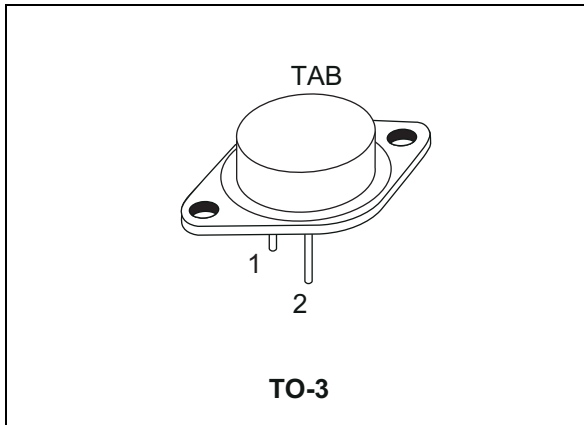


## Complementary power transistors

Datasheet - production data



### Features

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

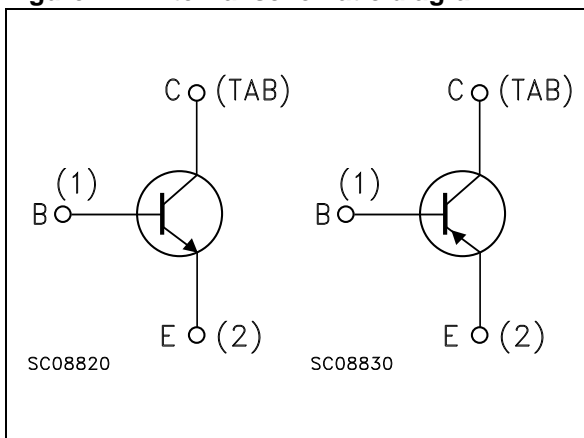
### Applications

- 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**

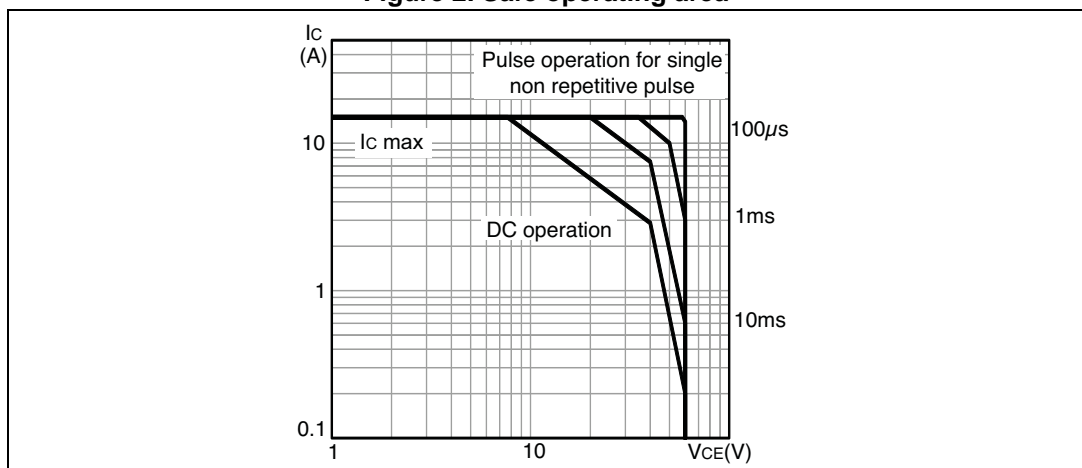
Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_{CEX}$	Collector cut-off current ( $V_{BE} = -1.5 V$ )	$V_{CE} = 100 V$			1	mA
		$V_{CE} = 100 V \quad T_C = 150^{\circ}C$			5	mA
$I_{CEO}$	Collector cut-off current ( $I_B = 0$ )	$V_{CE} = 30 V$			0.7	mA
$I_{EBO}$	Emitter cut-off current ( $I_C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



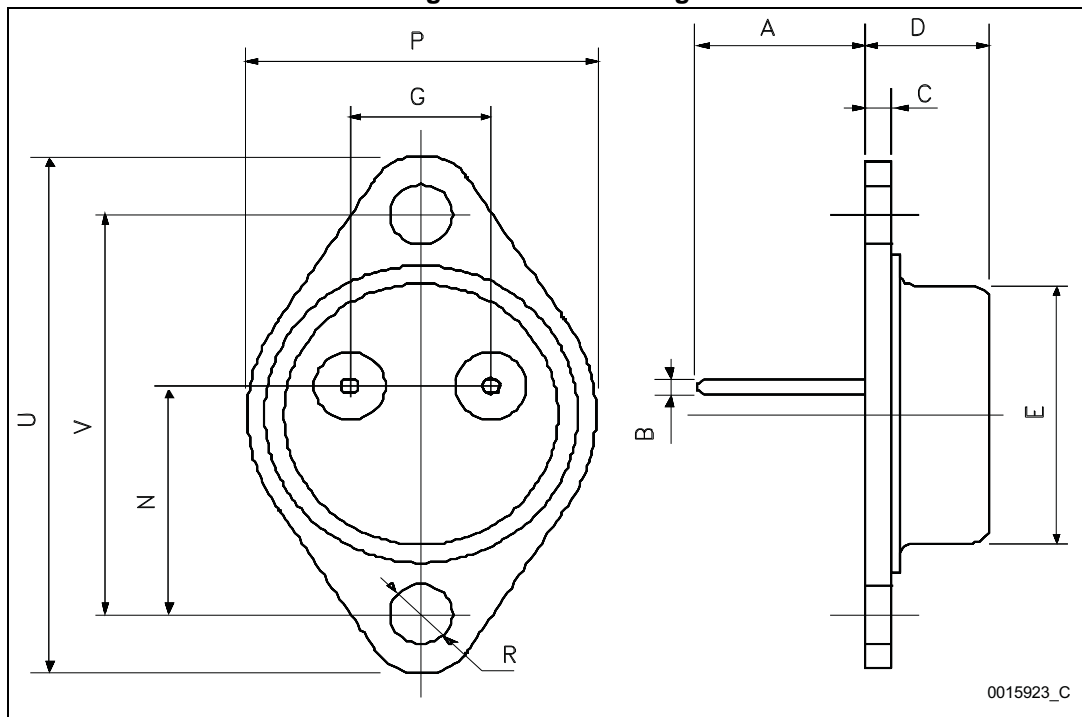
### 3 Package mechanical data

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.

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.

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