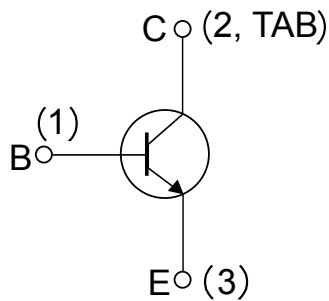
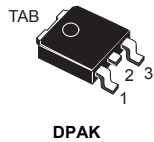


## Low voltage NPN power transistor



### 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

<b>Order code</b>	MJD3055T4
<b>Marking</b>	MJD3055
<b>Package</b>	DPAK
<b>Packing</b>	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 $T_C = 25^\circ\text{C}$	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

$T_{\text{case}} = 25^{\circ}\text{C}$  unless otherwise specified.

**Table 3. Electrical characteristics**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_{\text{CEX}}$	Collector cut-off current	$V_{\text{CE}} = 70 \text{ V}, V_{\text{BE}} = -1.5 \text{ V}$			20	$\mu\text{A}$
		$V_{\text{CE}} = 70 \text{ V}, T_{\text{J}} = 150^{\circ}\text{C}, V_{\text{BE}} = -1.5 \text{ V}^{(1)}$			2	$\text{mA}$
$I_{\text{CBO}}$	Collector cut-off current	$V_{\text{CB}} = 70 \text{ V}, I_{\text{E}} = 0 \text{ A}$			20	$\mu\text{A}$
		$V_{\text{CB}} = 70 \text{ V}, T_{\text{J}} = 150^{\circ}\text{C}, I_{\text{E}} = 0 \text{ A}^{(1)}$			2	$\text{mA}$
$I_{\text{CEO}}$	Collector cut-off current	$V_{\text{CE}} = 30 \text{ V}, I_{\text{B}} = 0 \text{ A}$			50	$\mu\text{A}$
$I_{\text{EBO}}$	Emitter cut-off current	$V_{\text{EB}} = 5 \text{ V}$ $I_{\text{C}} = 0 \text{ A}$			0.5	$\text{mA}$
$V_{\text{CEO(sus)}}^{(2)}$	Collector-emitter sustaining voltage	$I_{\text{C}} = 30 \text{ mA}$ $I_{\text{B}} = 0 \text{ A}$	60			$\text{V}$
$V_{\text{CE(sat)}}^{(2)}$	Collector-emitter saturation voltage	$I_{\text{C}} = 4 \text{ A}, I_{\text{B}} = 0.4 \text{ A}$			1.1	$\text{V}$
		$I_{\text{C}} = 10 \text{ A}, I_{\text{B}} = 3.3 \text{ A}$			8	
$V_{\text{BE(on)}}^{(2)}$	Base-emitter voltage	$I_{\text{C}} = 4 \text{ A}, V_{\text{CE}} = 4 \text{ V}$			1.8	$\text{V}$
$h_{\text{FE}}^{(2)}$	DC current gain	$I_{\text{C}} = 4 \text{ A}, V_{\text{CE}} = 4 \text{ V}$	20		100	
		$I_{\text{C}} = 10 \text{ A}, V_{\text{CE}} = 4 \text{ V}$	5			
$f_{\text{T}}$	Transition frequency	$I_{\text{C}} = 0.5 \text{ A}, V_{\text{CE}} = 10 \text{ V}, f = 500 \text{ kHz}$	2			$\text{MHz}$

1. Defined by design, not subject to production test.

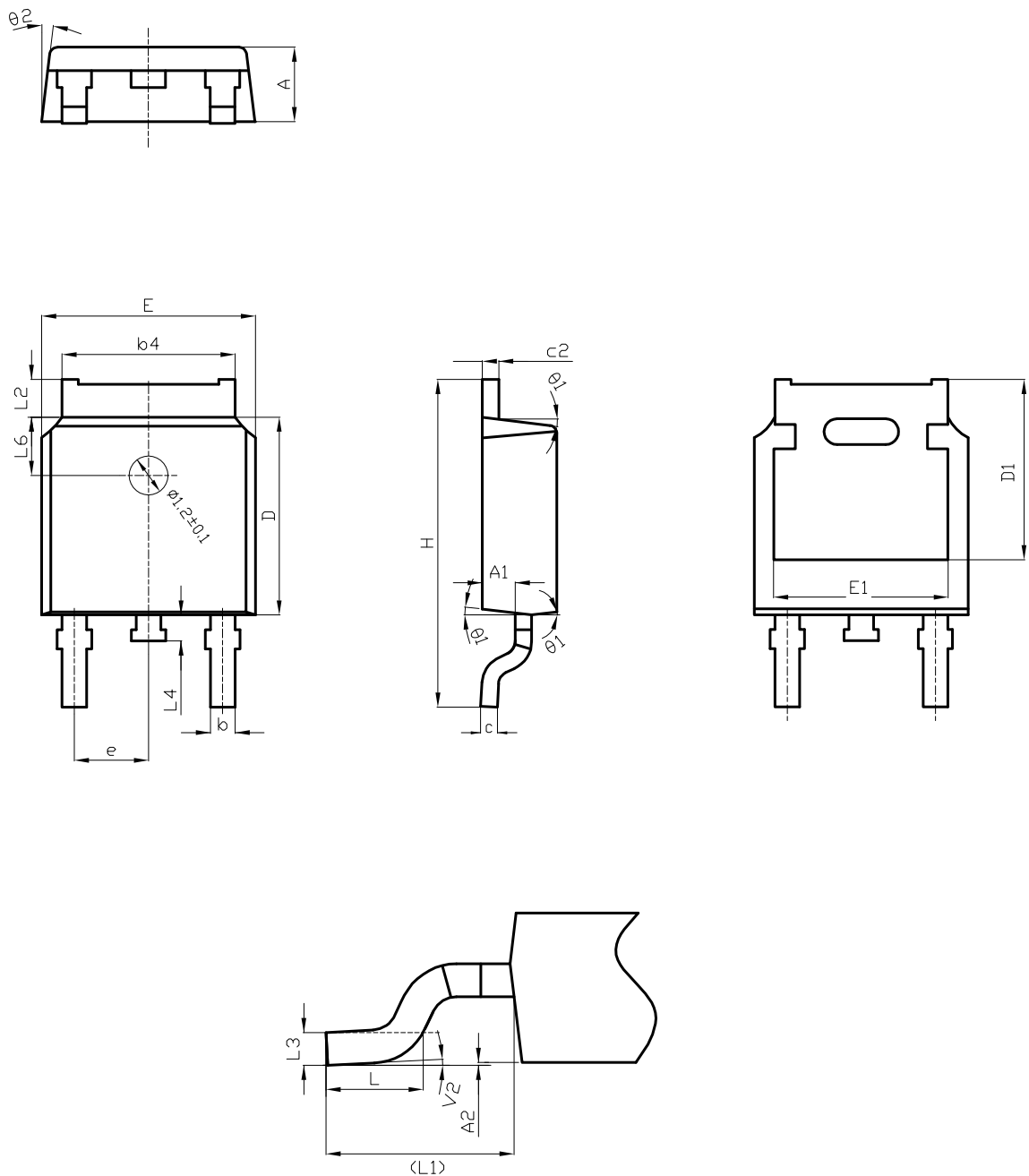
2. Pulsed: Pulse duration = 300  $\mu\text{s}$ , duty cycle 1.5%.

### 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](http://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

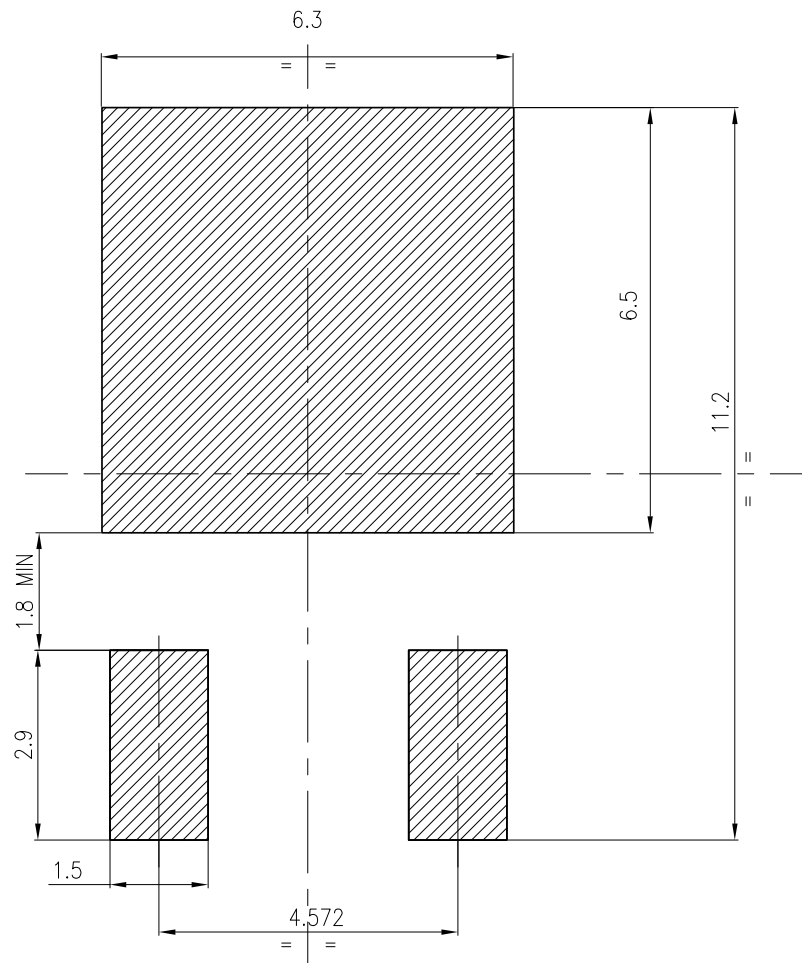


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**Table 4. DPAK (TO-252) type C2 mechanical data**

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°

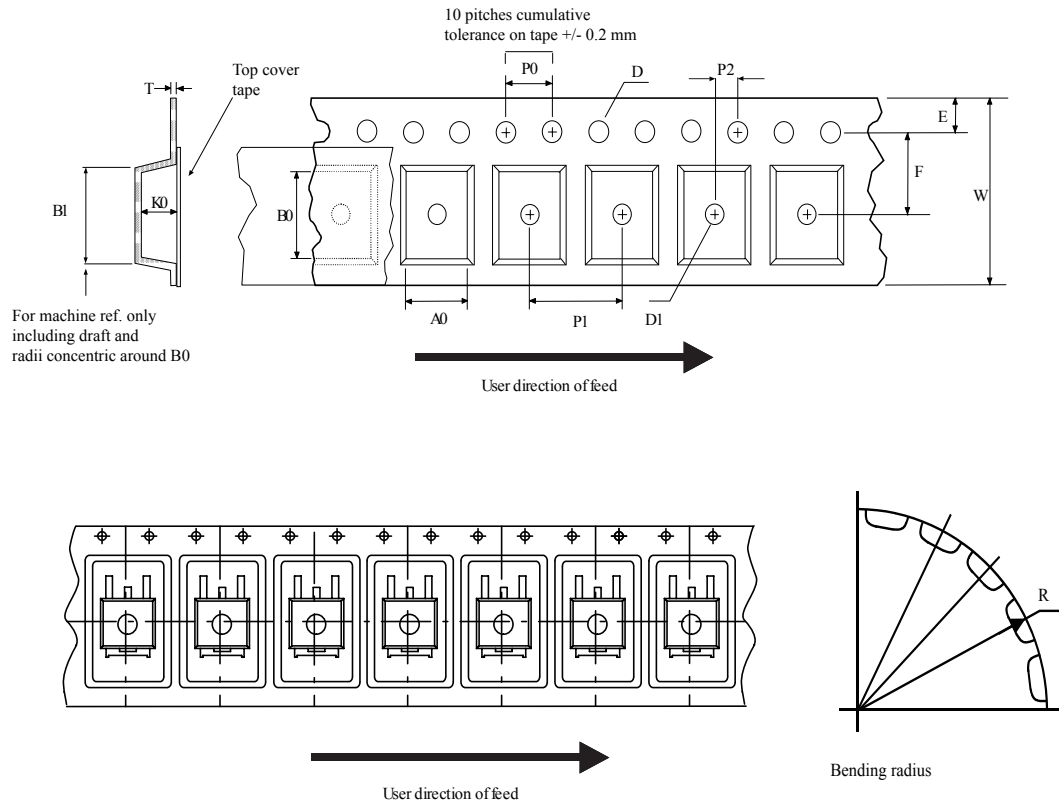
Figure 2. DPAK (TO-252) recommended footprint (dimensions are in mm)



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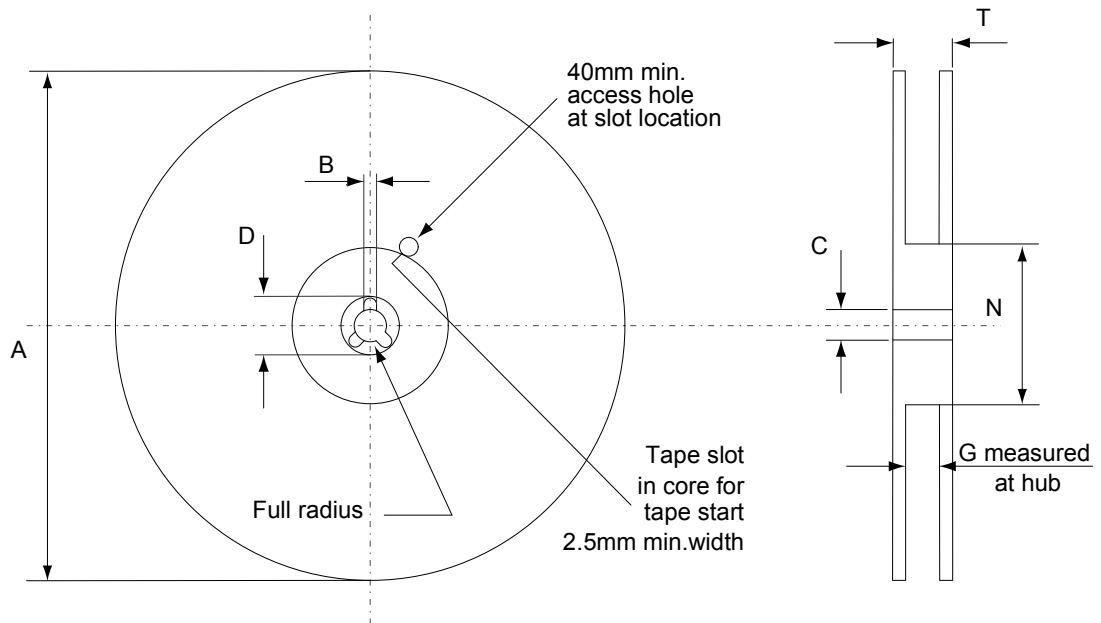
### 3.2 DPAK (TO-252) packing information

Figure 3. DPAK (TO-252) tape outline



AM08852v1

Figure 4. DPAK (TO-252) reel outline



AM06038v1

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

Dim.	Tape		Dim.	Reel	
	mm			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.