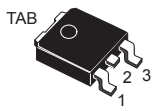
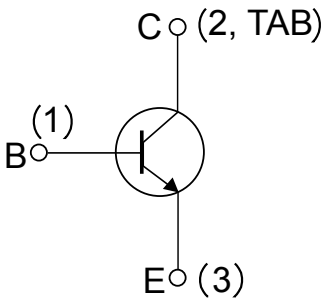
MJD3055T4

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 I_C = 0 A			0.5	mA
$V_{CEO(sus)}$ (2)	Collector-emitter sustaining voltage	I_C = 30 mA 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

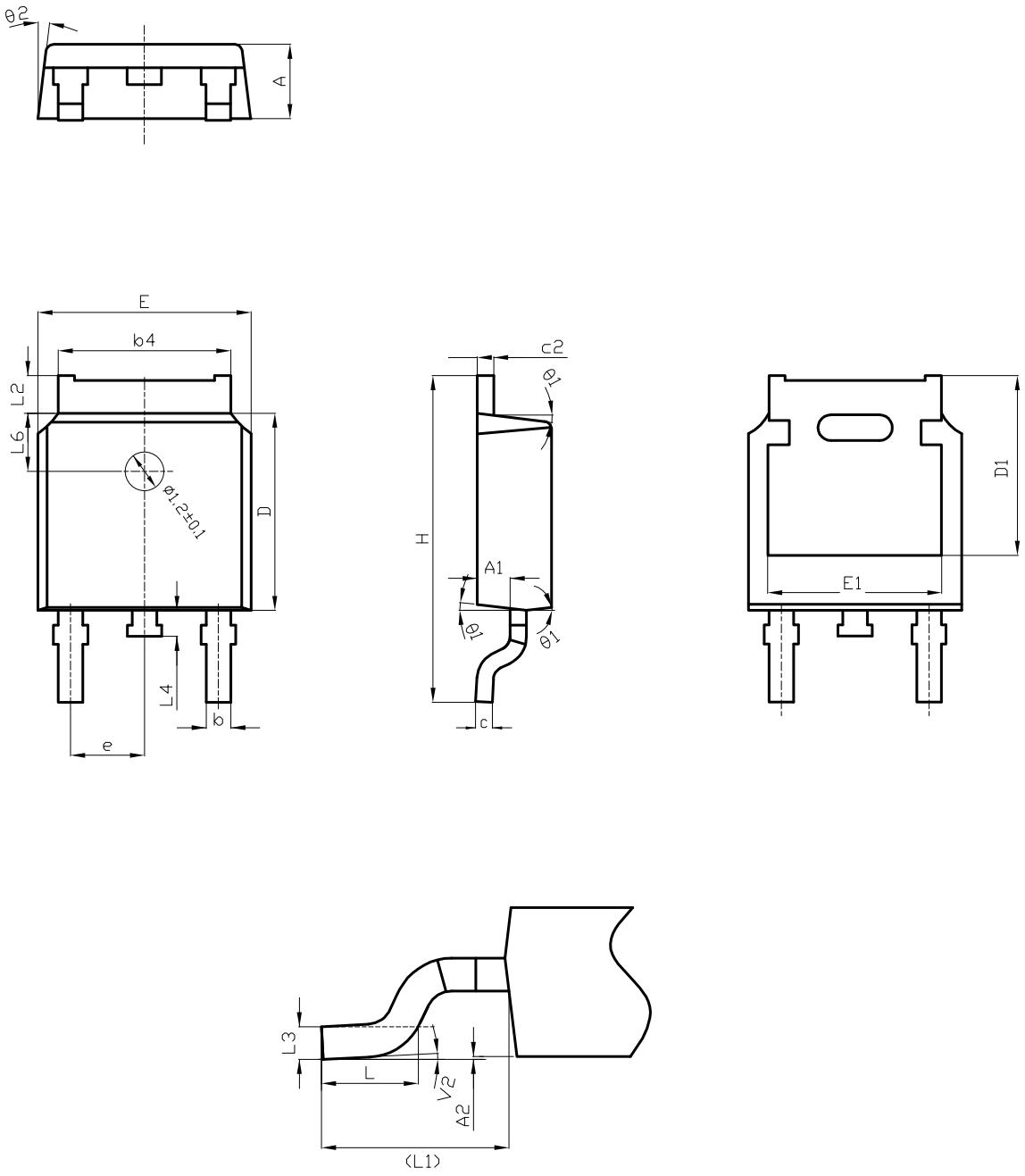


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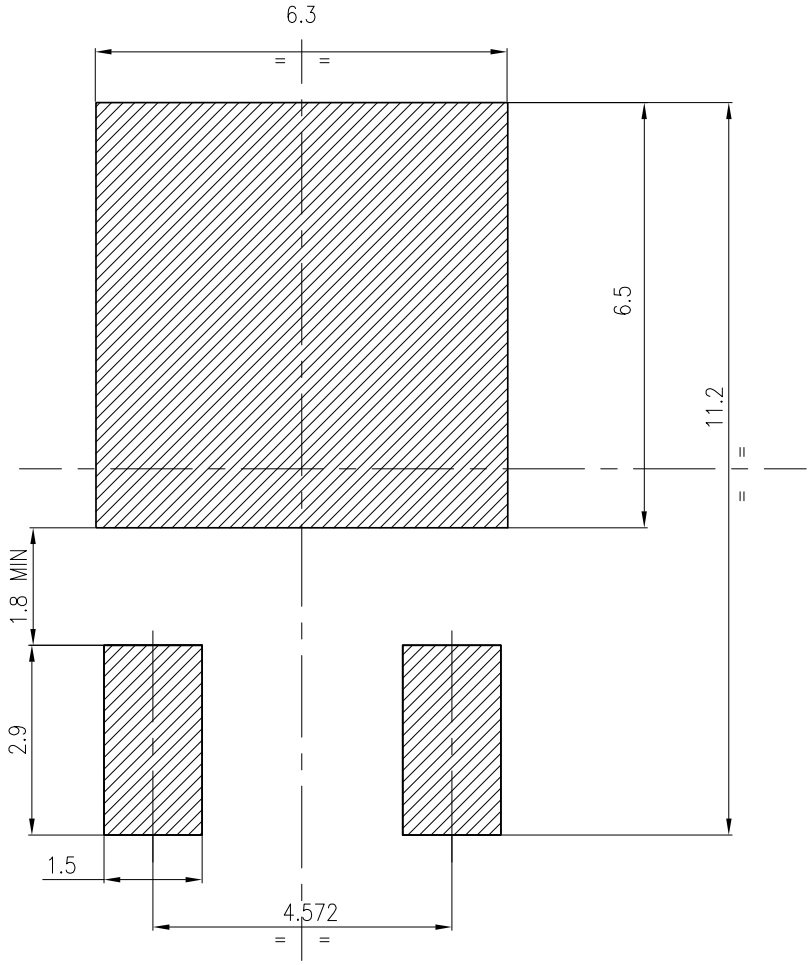
Table 4. **DPAK (TO-252) type C2 mechanical data**

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**

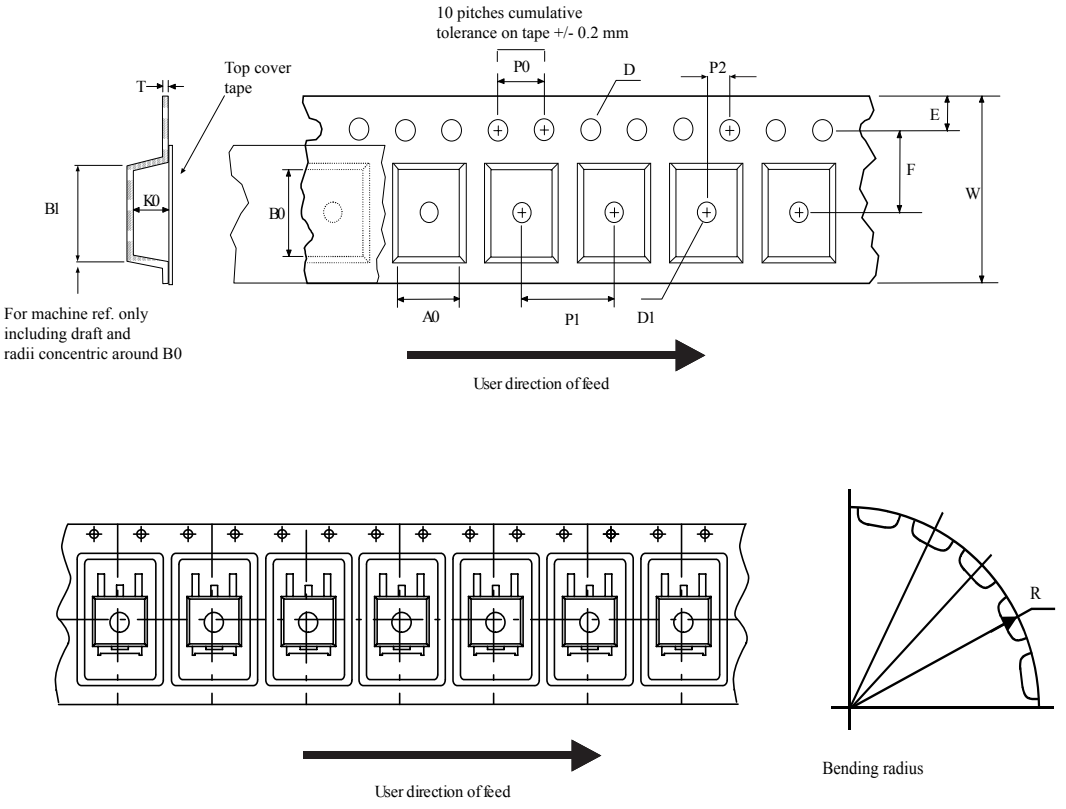

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Figure 4. **DPAK (TO-252) reel outline**

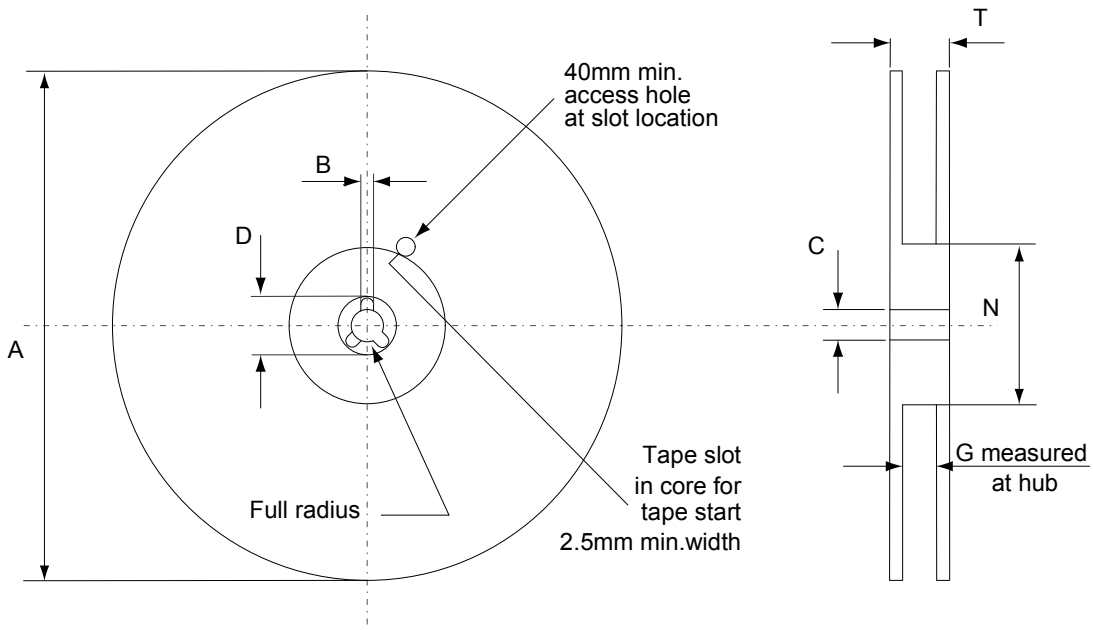

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Table 5. **DPAK (TO-252) tape and reel mechanical data**

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.