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2N3773

High power NPN transistor

Features

- High power dissipation
- Low collector-emitter saturation voltage

Description

The device is a planar NPN transistor mounted in TO-3 metal case. It is intended for linear amplifiers and inductive switching applications.

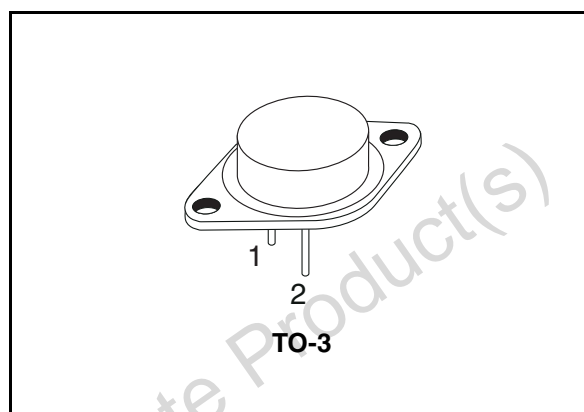


Figure 1. Internal schematic diagram

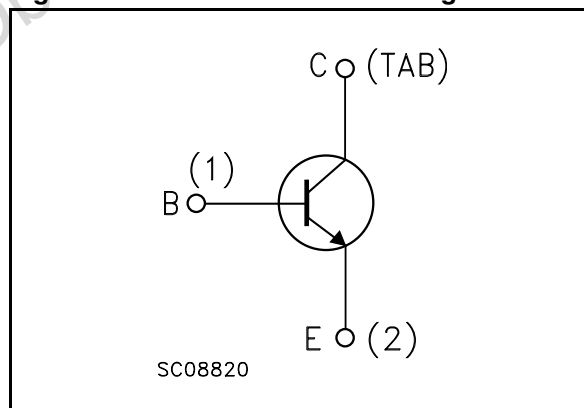


Table 1. Device summary

Order code	Marking	Package	Packaging
2N3773	2N3773	TO-3	Tray

Electrical ratings

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1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	140	V
V_{CEV}	Collector-emitter voltage ($V_{BE} = -1.5$ V)	160	V
V_{CBO}	Collector-base voltage ($I_E = 0$)	160	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	7	V
I_C	Collector current	16	A
I_{CM}	Collector peak current ($t_P < 5$ ms)	30	A
I_B	Base current	4	A
I_{BM}	Base peak current ($t_P < 1$ ms)	15	A
P_{tot}	Total dissipation at $T_C \leq 25$ °C	150	W
T_{stg}	Storage temperature	-65 to 200	°C
T_j	Max. operating junction temperature	200	°C

Table 3. Thermal data

Symbol	Parameter	Value	Unit
$R_{thj-case}$	Thermal resistance junction-case	Max	1.17 °C/W

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2 Electrical characteristics

 ($T_{case} = 25\text{ °C}$ unless otherwise specified)

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector cut-off current ($V_{BE} = -1.5\text{ V}$)	$V_{CE} = 140\text{ V}$ $V_{CE} = 140\text{ V}$ $T_C = 150\text{ °C}$			2 10	mA mA
I_{CEO}	Collector cut-off current ($I_B = 0$)	$V_{CE} = 120\text{ V}$			10	mA
I_{CBO}	Collector cut-off current ($I_E = 0$)	$V_{CB} = 140\text{ V}$			2	mA
I_{EBO}	Emitter cut-off current ($I_C = 0$)	$V_{EB} = 7\text{ V}$			5	mA
$V_{CEO(sus)}^{(1)}$	Collector-emitter sustaining voltage ($I_B = 0$)	$I_C = 0.2\text{ A}$	140			V
$V_{CEV(sus)}^{(1)}$	Collector-emitter sustaining voltage ($V_{BE} = -1.5\text{ V}$)	$I_C = 0.1\text{ A}$	160			V
$V_{CER(sus)}^{(1)}$	Collector-emitter sustaining voltage ($R_{BE} = 100\text{ }\Omega$)	$I_C = 0.2\text{ A}$	150			V
$V_{CE(sat)}^{(1)}$	Collector-emitter saturation voltage	$I_C = 8\text{ A}$ $I_B = 0.8\text{ A}$ $I_C = 16\text{ A}$ $I_B = 3.2\text{ A}$			1.4 4	V V
$V_{BE}^{(1)}$	Base-emitter voltage	$I_C = 8\text{ A}$ $V_{CE} = 4\text{ V}$			2.2	V
$h_{FE}^{(1)}$	DC current gain	$I_C = 8\text{ A}$ $V_{CE} = 4\text{ V}$ $I_C = 16\text{ A}$ $V_{CE} = 4\text{ V}$	15 5		60	
$I_{s/b}$	Second Breakdown Collector Current	$V_{CE} = 30\text{ V}$ $t = 1\text{ s}$ (non repetitive)	5			A

 1. Pulsed: Pulse duration = 300 μs , duty cycle $\leq 2\%$

3 Package mechanical data

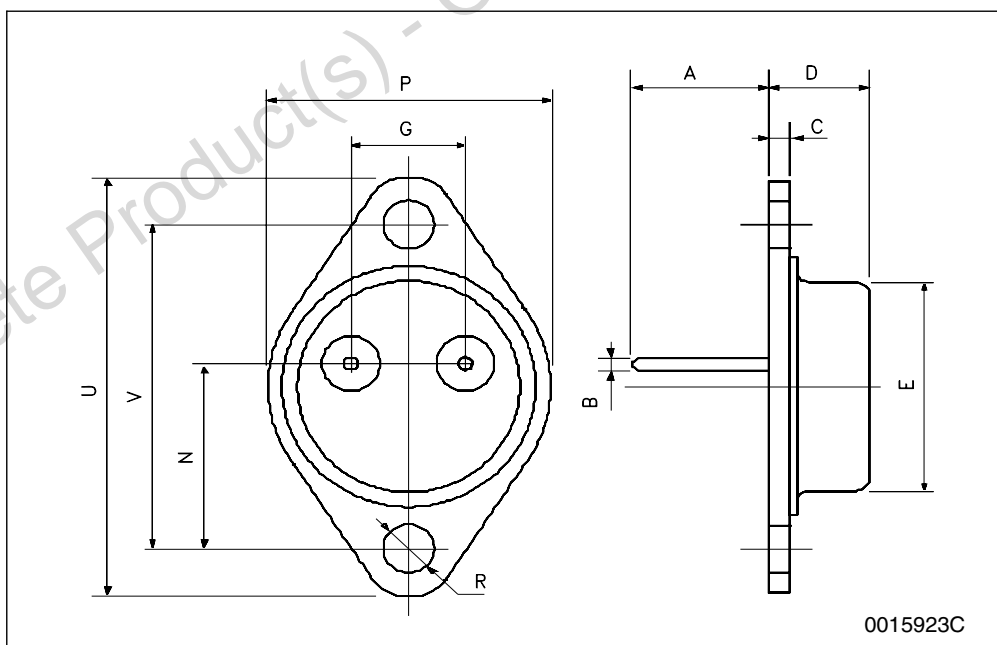
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Obsolete Product(s) - Obsolete Product(s)

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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



4 Revision history

Table 5. Document revision history

Date	Revision	Changes
03-Apr-2006	1	Initial release.
10-Oct-2008	2	Content reworked to improve readability, no technical changes.

Obsolete Product(s) - Obsolete Product(s)

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