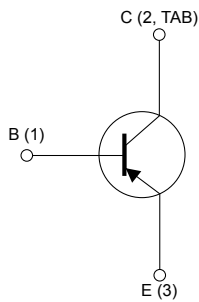
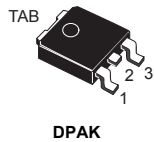


Low voltage fast-switching PNP power transistor



SC08810

Features

- Very low collector-emitter saturation voltage
- High current gain characteristic
- Fast-switching speed

Applications

- CCFL drivers
- Voltage regulators
- Relay drivers
- High efficiency low voltage switching applications

Description

The device is manufactured in PNP planar technology using a “Base Island” layout. The resulting transistor shows exceptional high gain performance coupled with very low saturation voltage.



Product status link

[STD2805T4](#)

Product summary

Order code	STD2805T4
Marking	D2805
Package	DPAK
Packing	Tape and reel

1 Electrical ratings

Table 1. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base voltage ($I_E = 0$ A)	-60	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$ A)	-60	A
V_{EBO}	Emitter-base voltage ($I_C = 0$ A)	-6	A
I_C	Collector current	-5	A
I_{CM}	Collector peak current ($t_p < 5$ ms)	-10	A
I_B	Base current	-2	A
P_{TOT}	Total power dissipation at $T_C = 25$ °C	15	W
T_{stg}	Storage temperature range	-65 to 150	°C
T_J	Operating junction temperature range		°C

Table 2. Thermal data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal resistance, junction-to-case	8.33	°C/W
R_{thJA}	Thermal resistance, junction-to-ambient	100	°C/W

2 Electrical characteristics

$T_C = 25\text{ °C}$ unless otherwise specified.

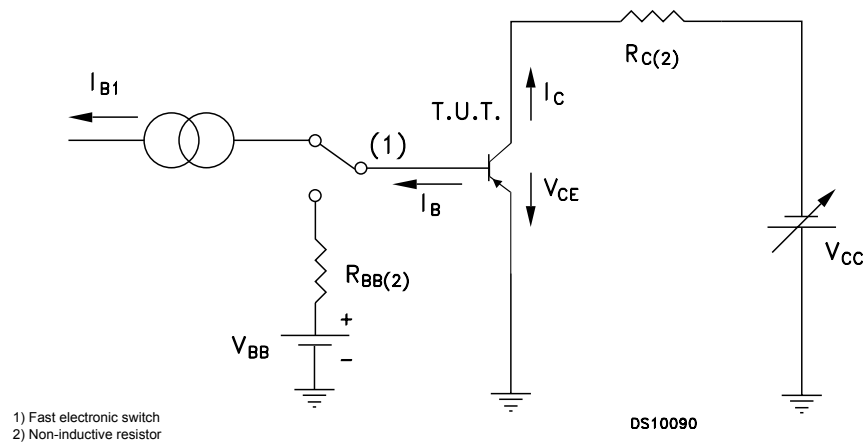
Table 3. Electrical characteristics

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current	$I_E = 0\text{ A}, V_{CB} = -60\text{ V}$				-0.1	μA
I_{EBO}	Emitter cut-off current	$I_C = 0\text{ A}, V_{EB} = -5\text{ V}$				-0.1	μA
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_E = 0\text{ A}, I_C = -100\text{ }\mu\text{A}$		-60			V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_B = 0\text{ A}, I_C = -1\text{ mA}$		-60			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_C = 0\text{ A}, I_E = -100\text{ }\mu\text{A}$		-6			V
$V_{CE(sat)}^{(1)}$	Collector-emitter saturation voltage	$I_C = -100\text{ mA}$	$I_B = -5\text{ mA}$			-50	mV
		$I_C = -2\text{ A}$	$I_B = -50\text{ mA}$		-150	-300	
		$I_C = -3\text{ A}$	$I_B = -150\text{ mA}$		-200	-400	
		$I_C = -5\text{ A}$	$I_B = -200\text{ mA}$			-600	
$V_{BE(sat)}^{(1)}$	Base-emitter saturation voltage	$I_C = -2\text{ A}$	$I_B = -50\text{ mA}$		-0.9	-1.2	V
$h_{FE}^{(1)}$	DC current gain	$I_C = -100\text{ mA}$	$V_{CE} = -2\text{ V}$	200		400	
		$I_C = -5\text{ A}$	$V_{CE} = -2\text{ V}$	85			
		$I_C = -10\text{ A}$	$V_{CE} = -2\text{ V}$	20			
f_t	Transition frequency	$V_{CE} = -10\text{ V}$	$I_C = -50\text{ mA}$		150		MHz
C_{CBO}	Collector-base capacitance	$V_{CB} = -10\text{ V}$	$f = 1\text{ MHz}$		60		pF
t_{on}	Turn-on time	Resistive load: $V_{CC} = -30\text{ V}, I_C = -1\text{ A}, I_{B1} = -I_{B2} = -0.1\text{ A}$			80		ns
t_s	Storage time				600		ns
t_f	Fall time				70		ns

1. Pulsed duration = 300 μs , duty cycle $\leq 1.5\%$

3 Test circuits

Figure 1. Resistive load switching test circuit

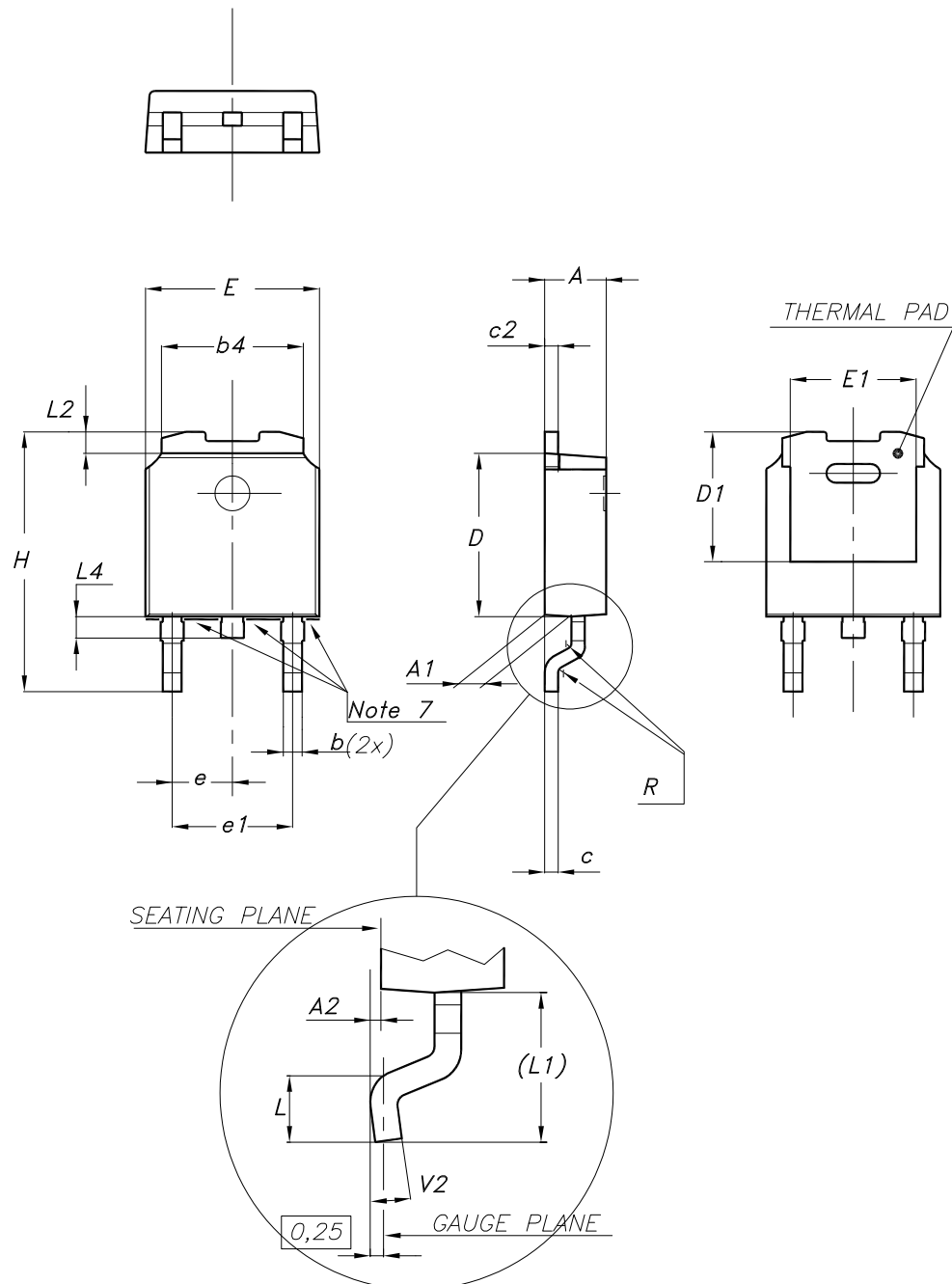


4 Package information

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.

4.1 DPAK (TO-252) package information

Figure 2. DPAK (TO-252) type A package outline

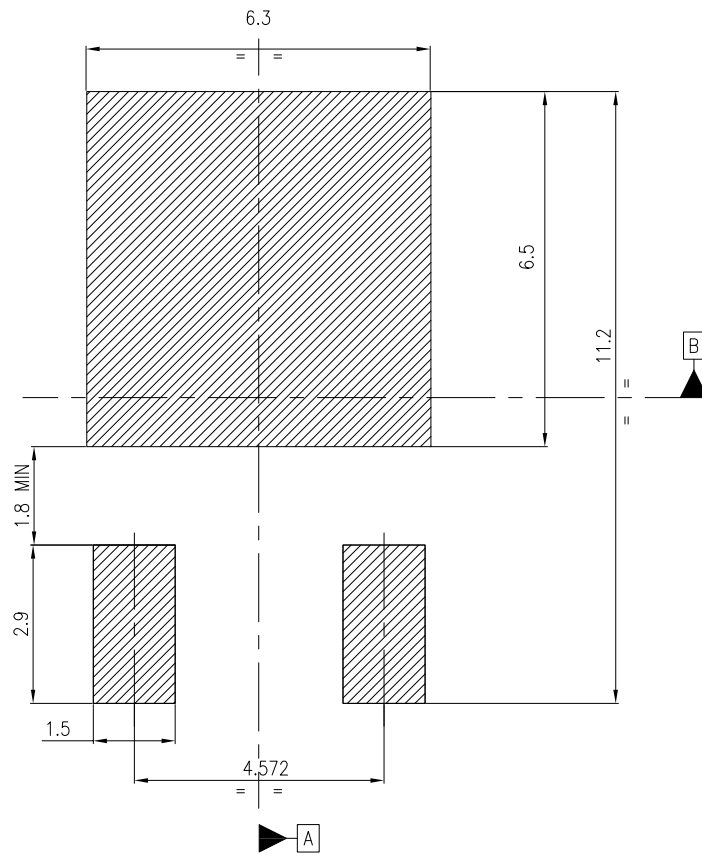


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Table 4. DPAK (TO-252) type A mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	2.20		2.40
A1	0.90		1.10
A2	0.03		0.23
b	0.64		0.90
b4	5.20		5.40
c	0.45		0.60
c2	0.48		0.60
D	6.00		6.20
D1	4.95	5.10	5.25
E	6.40		6.60
E1	4.60	4.70	4.80
e	2.159	2.286	2.413
e1	4.445	4.572	4.699
H	9.35		10.10
L	1.00		1.50
(L1)	2.60	2.80	3.00
L2	0.65	0.80	0.95
L4	0.60		1.00
R		0.20	
V2	0°		8°

Figure 3. DPAK (TO-252) recommended footprint (dimensions are in mm)



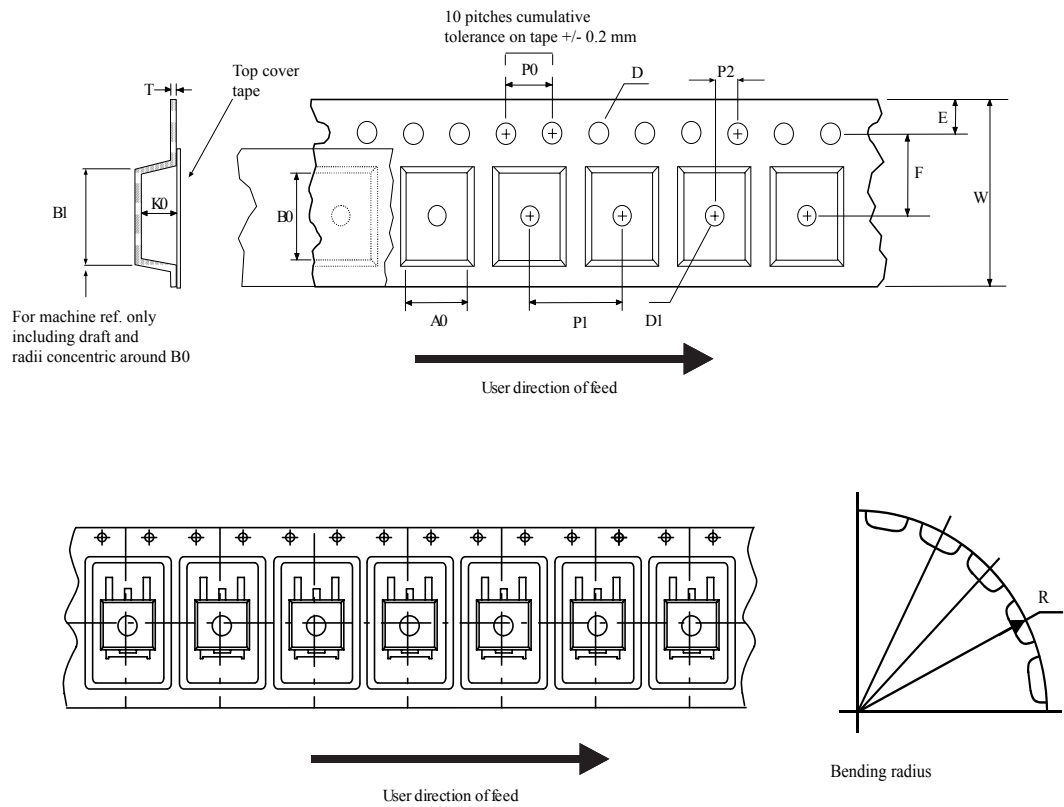
Notes:

- 1) This footprint is able to ensure insulation up to 630 Vrms (according to CEI IEC 664-1)
- 2) The device must be positioned within $\boxed{\oplus 0.05 \text{ A B}}$

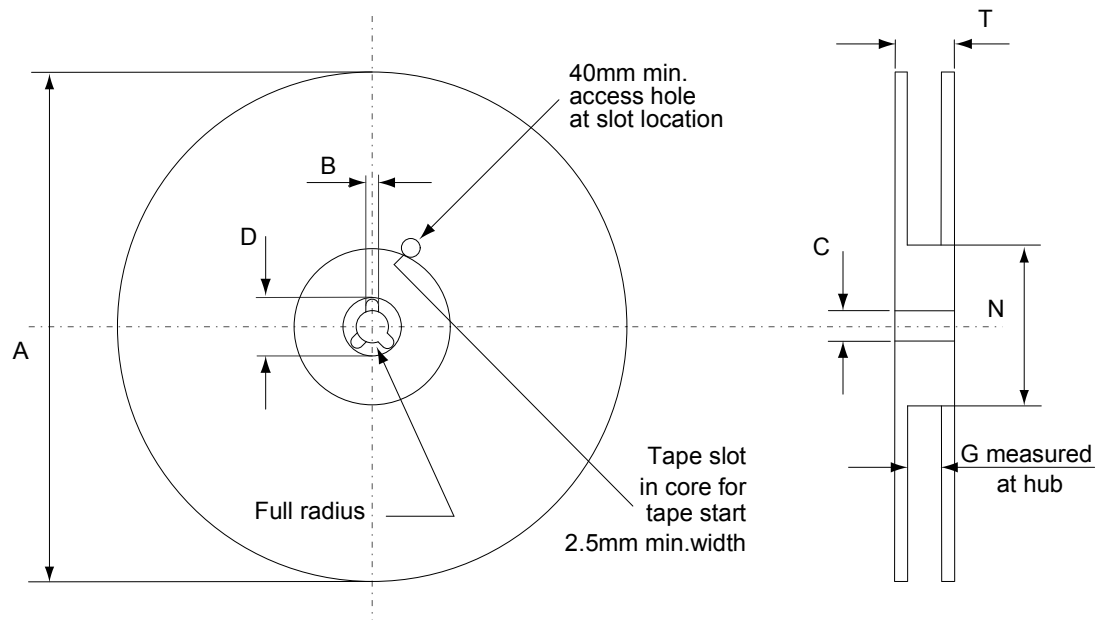
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4.2 DPAK (TO-252) packing information

Figure 4. DPAK (TO-252) tape outline



AM08852v1

Figure 5. 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	Revision	Changes
10-Jan-2024	1	First release.

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