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STD826

PNP MEDIUM POWER TRANSISTOR

Features

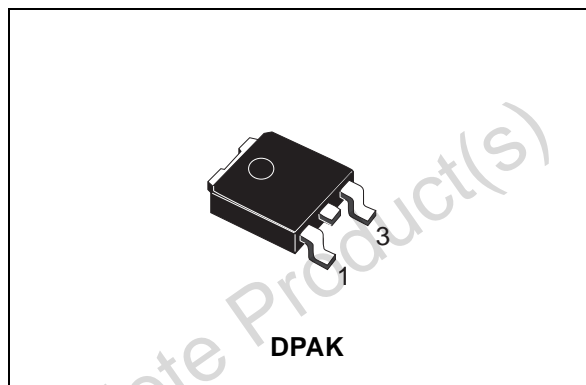
- SURFACE MOUNTING DEVICE IN MEDIUM POWER DPAK PACKAGE
- AVAILABLE IN TAPE & REEL PACKING
- IN COMPLIANCE WITH THE 2002/93/EC EUROPEAN DIRECTIVE

Applications

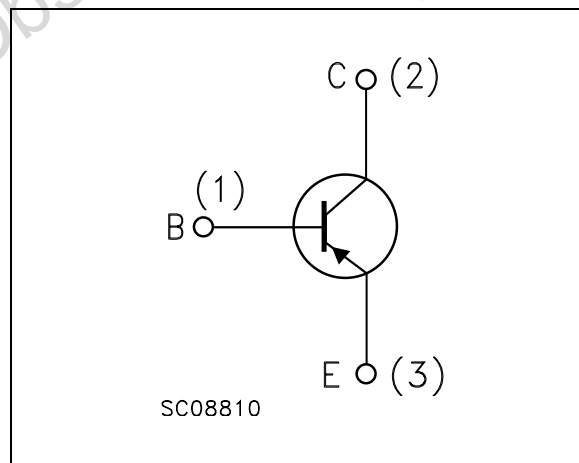
- VOLTAGE REGULATION
- RELAY DRIVER
- GENERIC SWITCH

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 ($t_p < 5ms$) | -6 | A |
| I_B | Base Current | -1 | A |
| I_{BM} | Base Peak Current ($t_p < 5ms$) | -2 | A |
| P_{TOT} | Total dissipation at $T_C = 25^\circ C$ | 15 | W |
| T_{STG} | Storage Temperature | -65 to 150 | $^\circ C$ |
| T_J | Max. Operating Junction Temperature | 150 | $^\circ C$ |

Table 2. Thermal Data

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

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 | μA |
| I_{CEO} | Collector Cut-off Current ($I_B = 0$) | $V_{CE} = -30V$ | | | -100 | μA |
| I_{EBO} | Emitter Cut-off Current ($I_C = 0$) | $V_{EB} = -5V$ | | | -10 | μA |
| $V_{(BR)CBO}$ | 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 ($I_B = 0$) | $I_C = -10 mA$ | -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 | $I_C = -1 A$ $I_B = -50 mA$ $I_C = -2 A$ $I_B = -100 mA$ $I_C = -3 A$ $I_B = -150 mA$ | | | -0.4 -0.7 -1.1 | V V V |
| $V_{BE(sat)}$ <i>Note: 1</i> | Base-Emitter Saturation Voltage | $I_C = -2 A$ $I_B = -100 mA$ | | | -1.2 | V |
| h_{FE} | DC Current Gain | $I_C = -100 mA$ $V_{CE} = -2 V$ $I_C = -1 A$ $V_{CE} = -2 V$ $I_C = -3 A$ $V_{CE} = -2 V$ | 100 80 30 | | 300 | |
| f_T | Transistor Frequency | $V_{CE} = -10 V$ $I_C = -0.1 A$ | | 100 | | MHz |

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

2.1 Electrical characteristics (curve)

Figure 1. DC Current Gain

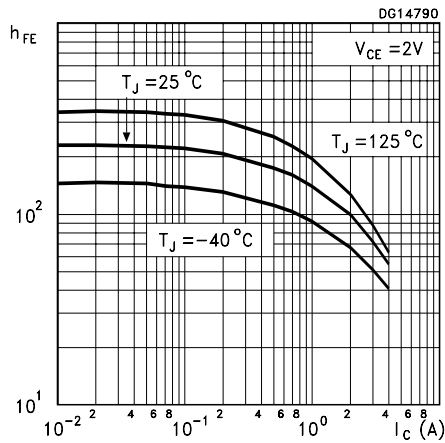


Figure 2. DC Current Gain

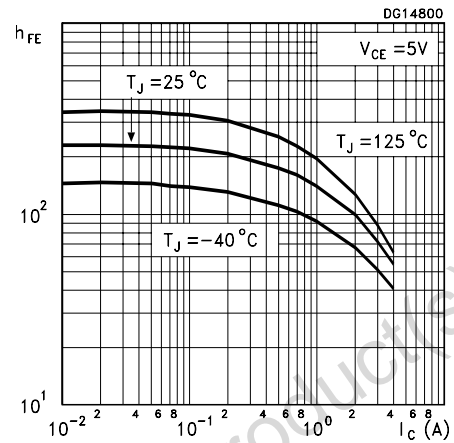


Figure 3. Collector-emitter saturation voltage **Figure 4. Base-emitter saturation voltage**

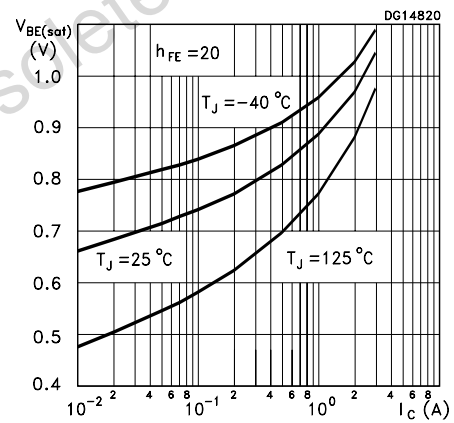
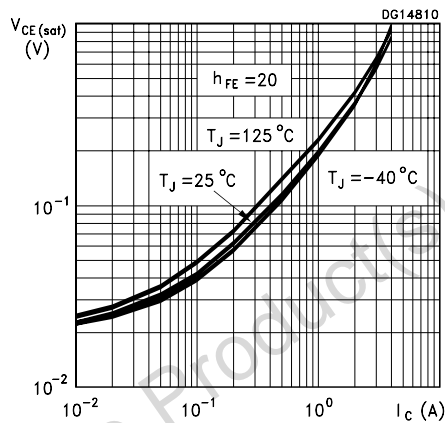


Figure 5. Switching times on resistive load

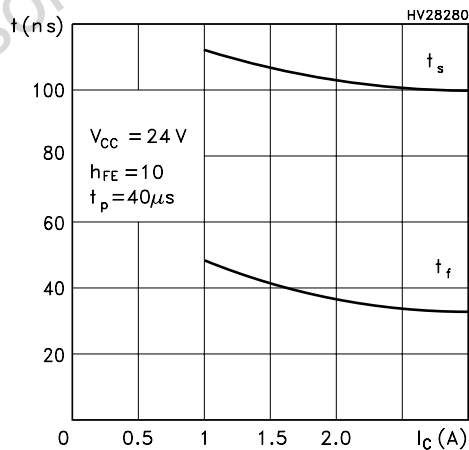
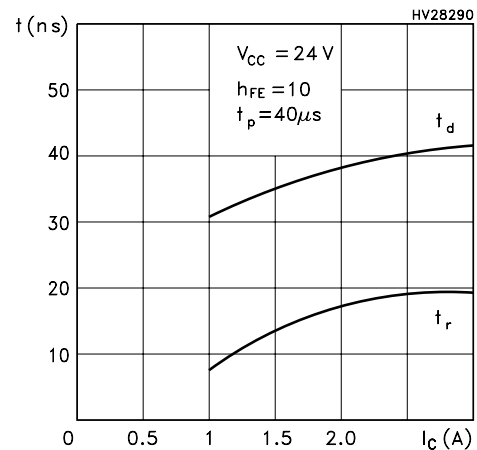


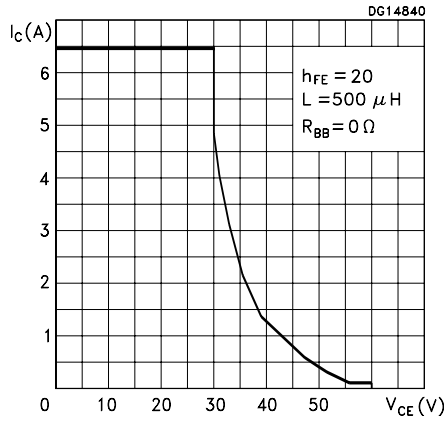
Figure 6. Switching times resistive on load



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2 Electrical Characteristics

Figure 7. Reverse biased area



Obsolete Product(s) - Obsolete Product(s)

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

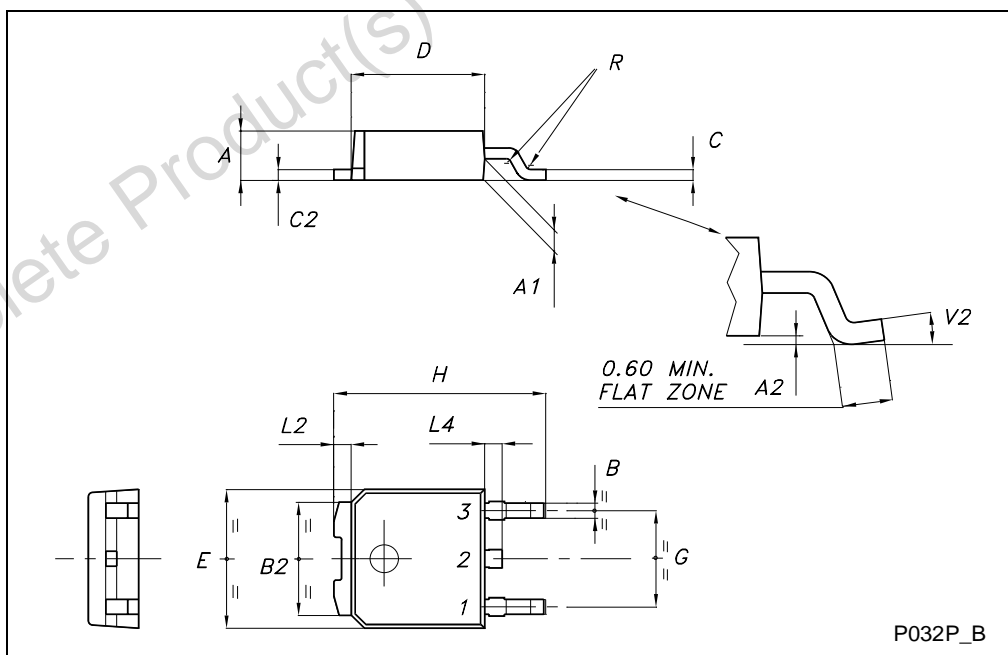
Obsolete Product(s) - Obsolete Product(s)

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3 Package Mechanical Data

TO-252 (DPAK) MECHANICAL DATA

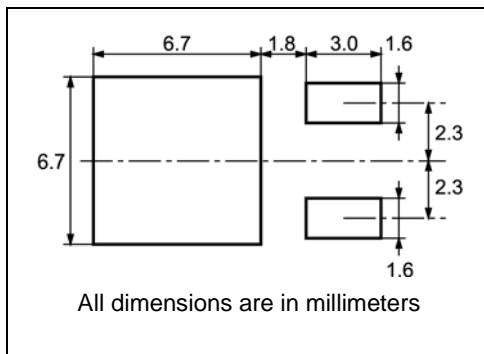
| DIM. | mm | | | inch | | |
|------|------|------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 2.20 | | 2.40 | 0.087 | | 0.094 |
| A1 | 0.90 | | 1.10 | 0.035 | | 0.043 |
| A2 | 0.03 | | 0.23 | 0.001 | | 0.009 |
| B | 0.64 | | 0.90 | 0.025 | | 0.035 |
| B2 | 5.20 | | 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° |



3 Package Mechanical Data

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DPAK FOOTPRINT



TAPE AND REEL SHIPMENT

40 mm min. Access hole at slot location

Full radius

Tape slot in core for tape start 25mm min. width

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

Bending radius R min.

FEED DIRECTION

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4 Revision History

4 Revision History

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

Obsolete Product(s) - Obsolete Product(s)

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