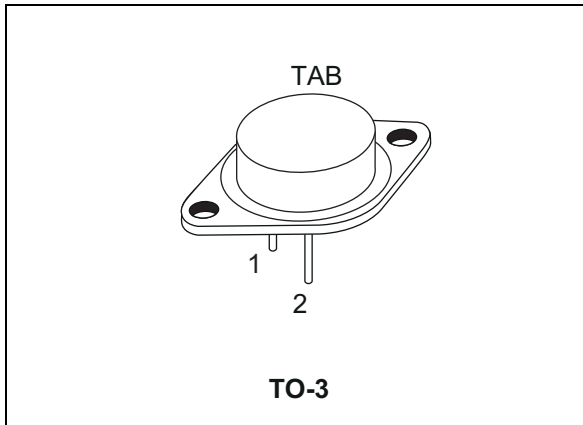


## Complementary power transistors

Datasheet - production data


**Features**

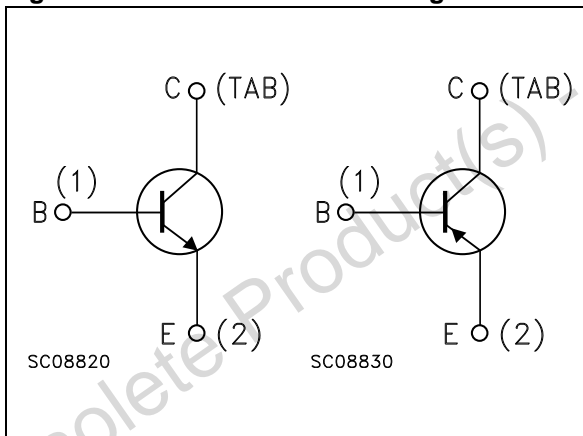
- Low collector-emitter saturation voltage
- Complementary NPN - PNP transistors

**Applications**

- General purpose
- Audio amplifier

**Description**

The devices are manufactured in planar technology with "base island" layout and are suitable for audio, power linear and switching applications.

**Figure 1. Internal schematic diagram**

**Table 1. Device summary**

Order code	Marking	Package	Packaging
2N3055	2N3055	TO-3	Tray
MJ2955	MJ2955		

# 1 Absolute maximum rating

Table 2. Absolute maximum rating

Symbol	Parameter	Value		Unit
		NPN	2N3055	
		PNP	MJ2955	
$V_{CBO}$	Collector-base voltage ( $I_E = 0$ )		100	V
$V_{CER}$	Collector-emitter voltage ( $R_{BE} = 100 \Omega$ )		70	V
$V_{CEO}$	Collector-emitter voltage ( $I_B = 0$ )		60	V
$V_{EBO}$	Emitter-base voltage ( $I_C = 0$ )		7	V
$I_C$	Collector current		15	A
$I_B$	Base current		7	A
$P_{TOT}$	Total dissipation at $T_C \leq 25^\circ\text{C}$		115	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	1.5	$^\circ\text{C}/\text{W}$

Note: For PNP type voltage and current values are negative

## 2 Electrical characteristics

( $T_{case} = 25^{\circ}C$ ; unless otherwise specified)

**Table 4. Electrical characteristics**

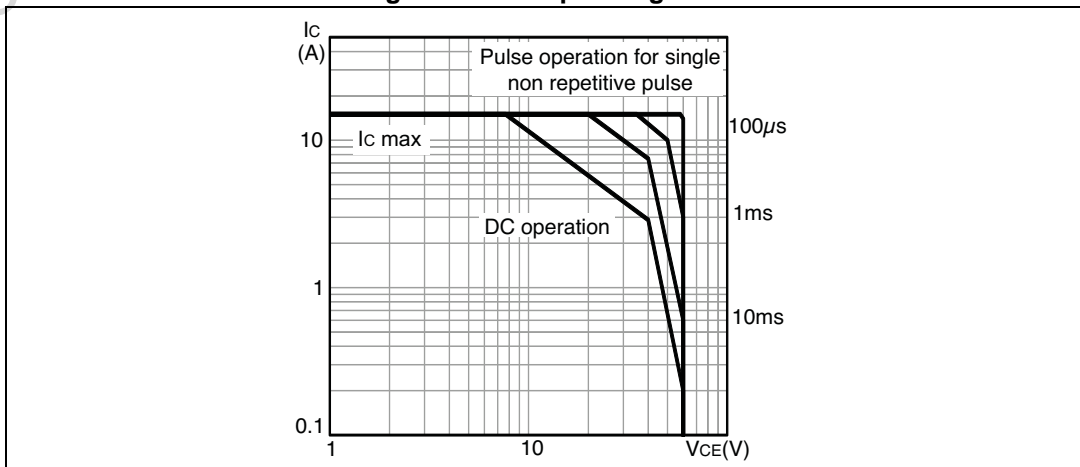
Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_{CEX}$	Collector cut-off current ( $V_{BE} = -1.5 V$ )	$V_{CE} = 100 V$			1	mA
		$V_{CE} = 100 V \quad T_C = 150^{\circ}C$			5	mA
$I_{CEO}$	Collector cut-off current ( $I_B = 0$ )	$V_{CE} = 30 V$			0.7	mA
$I_{EBO}$	Emitter cut-off current ( $I_C = 0$ )	$V_{EB} = 7 V$			5	mA
$V_{CEO(sus)}^{(1)}$	Collector-emitter sustaining voltage ( $I_B = 0$ )	$I_C = 200 mA$	60			V
$V_{CER(sus)}^{(1)}$	Collector-emitter sustaining voltage ( $R_{BE} = 100 \Omega$ )	$I_C = 200 mA$	70			V
$V_{CE(sat)}^{(1)}$	Collector-emitter saturation voltage	$I_C = 4 A \quad I_B = 400 mA$			1	V
		$I_C = 10 A \quad I_B = 3.3 A$			3	V
$V_{BE}^{(1)}$	Base-emitter voltage	$I_C = 4 A \quad V_{CE} = 4 V$			1.8	V
$h_{FE}^{(1)}$	DC current gain	$I_C = 4 A \quad V_{CE} = 4 V$	20		70	
		$I_C = 10 A \quad V_{CE} = 4 V$	5			

1. Pulsed: Pulse duration = 300  $\mu s$ , duty cycle  $\leq 1.5\%$

Note: For PNP type voltage and current values are negative

### 2.1 Electrical characteristics (curve)

**Figure 2. Safe operating area**



### 3 Package mechanical data

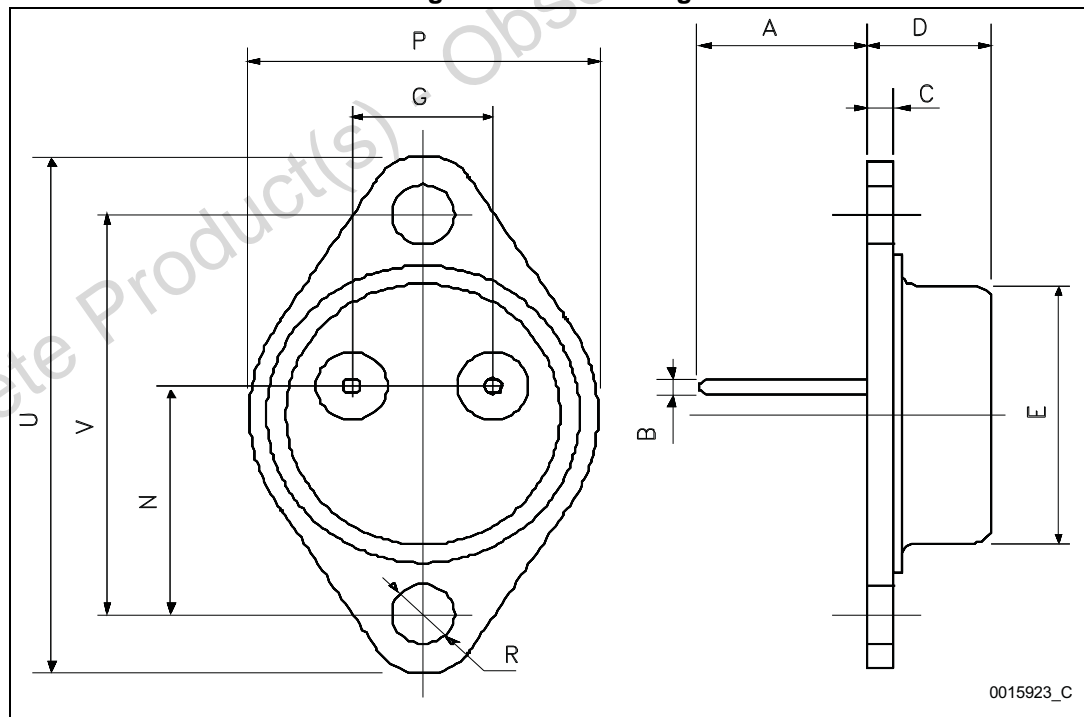
In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK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

Obsolete Product(s) - Obsolete Product(s)

Table 5. 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 3. TO-3 drawing



## 4 Revision history

Table 6. Document revision history

Date	Revision	Changes
11-Oct-1999	6	
29-Jan-2007	7	Content reworked to improve readability, no technical changes
11-Nov-2013	8	Inserted <a href="#">Table 3: Thermal data</a> and <a href="#">Figure 2: Safe operating area</a> . Minor text changes.

Obsolete Product(s) - Obsolete Product(s)

**Please Read Carefully:**

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

**UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.**

**ST PRODUCTS ARE NOT DESIGNED OR AUTHORIZED FOR USE IN: (A) SAFETY CRITICAL APPLICATIONS SUCH AS LIFE SUPPORTING, ACTIVE IMPLANTED DEVICES OR SYSTEMS WITH PRODUCT FUNCTIONAL SAFETY REQUIREMENTS; (B) AERONAUTIC APPLICATIONS; (C) AUTOMOTIVE APPLICATIONS OR ENVIRONMENTS, AND/OR (D) AEROSPACE APPLICATIONS OR ENVIRONMENTS. WHERE ST PRODUCTS ARE NOT DESIGNED FOR SUCH USE, THE PURCHASER SHALL USE PRODUCTS AT PURCHASER'S SOLE RISK, EVEN IF ST HAS BEEN INFORMED IN WRITING OF SUCH USAGE, UNLESS A PRODUCT IS EXPRESSLY DESIGNATED BY ST AS BEING INTENDED FOR "AUTOMOTIVE, AUTOMOTIVE SAFETY OR MEDICAL" INDUSTRY DOMAINS ACCORDING TO ST PRODUCT DESIGN SPECIFICATIONS. PRODUCTS FORMALLY ESCC, QML OR JAN QUALIFIED ARE DEEMED SUITABLE FOR USE IN AEROSPACE BY THE CORRESPONDING GOVERNMENTAL AGENCY.**

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2013 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

[www.st.com](http://www.st.com)

