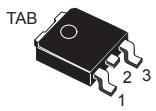
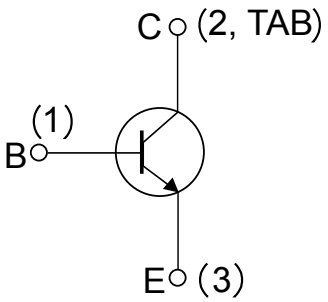
# MJD3055T4

Datasheet

## Low voltage NPN power transistor




DPAK




## Features

- Surface-mounting DPAK (TO-252) power package in tape and reel
- Electrically similar to MJE3055T

## Application

- General purpose switching and amplifier

## Description

The device is manufactured in planar technology with “base island” layout. The resulting transistor shows exceptional high gain performance coupled with very low saturation voltage.

| Product status link |
|---|
| MJD3055T4 |

| Product summary | |
|---|---|
| **Order code** | MJD3055T4 |
| **Marking** | MJD3055 |
| **Package** | DPAK |
| **Packing** | Tape and reel |

# 1 Electrical ratings

**Table 1. Absolute maximum ratings**

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-base voltage ($I_E$ = 0 V) | 70 | V |
| $V_{CEO}$ | Collector-emitter voltage ($I_B$ = 0 A) | 60 | V |
| $V_{EBO}$ | Collector-base voltage ($I_C$ = 0 A) | 5 | V |
| $I_C$ | Collector current | 10 | A |
| $I_B$ | Base current | 6 | A |
| $P_{TOT}$ | Total power dissipation at $T_c$ = 25°C | 20 | W |
| $T_{stg}$ | Storage temperature range | -65 to 150 | °C |
| $T_J$ | Maximum operating junction temperature | 150 | |

**Table 2. Thermal data**

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $R_{thJC}$ | Thermal resistance, junction-to-case | 6.25 | °C/W |
| $R_{thJA}$ | Thermal resistance, junction-to-ambient | 100 | °C/W |

# 2 Electrical characteristics

$T_{case}$ = 25°C unless otherwise specified.

**Table 3. Electrical characteristics**

| Symbol | Parameter | Test conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $I_{CEX}$ | Collector cut-off current | $V_{CE}$ = 70 V, $V_{BE}$ = -1.5 V | | | 20 | µA |
| | | $V_{CE}$ = 70 V, $T_J$ = 150°C, $V_{BE}$ = -1.5 V (1) | | | 2 | mA |
| $I_{CBO}$ | Collector cut-off current | $V_{CB}$ = 70 V, $I_E$ = 0 A | | | 20 | µA |
| | | $V_{CB}$ = 70 V, $T_J$ = 150°C, $I_E$ = 0 A (1) | | | 2 | mA |
| $I_{CEO}$ | Collector cut-off current | $V_{CE}$ = 30 V, $I_B$ = 0 A | | | 50 | µA |
| $I_{EBO}$ | Emitter cut-off current | $V_{EB}$ = 5 V<br>$I_C$ = 0 A | | | 0.5 | mA |
| $V_{CEO(sus)}$ (2) | Collector-emitter sustaining voltage | $I_C$ = 30 mA<br>$I_B$ = 0 A | 60 | | | V |
| $V_{CE(sat)}$ (2) | Collector-emitter saturation voltage | $I_C$ = 4 A, $I_B$ = 0.4 A | | | 1.1 | V |
| | | $I_C$ = 10 A, $I_B$ = 3.3 A | | | 8 | |
| $V_{BE(on)}$ (2) | Base-emitter voltage | $I_C$ = 4 A, $V_{CE}$ = 4 V | | | 1.8 | V |
| $h_{FE}$ (2) | DC current gain | $I_C$ = 4 A $V_{CE}$ = 4 V | 20 | | 100 | |
| | | $I_C$ = 10 A $V_{CE}$ = 4 V | 5 | | | |
| $f_T$ | Transition frequency | $I_C$ = 0.5 A, $V_{CE}$ = 10 V, f = 500 kHz | 2 | | | MHz |

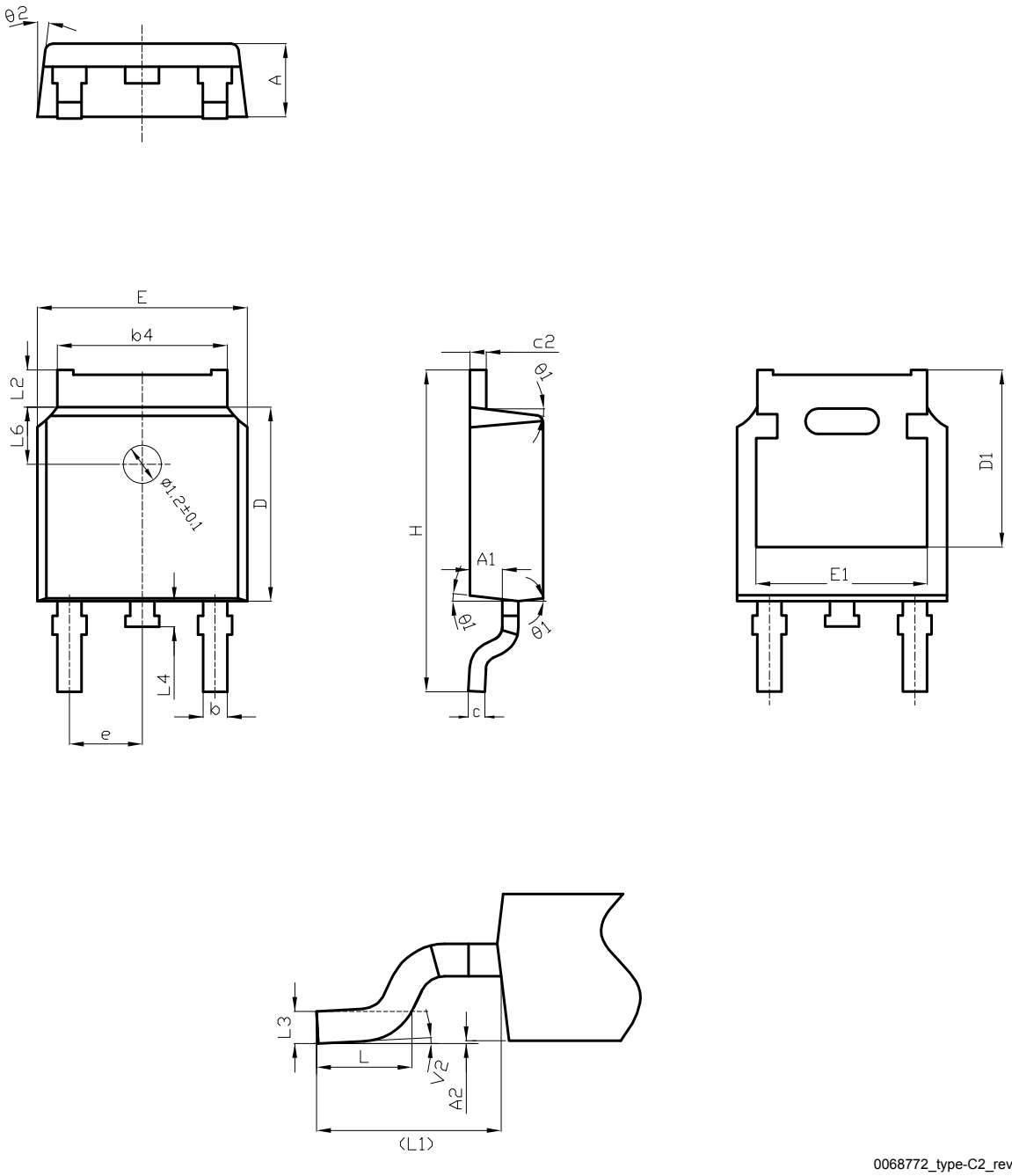
1. *Defined by design, not subject to production test.*
2. *Pulsed: Pulse duration = 300 µs, duty cycle 1.5%.*

# 3 Package information

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.

## 3.1 DPAK (TO-252) type C2 package information

**Figure 1. DPAK (TO-252) type C2 package outline**

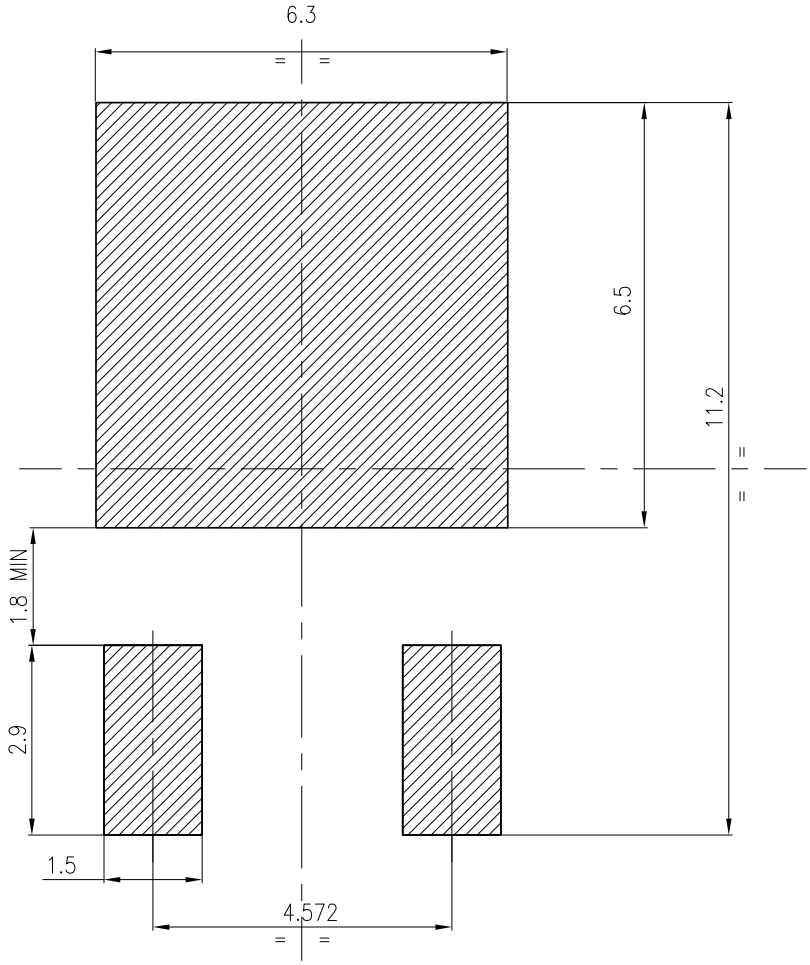



0068772_type-C2_rev30

Table 4. **DPAK (TO-252) type C2 mechanical data**

| Dim. | mm | | |
|---|---|---|---|
| | Min. | Typ. | Max. |
| A | 2.20 | 2.30 | 2.38 |
| A1 | 0.90 | 1.01 | 1.10 |
| A2 | 0.00 | | 0.10 |
| b | 0.72 | | 0.85 |
| b4 | 5.13 | 5.33 | 5.46 |
| c | 0.47 | | 0.60 |
| c2 | 0.47 | | 0.60 |
| D | 6.00 | 6.10 | 6.20 |
| D1 | 5.10 | | 5.60 |
| E | 6.50 | 6.60 | 6.70 |
| E1 | 5.20 | | 5.50 |
| e | 2.186 | 2.286 | 2.386 |
| H | 9.80 | 10.10 | 10.40 |
| L | 1.40 | 1.50 | 1.70 |
| L1 | | 2.90 REF | |
| L2 | 0.90 | | 1.25 |
| L3 | | 0.51 BSC | |
| L4 | 0.60 | 0.80 | 1.00 |
| L6 | | 1.80 BSC | |
| θ1 | 5° | 7° | 9° |
| θ2 | 5° | 7° | 9° |
| V2 | 0° | | 8° |

**Figure 2. DPAK (TO-252) recommended footprint (dimensions are in mm)**

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## 3.2 DPAK (TO-252) packing information

**Figure 3. DPAK (TO-252) tape outline**

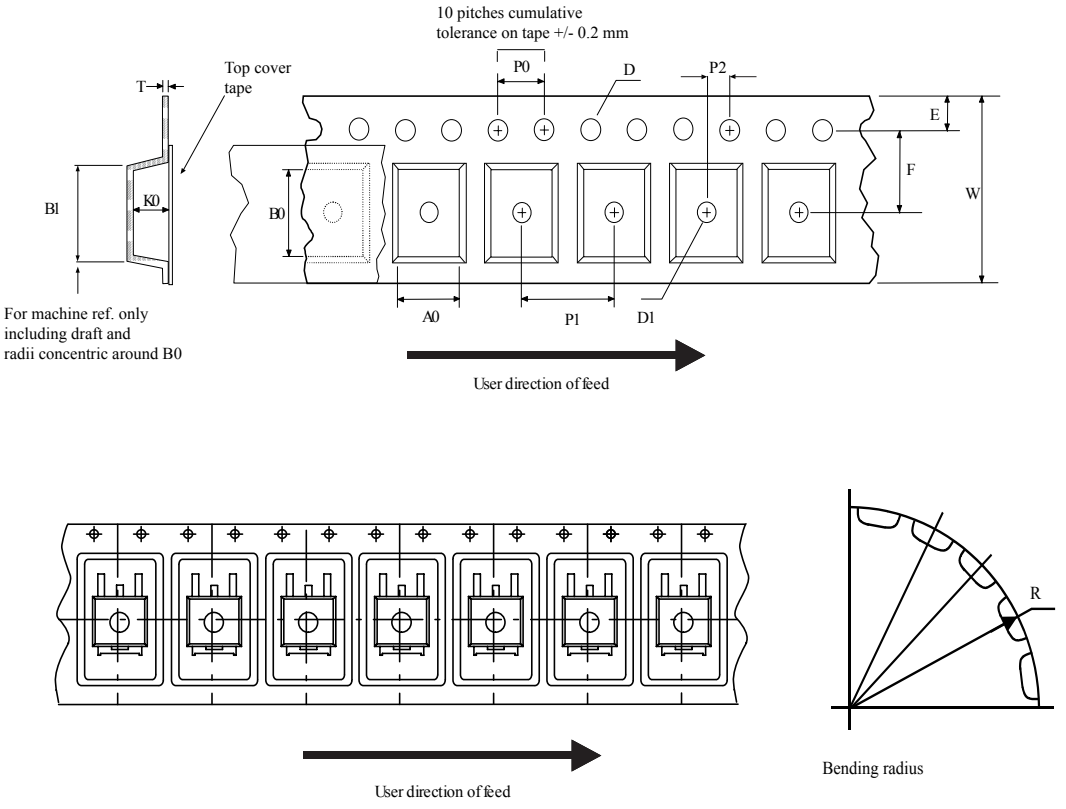

Figure 4. **DPAK (TO-252) reel outline**

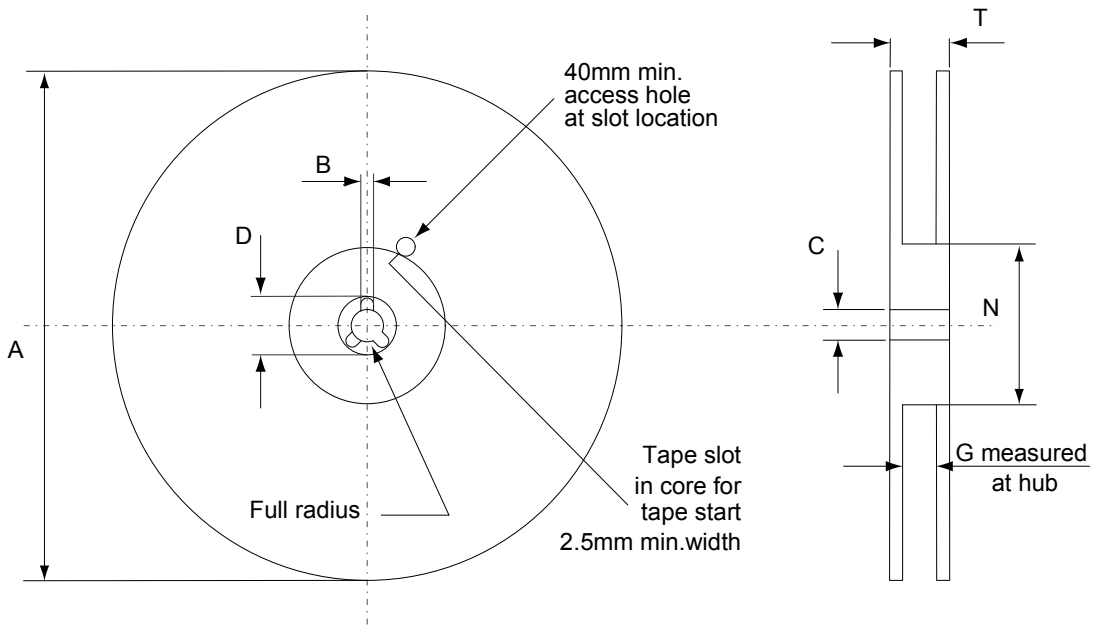


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Table 5. **DPAK (TO-252) tape and reel mechanical data**

| Tape | | | Reel | | |
|---|---|---|---|---|---|
| Dim. | mm | | Dim. | mm | |
| | Min. | Max. | | Min. | Max. |
| A0 | 6.8 | 7 | A | | 330 |
| B0 | 10.4 | 10.6 | B | 1.5 | |
| B1 | | 12.1 | C | 12.8 | 13.2 |
| D | 1.5 | 1.6 | D | 20.2 | |
| D1 | 1.5 | | G | 16.4 | 18.4 |
| E | 1.65 | 1.85 | N | 50 | |
| F | 7.4 | 7.6 | T | | 22.4 |
| K0 | 2.55 | 2.75 | | | |
| P0 | 3.9 | 4.1 | Base qty. | | 2500 |
| P1 | 7.9 | 8.1 | Bulk qty. | | 2500 |
| P2 | 1.9 | 2.1 | | | |
| R | 40 | | | | |
| T | 0.25 | 0.35 | | | |
| W | 15.7 | 16.3 | | | |

## Revision history

Table 6. **Document revision history**

| Date | Version | Changes |
|---|---|---|
| 29-Mar-2021 | 1 | Initial release. |

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