



Solid State Devices, Inc.

14830 Valley View Blvd * La Mirada, CA 90638

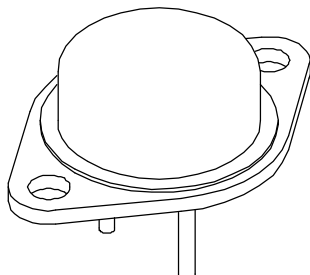
Phone: (562) 404-7855 * Fax: (562) 404-1773

ssdi@ssdi-power.com * www.ssdi-power.com

SFT6650/3

DESIGNER'S DATA SHEET

TO-3



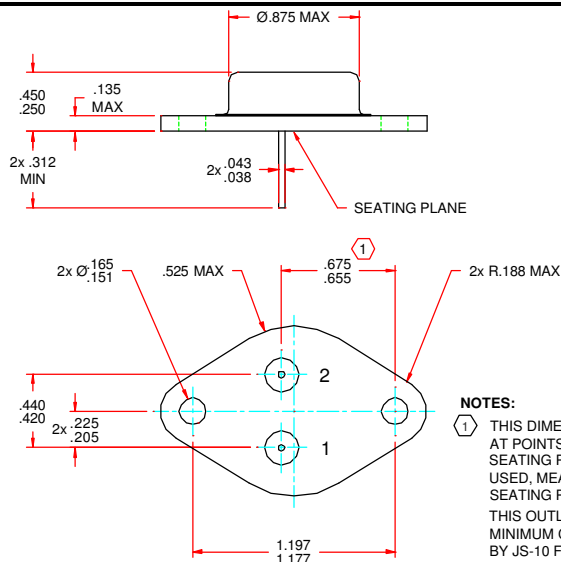
10 AMP / 80 Volts
50 MHz
PNP POWER DARLINGTON
BIPOLAR TRANSISTOR

Features:

- Low Saturation Voltage
- Hermetically Sealed, Isolated Package
- Direct Replacement for 2N6650
- TX, TXV, S-Level Screening Available, Equivalent to MIL-PRF-19500/527

| Maximum Ratings | | Symbol | Value | Units |
|--|--|----------------------|-------------|--------------|
| Collector – Emitter Voltage | | V_{CEO} | 80 | Volts |
| Collector – Base Voltage | | V_{CB0} | 80 | Volts |
| Emitter – Base Voltage | | V_{EBO} | 5 | Volts |
| Continuous Collector Current | | I_C | 10 | Amps |
| Maximum Base Current | | I_B | 0.25 | Amps |
| Power Dissipation | @ $T_A = 25^\circ C$ @ $T_C = 25^\circ C$ | P_{D1} P_{D2} | 5 85 | W |
| Operating & Storage Temperature | | Top & Tstg | -65 to +175 | $^\circ C$ |
| Maximum Thermal Resistance Junction to Case | | $R_{\theta JC}$ | 1.76 | $^\circ C/W$ |

TO-3



NOTES:
 (1) THIS DIMENSION SHALL BE MEASURED AT POINTS .050 - .055" BELOW THE SEATING PLANE. WHEN GAGE IS NOT USED, MEASUREMENT WILL BE MADE AT SEATING PLANE.
 THIS OUTLINE DOES NOT MEET THE MINIMUM CRITERIA ESTABLISHED BY JS-10 FOR REGISTRATION.

NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: TR0089A

DOC



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| Electrical Characteristics ^{4/} | | Symbol | Min | Typ | Max | Units |
|---|---|----------------|------|-------|--------|---------------|
| Collector to Emitter Sustaining Voltage | $I_C = 200\text{mA}$ | BV_{CEO} | 80 | — | — | V |
| Collector – Emitter Breakdown Voltage | $I_C = 200\text{ mA}; R_{BB} = 100\ \Omega$ | BV_{CER} | 80 | — | — | Volts |
| Collector Base Cutoff Current | $V_{CB} = 80\text{ V}$ | I_{CBO} | — | — | 1.0 | mA |
| Collector Emitter Cutoff Current | $V_{CE} = 80\text{ V}$ | I_{CEO} | — | 0.001 | 1.0 | mA |
| Collector Emitter Cutoff Current | $V_{CE} = 80\text{ V}, V_{BE} = 1.5\text{ V}$ | I_{CEX} | — | — | 0.3 | mA |
| Emitter Base Cutoff Current | $V_{EB} = 5.0\text{ V}$ | I_{EBO} | — | 0.001 | 10 | mA |
| DC Forward Current Transfer Ratio * | $V_{CE} = 3\text{V}, I_C = 1\text{ A}$ | H_{FE1} | 300 | 7,000 | — | |
| | $V_{CE} = 3\text{V}, I_C = 5\text{ A}$ | H_{FE2} | 1000 | 9,000 | 20,000 | |
| | $V_{CE} = 3\text{V}, I_C = 10\text{ A}$ | H_{FE3} | 100 | 1500 | — | |
| Collector to Emitter Saturation Voltage | $I_C = 5\text{ A}, I_B = 10\text{ mA}$ | $V_{CE(sat)1}$ | — | 1.4 | 2.0 | V |
| | $I_C = 10\text{ A}, I_B = 100\text{ mA}$ | $V_{CE(sat)2}$ | — | 2.2 | 3.0 | |
| Base to Emitter Voltage | $I_C = 5\text{ A}, V_{CE} = 3\text{V}$ | $V_{BE(on)1}$ | — | 2.0 | 2.8 | V |
| | $I_C = 10\text{ A}, V_{CE} = 3\text{V}$ | $V_{BE(on)2}$ | — | 2.8 | 4.5 | |
| Frequency Transition (Small Signal Current Gain) @ f= 1 MHz | $V_{CE}=5\text{V}, I_C = 1\text{ A}, f= 1\text{ MHz}$ | h_{fe} | 50 | 350 | 400 | |
| Output Capacitance | $V_{CB} = 10\text{V}, f = 1\text{MHz}$ | C_{obo} | — | 100 | 300 | pF |
| Switching characteristics | $V_{CC} = 30\text{V}, I_C = 5\text{ A},$ | t_{on} | — | 0.5 | 2.5 | μs |
| | $I_{B1} = I_{B2} = 20\text{ mA}$ | t_{off} | — | 2.0 | 10 | |
| Safe Operating Area $T_C = 25^\circ\text{C}, 1\text{ cycle}, 1\text{ sec}$ | $V_{CE} = 8.5\text{V}, I_C = 10\text{ A}$ | SOA1 | | | | |
| | $V_{CE} = 25\text{V}, I_C = 3.4\text{ A}$ | SOA2 | | | | |
| | $V_{CE} = 80\text{V}, I_C = 0.14\text{ A}$ | SOA3 | | | | |

NOTES:
 * Pulse Test: Pulse Width = 300 μsec , Duty Cycle = 2%.
 1/ For Ordering Information, Price, and Availability Contact Factory.
 2/ Screening per MIL-PRF-19500.
 3/ For Package Outlines Contact Factory.
 4/ Unless Otherwise Specified, All Electrical Characteristics @25°C.

Available Part Numbers:
 Consult Factory

| PIN ASSIGNMENT | | | |
|----------------|-----------|---------|-------|
| Package | Collector | Emitter | Base |
| TO-3 | Case | Pin 2 | Pin 1 |
| | | | |