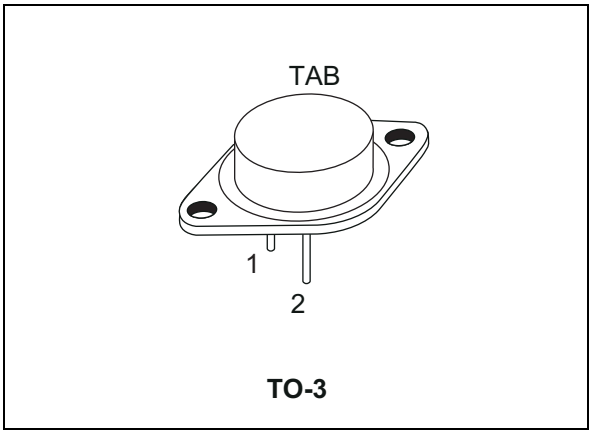
2N3055, MJ2955

Complementary power transistors

Datasheet - production data



TO-3

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

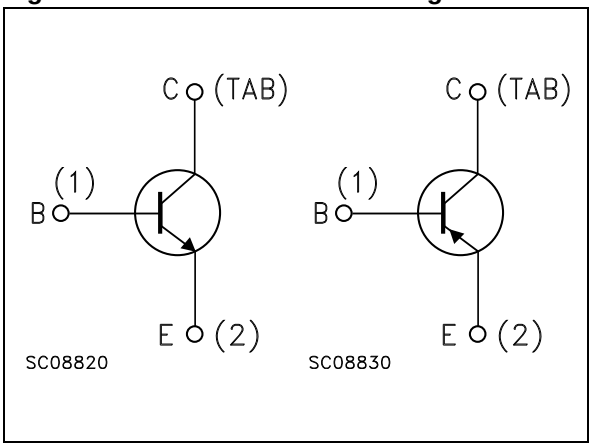


Table 1. Device summary

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 Ω)		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 $T_c \leq 25°C$		115	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
$R_{thj\text{-}case}$	Thermal resistance junction-case max	1.5	°C/W

Note: For PNP type voltage and current values are negative

2 Electrical characteristics

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

Table 4. Electrical characteristics

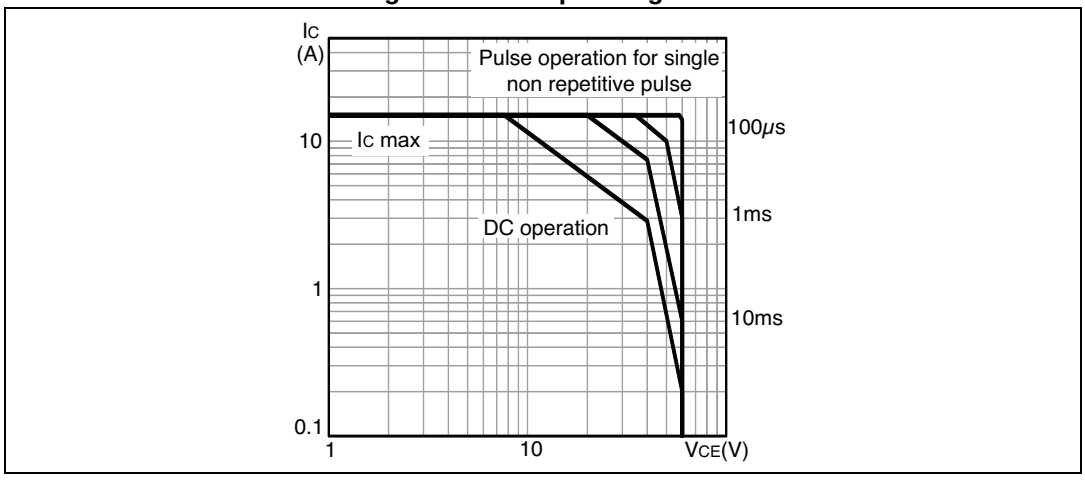
Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Collector cut-off current (V_{BE} = -1.5 V)	V_{CE} = 100 V V_{CE} = 100 V T_C = 150 °C			1 5	mA mA
I_{CEO}	Collector cut-off current (I_B = 0)	V_{CE} = 30 V			0.7	mA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = 7 V			5	mA
$V_{CEO(sus)}$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

1. *Pulsed: Pulse duration = 300 µs, duty cycle ≤ 1.5%*

Note: For PNP type voltage and current values are negative

2.1 Electrical characteristics (curve)

Figure 2. Safe operating area



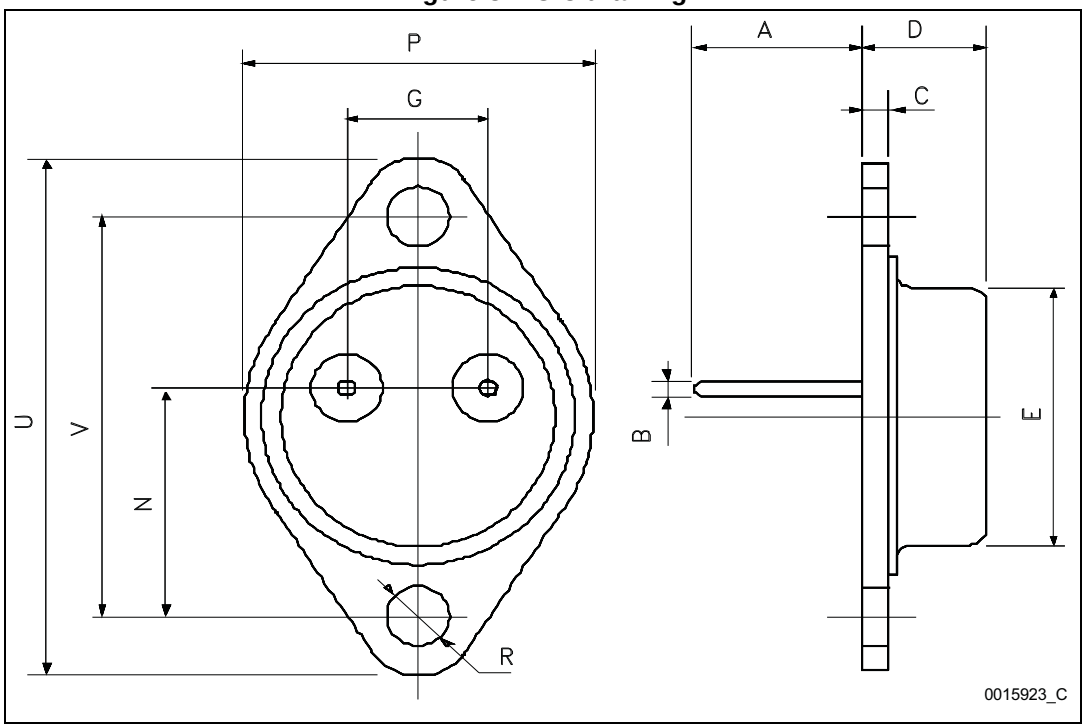
3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: *www.st.com*.
ECOPACK® 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 *Table 3: Thermal data* and *Figure 2: Safe operating area*. Minor text changes.