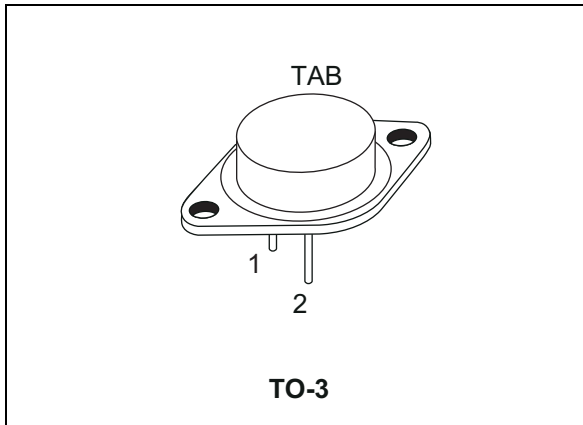


## Complementary power transistors

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

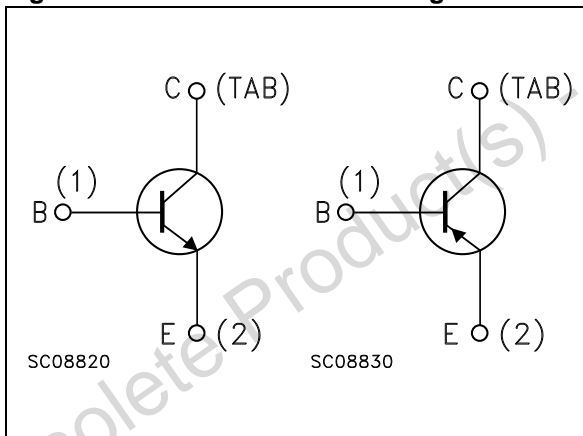


Table 1. Device summary

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	$^\circ\text{C/W}$

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**

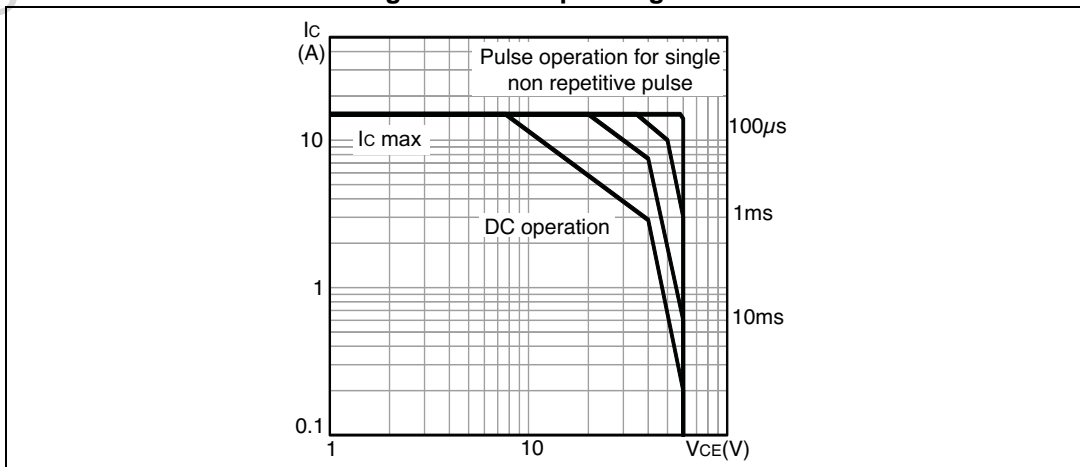
Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_{CEX}$	Collector cut-off current ( $V_{BE} = -1.5 V$ )	$V_{CE} = 100 V$			1	mA
		$V_{CE} = 100 V \quad T_C = 150^{\circ}C$			5	mA
$I_{CEO}$	Collector cut-off current ( $I_B = 0$ )	$V_{CE} = 30 V$			0.7	mA
$I_{EBO}$	Emitter cut-off current ( $I_C = 0$ )	$V_{EB} = 7 V$			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

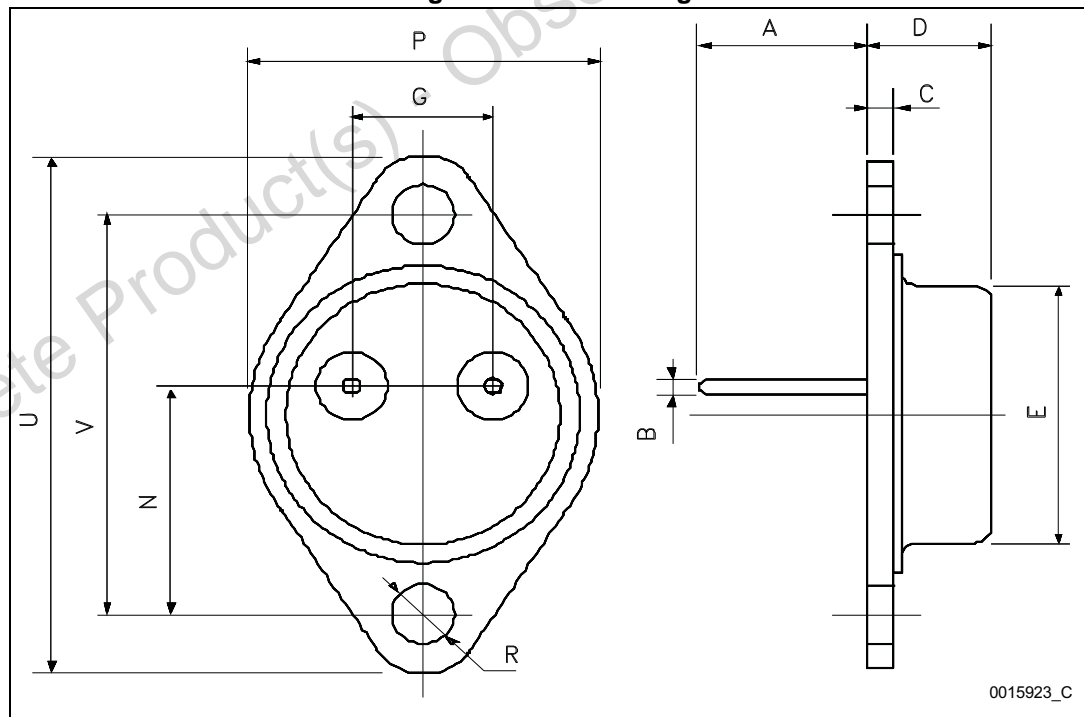
In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK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

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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)

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