

Silicon NPN Power Transistor



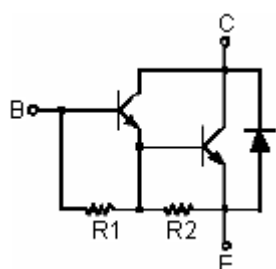
Features:

- Darlington
- High breakdown voltage

Applications:

High ruggedness electronic ignitions
High voltage ignition coil driver

Fig. 1 Simplified Outline (TO-3PN) and Symbol



Pinning

Pin	Description
1	Base
2	Collector; connected to mounting base
3	Emitter

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

Symbol	Parameter	Conditions	Value	Unit
V_{CBO}	Collector - base voltage	Open emitter	500	V
V_{CEO}	Collector - emitter voltage	Open base	400	V
V_{EBO}	Emitter - base voltage	Open collector	5	V
I_C	Collector current	-	15	A
I_{CM}	Collector current - peak	-	30	A
I_B	Base current	-	1	A
I_{BM}	Base current - peak	-	5	A
P_{tot}	Total power dissipation	$T_C = 25^\circ\text{C}$	155	W
T_j	Maximum operating junction temperature	-	175	$^\circ\text{C}$
T_{stg}	Storage temperature	-	-65 to 175	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Maximum	Unit
$R_{th\ j-case}$	Thermal resistance junction case	0.97	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Minimum	Typical	Maximum	Unit
$V_{CEO(SUS)}$	Collector - emitter sustaining voltage	$I_C = 0.1\text{ A}; I_B = 0; L = 10\text{ mH}$	400	-	-	V
$V_{CEsat -1}$	Collector - emitter saturation voltage	$I_C = 8\text{ A}; I_B = 0.1\text{ A}$	-	-	1.6	V

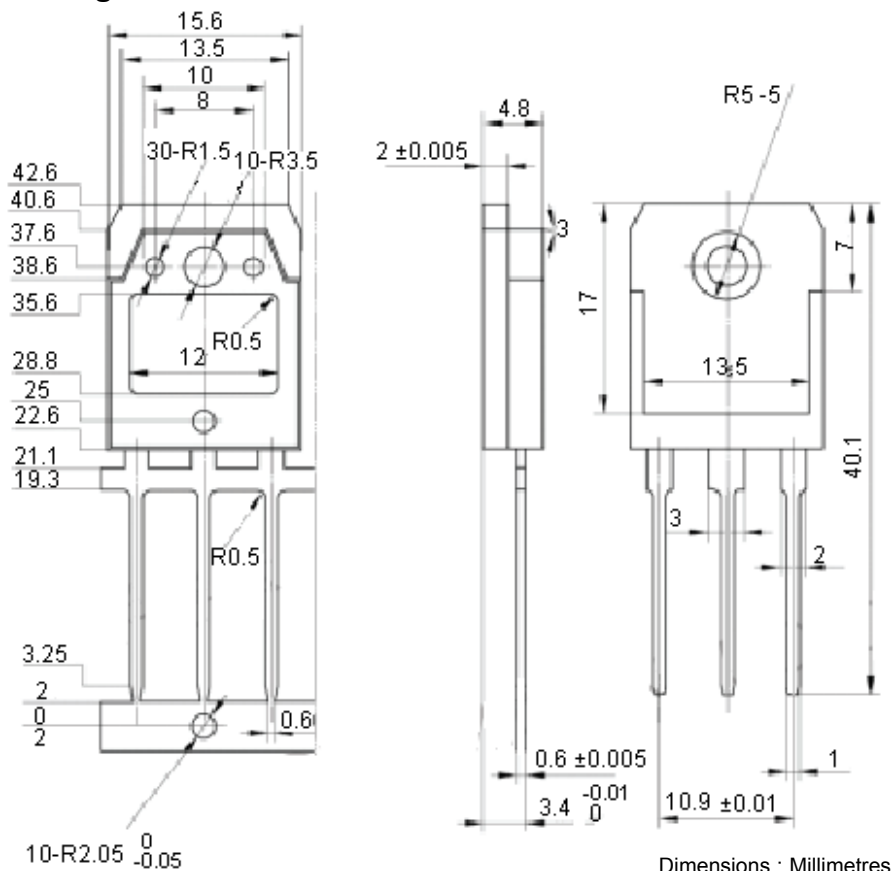
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Characteristics ($T_j = 25^\circ\text{C}$ Unless Otherwise Specified)

Symbol	Parameter	Conditions	Minimum	Typical	Maximum	Unit
$V_{CEsat-2}$	Collector - emitter saturation voltage	$I_C = 10\text{ A}; I_B = 0.25\text{ A}$	-	-	1.8	V
$V_{CEsat-3}$	Collector - emitter saturation voltage	$I_C = 12\text{ A}; I_B = 0.3\text{ A}$	-	-	2	V
$V_{BEsat-1}$	Base - emitter saturation voltage	$I_C = 8\text{ A}; I_B = 0.1\text{ A}$	-	-	2.2	V
$V_{BEsat-2}$	Base - emitter saturation voltage	$I_C = 10\text{ A}; I_B = 0.25\text{ A}$	-	-	2.5	V
$V_{BEsat-3}$	Base - emitter saturation voltage	$I_C = 12\text{ A}; I_B = 0.3\text{ A}$	-	-	2.7	V
I_{CES}	Collector cut-off current	$V_{CE} = 500\text{ V}; V_{BE} = 0$ $T_j = 125^\circ\text{C}$	-	-	0.1 0.5	mA
I_{CEO}	Collector cut-off current	$V_{CE} = 450\text{ V}; I_B = 0$ $T_j = 125^\circ\text{C}$	-	-	0.1 0.5	mA
I_{EBO}	Emitter cut-off current	$V_{EB} = 5\text{ V}; I_C = 0$	-	-	20	mA
h_{FE}	DC current gain	$I_C = 5\text{ A}; V_{CE} = 10\text{ V}$	300	-	-	-
V_F	Diode forward voltage	$I_F = 10\text{ A}$	-	-	2.5	V

Package Outline



Part Number Table

Description	Part Number
Silicon NPN Power Transistor	BU941P

Fig. 2 Outline Dimensions (Unindicated Tolerance : $\pm 0.1\text{ mm}$)

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