

High voltage fast-switching NPN power transistor

Datasheet - production data

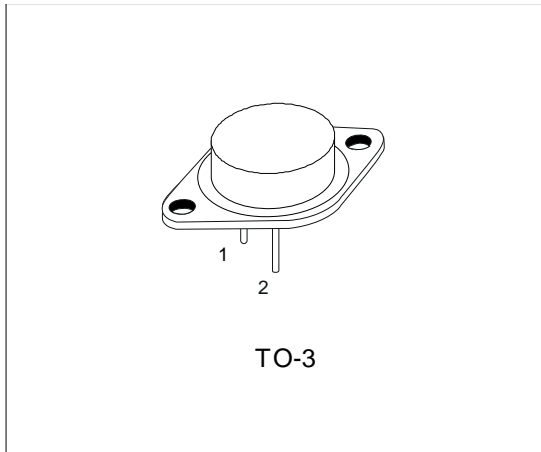
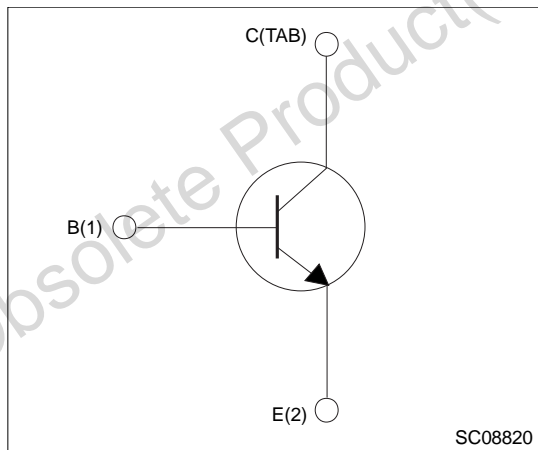


Figure 1: Internal schematic diagram



Features

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

Applications

- Switched mode power supplies
- Flyback and forward single transistor low power converters

Description

The 2N6547 is a high voltage Multiepitaxial Mesa NPN transistor mounted in a TO-3 metal case. It is particularly suited for switching and industrial applications from single and three-phase mains.

Table 1: Device summary

Order code	Marking	Packages	Packaging
2N6547	2N6547	TO-3	Bag

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Obsolete Product(s) - Obsolete Product(s)

1 Electrical ratings

Table 2: Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CER}	Collector-emitter voltage ($R_{BE} = 50 \Omega$)	850	V
V_{CES}	Collector-emitter voltage ($V_{BE} = 0$)	850	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	400	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	9	V
I_C	Collector current	15	A
I_{CM}	Collector peak current	30	A
I_B	Base current	10	A
I_{BM}	Base peak current	20	A
P_{TOT}	Total dissipation at $T_C = 25 \text{ }^\circ\text{C}$	175	W
T_{STG}	Storage temperature	-65 to 200	$^\circ\text{C}$
T_J	Max. operating junction temperature	200	$^\circ\text{C}$

Table 3: Thermal data

Symbol	Parameter	Value	Unit
$R_{thj-case}$	Thermal resistance junction-case max.	1	$^\circ\text{C/W}$

2 Electrical characteristics

Table 4: Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I _{CES}	Collector cut-off current (V _{BE} = 0)	V _{CE} = 850 V			1	mA
		V _{CE} = 850 V, T _C = 100 °C			4	mA
I _{CER}	Collector cut-off current (R _{BE} = 10 Ω)	V _{CE} = 850 V, T _C = 100 °C			5	mA
I _{EBO}	Emitter cut-off current (I _C = 0)	V _{EB} = 9 V			1	mA
V _{CEO(sus)} ⁽¹⁾	Collector-emitter sustaining voltage (I _B = 0)	I _C = 100 mA	400			V
V _{CE(sat)} ⁽¹⁾	Collector-emitter saturation voltage	I _C = 10 A, I _B = 2 A			1.5	V
		I _C = 15 A, I _B = 3 A			5	V
		I _C = 10 A, I _B = 2 A, T _C = 100 °C			2.5	V
V _{BE(sat)} ⁽¹⁾	Base-emitter saturation voltage	I _C = 10 A, I _B = 2 A			1.6	V
		I _C = 10 A, I _B = 2 A, T _C = 100 °C			1.6	V
h _{FE} ⁽¹⁾	DC current gain	I _C = 5 A, V _{CE} = 2 V	12		30	
		I _C = 10 A, V _{CE} = 2 V	6			
f _T ⁽¹⁾	Transition frequency	I _C = 0.5 A, V _{CE} = 10 V, f = 1 MHz		3		MHz
C _{CB0}	Collector-base capacitance (I _E =0)	V _{CB} = 10 V, f = 1 MHz			360	pF

Notes:

⁽¹⁾Pulse test: pulse duration ≤ 300 μs, duty cycle ≤ 2%

Table 5: Resistive load

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
t_{on}	Turn-on time	$V_{CC} = 250 \text{ V}$, $I_C = 10 \text{ A}$ $I_{B1} = - I_{B2} = 2 \text{ A}$, $T_p \geq 25 \mu\text{s}$	-	-	1	μs
t_s	Storage time		-	-	4	μs
t_f	Fall time		-	-	0.7	μs

Table 6: Inductive load

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
t_s	Storage time	$V_{CL} = 450 \text{ V}$, $I_C = 10 \text{ A}$, $L_C = 180 \text{ mH}$, $I_{B1} = 2 \text{ A}$, $V_{BE} = -5 \text{ V}$, $T_C = 100 \text{ }^\circ\text{C}$	-	-	5	μs
t_f	Fall time		-	-	1.5	μs

3 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

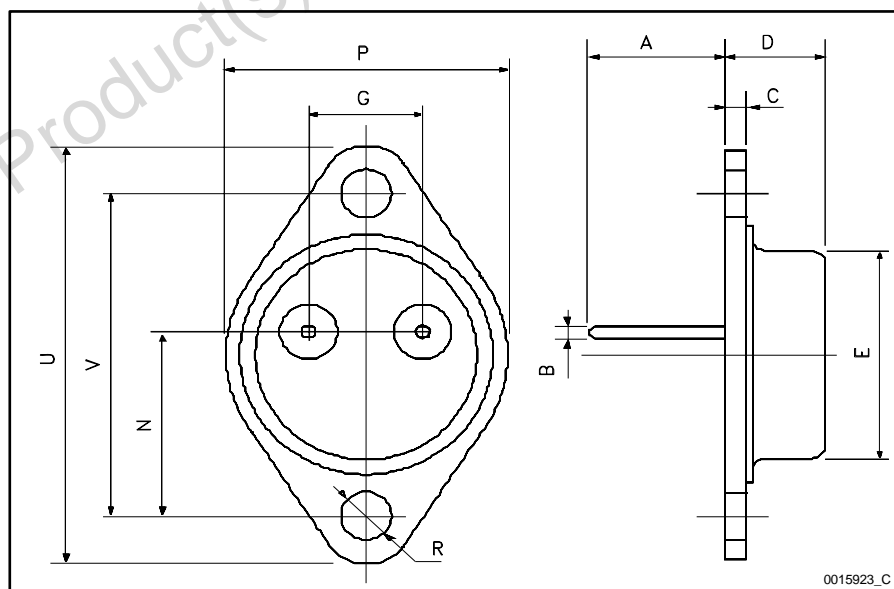
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3.1 TO-3 mechanical data

Table 7: TO-3 mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	11.00		13.10
B	0.97		1.15
C	1.50		1.65
D	8.32		8.92
E	19.00		20.00
G	10.70		11.10
N	16.50		17.20
P	25.00		26.00
R	4.00		4.09
U	38.50		39.30
V	30.00		30.30

Figure 2: TO-3 mechanical data drawing



4 Revision history

Table 8: Revision history

Date	Revision	Changes
12-Dec-2012	3	Changed F_T value in electrical characteristics table.

Obsolete Product(s) - Obsolete Product(s)

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