2N3773

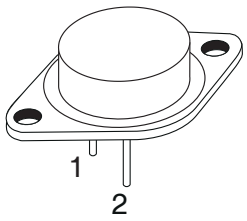
High power NPN silicon transistor

General features

- STMicroelectronics preferred salestype

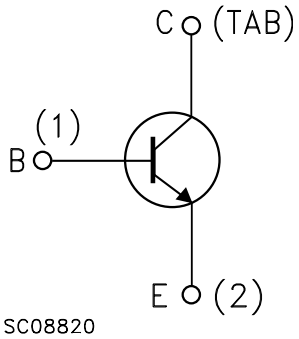
Description

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



TO-3

Internal schematic diagram



Order codes

Part Number	Marking	Package	Packing
2N3773	2N3773	TO-3	Bag

1 Electrical ratings

Table 1. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-emitter voltage (I_B = 0)	140	V
V_{CEV}	Collector-emitter voltage (V_{BE} = -1.5V)	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 < 5ms)	30	A
I_B	Base current	4	A
I_{BM}	Base peak current (t_P < 1ms)	15	A
P_{tot}	Total dissipation at $T_c \leq 25°C$	150	W
T_{stg}	Storage temperature	-65 to 200	°C

Table 2. Thermal data

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

2 Electrical characteristics

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

Table 3. Electrical characteristics

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

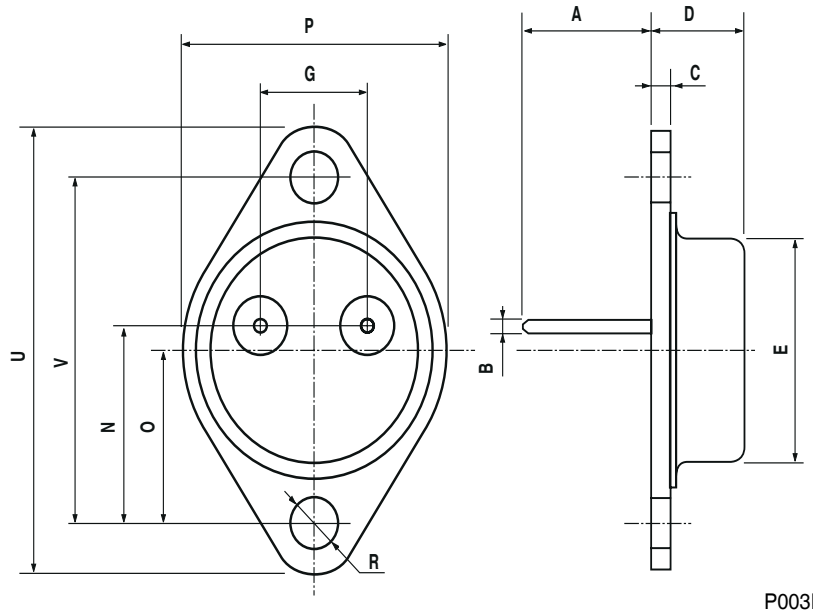
1. Pulsed: Pulse duration = 300 µs, duty cycle ≤ 2 %

3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect. The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com

TO-3 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193



P003F

4 Revision history

Table 4. Revision history

Date	Revision	Changes
03-Apr-2006	1	Initial release.

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