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**PNP MEDIUM POWER TRANSISTOR**


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**Features**

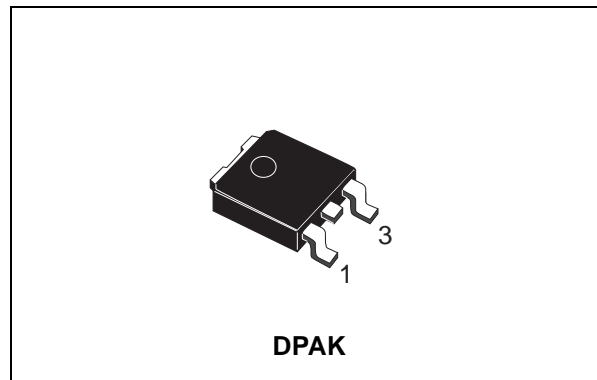
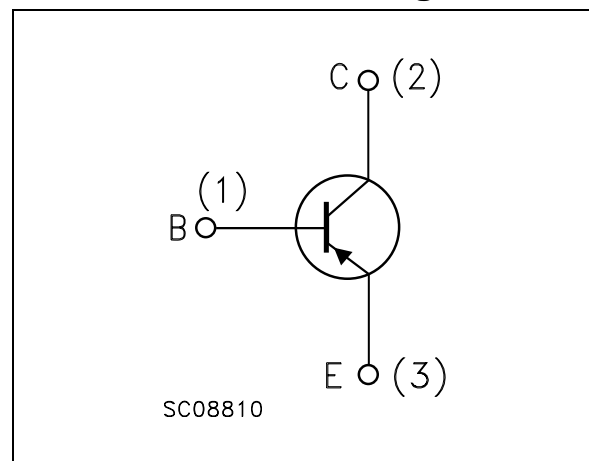
- SURFACE MOUNTING DEVICE IN MEDIUM POWER DPAK PACKAGE
- AVAILABLE IN TAPE & REEL PACKING
- IN COMPLIANCE WITH THE 2002/93/EC EUROPEAN DIRECTIVE

**Applications**

- VOLTAGE REGULATION
- RELAY DRIVER
- GENERIC SWITCH

**Description**

The STD826 is PNP transistor manufactured using planar Technology resulting in rugged high performance devices.


**Internal Schematic Diagram**

**Order codes**

Part Number	Marking	Package	Packing
STD826T4	D826	DPAK	Tape & reel

# 1 Absolute Maximum Ratings

**Table 1. Absolute Maximum Rating**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	-60	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	-30	V
$V_{EBO}$	Collector-Base Voltage ( $I_C = 0$ )	-5	V
$I_C$	Collector Current	-3	A
$I_{CM}$	Collector Peak Current ( $t_p < 5\text{ms}$ )	-6	A
$I_B$	Base Current	-1	A
$I_{BM}$	Base Peak Current ( $t_p < 5\text{ms}$ )	-2	A
$P_{TOT}$	Total dissipation at $T_c = 25^\circ\text{C}$	15	W
$T_{STG}$	Storage Temperature	-65 to 150	$^\circ\text{C}$
$T_J$	Max. Operating Junction Temperature	150	$^\circ\text{C}$

**Table 2. Thermal Data**

Symbol	Parameter	Value	Unit
$R_{thJ-case}$	Thermal Resistance Junction-Case Max	8.33	$^\circ\text{C/W}$

## 2 Electrical Characteristics

**Table 3. Electrical Characteristics** ( $T_{CASE} = 25^{\circ}C$ ; unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CES}$	Collector Cut-off Current ( $V_{BE} = 0$ )	$V_{CE} = -60V$			-10	$\mu A$
$I_{CEO}$	Collector Cut-off Current ( $I_B = 0$ )	$V_{CE} = -30V$			-100	$\mu A$
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = -5V$			-10	$\mu A$
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_E = 0$ )	$I_C = -100\mu A$	-60			V
$V_{(BR)CEO}$ <i>Note: 1</i>	Collector-Emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = -10\text{ mA}$	-30			V
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage ( $I_C = 0$ )	$I_E = -100\mu A$	-5			V
$V_{CE(sat)}$ <i>Note: 1</i>	Collector-Emitter Saturation Voltage	$I_C = -1\text{ A}$ $I_B = -50\text{ mA}$ $I_C = -2\text{ A}$ $I_B = -100\text{ mA}$ $I_C = -3\text{ A}$ $I_B = -150\text{ mA}$			-0.4 -0.7 -1.1	V V V
$V_{BE(sat)}$ <i>Note: 1</i>	Base-Emitter Saturation Voltage	$I_C = -2\text{ A}$ $I_B = -100\text{ mA}$			-1.2	V
$h_{FE}$	DC Current Gain	$I_C = -100\text{ mA}$ $V_{CE} = -2\text{ V}$ $I_C = -1\text{ A}$ $V_{CE} = -2\text{ V}$ $I_C = -3\text{ A}$ $V_{CE} = -2\text{ V}$	100 80 30		300	
$f_T$	Transistor Frequency	$V_{CE} = -10\text{ V}$ $I_C = -0.1\text{ A}$		100		MHz

*Note: 1 Pulsed duration = 300  $\mu s$ , duty cycle  $\leq 1.5\%$ .*

## 2.1 Electrical characteristics (curve)

Figure 1. DC Current Gain

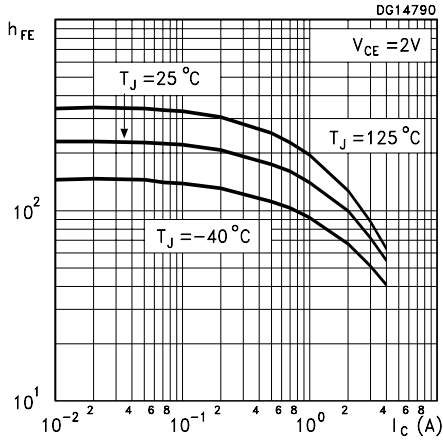


Figure 2. DC Current Gain

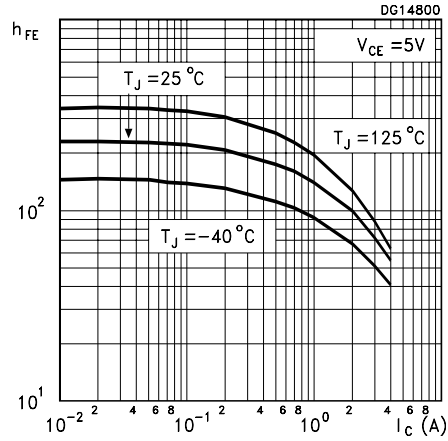


Figure 3. Collector-emitter saturation voltage Figure 4. Base-emitter saturation voltage

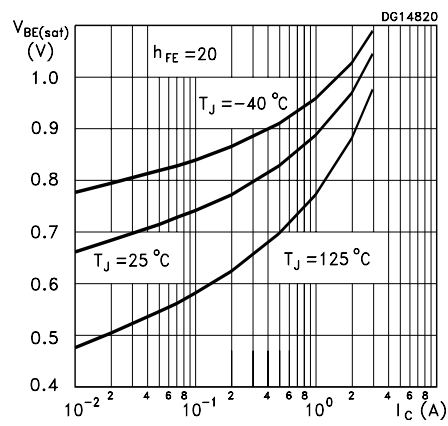
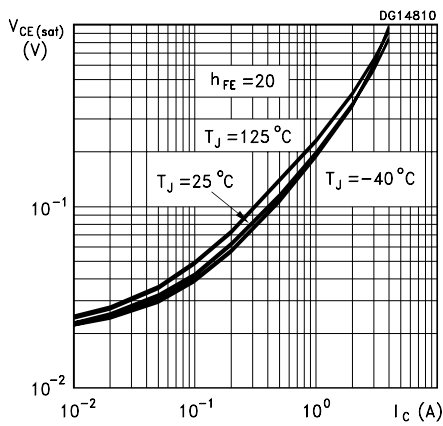


Figure 5. Switching times on resistive load

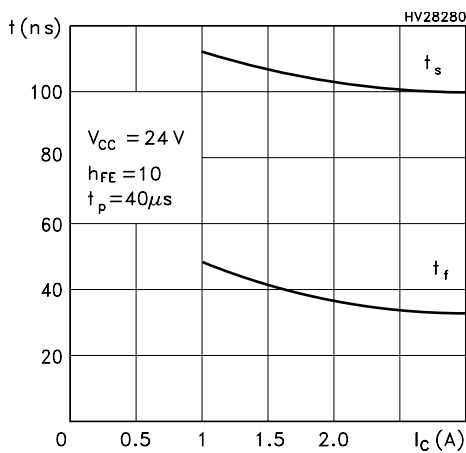


Figure 6. Switching times resistive on load

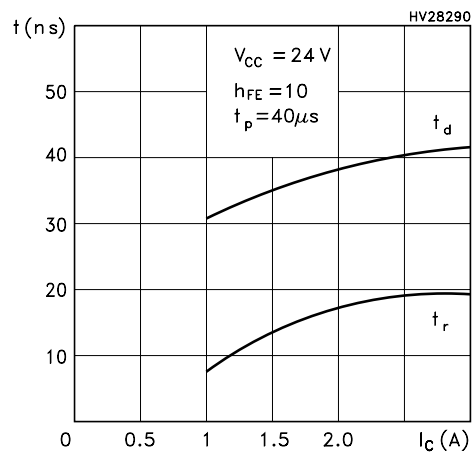
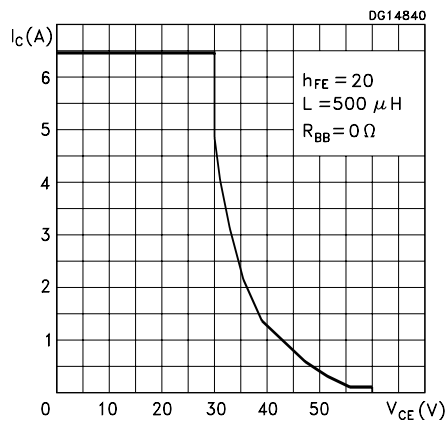


Figure 7. Reverse biased area

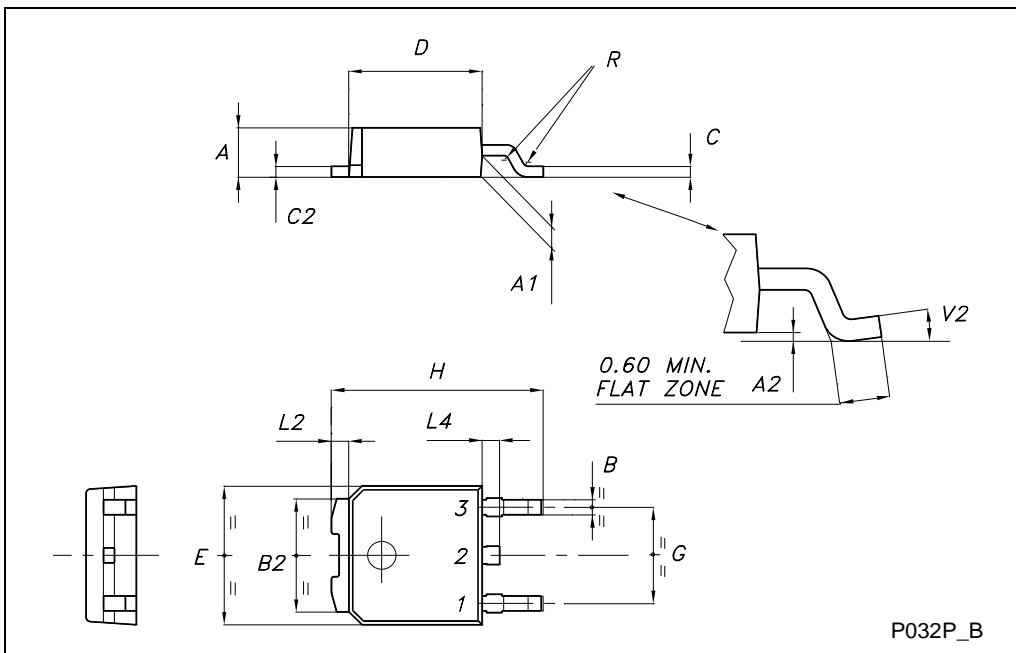


### 3 Package Mechanical Data

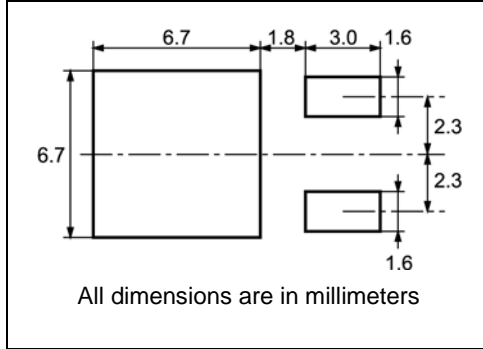
In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: [www.st.com](http://www.st.com)

**TO-252 (DPAK) MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.20		2.40	0.087		0.094
A1	0.90		1.10	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.90	0.025		0.035
B2	5.20		5.40	0.204		0.213
C	0.45		0.60	0.018		0.024
C2	0.48		0.60	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.252		0.260
G	4.40		4.60	0.173		0.181
H	9.35		10.10	0.368		0.398
L2		0.8			0.031	
L4	0.60		1.00	0.024		0.039
V2	0°		8°	0°		0°



**DPAK FOOTPRINT**



**TAPE AND REEL SHIPMENT**

40 mm min. Access hole at slot location

Full radius

Tape slot in core for tape start 2.5mm min. width

G measured at hub

**REEL MECHANICAL DATA**

DIM.	mm		inch	
	MIN.	MAX.	MIN.	MAX.
A		330		12.992
B	1.5		0.059	
C	12.8	13.2	0.504	0.520
D	20.2		0.795	
G	16.4	18.4	0.645	0.724
N	50		1.968	
T		22.4		0.881

**TAPE MECHANICAL DATA**

DIM.	mm		inch	
	MIN.	MAX.	MIN.	MAX.
A0	6.8	7	0.267	0.275
B0	10.4	10.6	0.409	0.417
B1		12.1		0.476
D	1.5	1.6	0.059	0.063
D1	1.5		0.059	
E	1.65	1.85	0.065	0.073
F	7.4	7.6	0.291	0.299
K0	2.55	2.75	0.100	0.108
P0	3.9	4.1	0.153	0.161
P1	7.9	8.1	0.311	0.319
P2	1.9	2.1	0.075	0.082
R	40		1.574	
W	15.7	16.3	0.618	0.641

10 pitches cumulative tolerance on tape +/- 0.2 mm

Center line of cavity

User Direction of Feed

For machine ref. only including draft and radii concentric around B0

TRL

FEED DIRECTION

Bending radius R min.



## 4 Revision History

Date	Revision	Changes
03-Aug-2005	1	Initial release.

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