - emitter sustaining voltage	$I_C = 0.2\text{ A}$; $I_B = 0$; $L = 25\text{ mH}$	400	-	V
$V_{(BR)\ EBO}$	Emitter - base breakdown voltage	$I_E = 50\text{ mA}$; $I_C = 0$	7	-	V
$V_{CE\ (sat)\ -1}$	Collector - emitter sustaining voltage	$I_C = 10\text{ A}$; $I_B = 2\text{ A}$ $I_C = 10\text{ A}$; $I_B = 2\text{ A}$; $T_C = 100^\circ\text{C}$	-	1.5 2	V
$V_{CE\ (sat)\ -2}$	Collector - emitter sustaining voltage	$I_C = 15\text{ A}$; $I_B = 3\text{ A}$	-	5	V
$V_{BE(sat)}$	Base - emitter sustaining voltage	$I_C = 10\text{ A}$; $I_B = 2\text{ A}$ $I_C = 10\text{ A}$; $I_B = 2\text{ A}$; $T_C = 100^\circ\text{C}$	-	1.6 1.6	V
I_{CER}	Collector cutoff current	$V_{CE} = \text{rated } V_{CER}$; $R_{BE} = 10\ \Omega$ $V_{CE} = \text{rated } V_{CER}$; $R_{BE} = 10\ \Omega$; $T_C = 125^\circ\text{C}$	-	0.5 4	mA
I_{CEX}	Collector cutoff current	$V_{CE} = \text{rated } V_{CES}$; $R_{BE\ (off)} = 10\ \Omega$ $V_{CE} = \text{rated } V_{CES}$; $R_{BE\ (off)} = 10\ \Omega$; $T_C = 125^\circ\text{C}$	-	0.2 2	mA
I_{EBO}	Emitter cutoff current	$V_{EB} = 5\text{ V}$; $I_C = 0$	-	0.1	mA
h_{FE}	DC current gain	$I_C = 10\text{ A}$; $V_{CE} = 5\text{ V}$	8	-	-
C_{OB}	Output Capacitance	$I_E = 0$; $V_{CB} = 10\text{ V}$, $f_{test} = 1\text{ MHz}$	-	350	pF

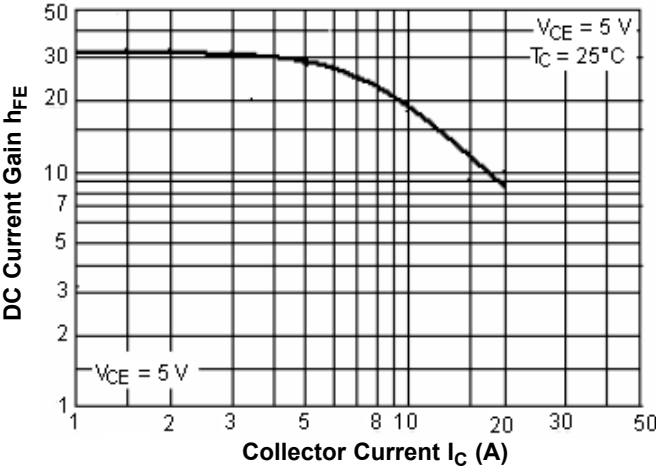
Switching times resistive load

t_{on}	Turn-on time	$I_C = 10\text{ A}$; $I_{B1} = -I_{B2} = 2\text{ A}$; $V_{CC} = 300\text{ V}$ $V_{BE(off)} = 5\text{ V}$, Duty Cycle $\leq 2\%$	-	0.9	μs
t_s	storage time		-	2	μs
t_f	Fall time		-	0.4	μs

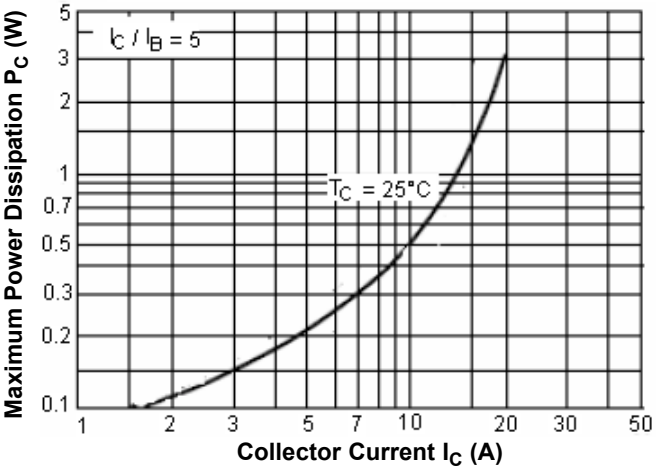
Silicon NPN Power Transistor



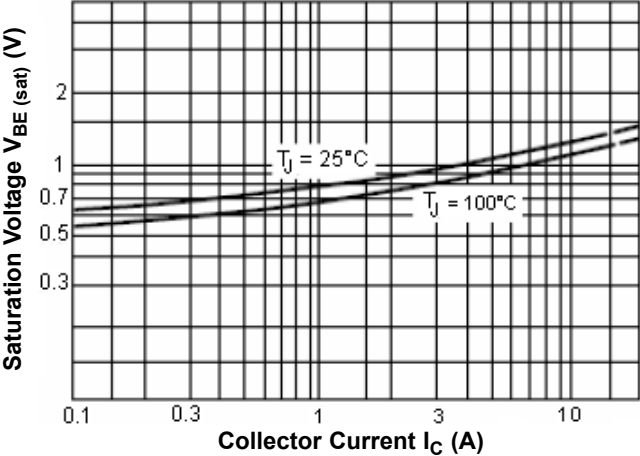
h_{FE} - I_C Characteristics



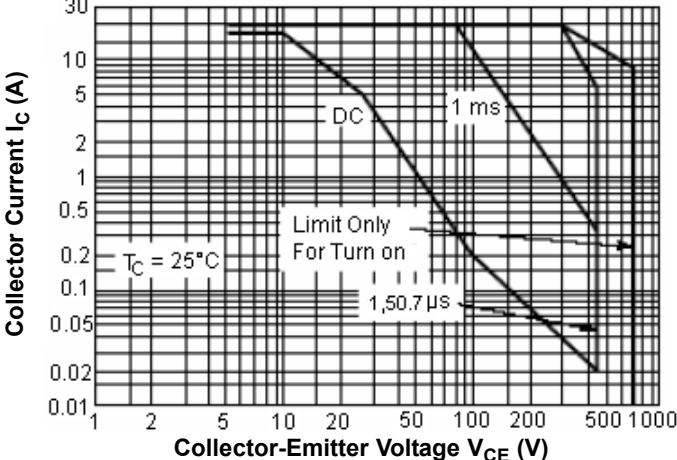
$V_{CE(sat)}$ - I_C Characteristics



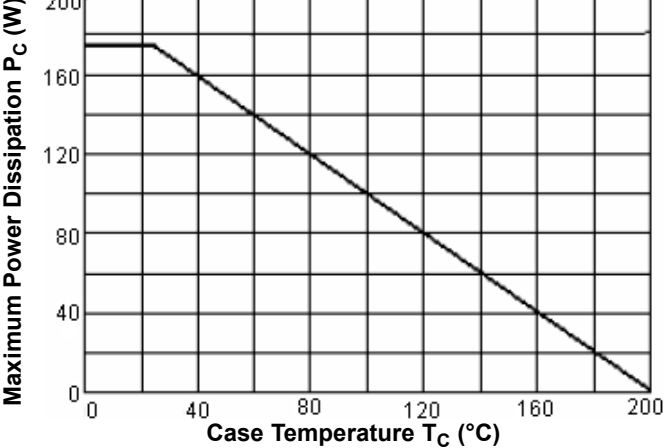
$V_{BE(sat)}$ - I_C Characteristics



Safe Operating Area



Power Derating



Part Number Table

Description	Part Number
Silicon NPN Power Transistor	BUX48

Important Notice : This data sheet and its contents (the "Information") belong to the members of the Premier Farnell group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp is the registered trademark of the Group. © Premier Farnell plc 2011.

