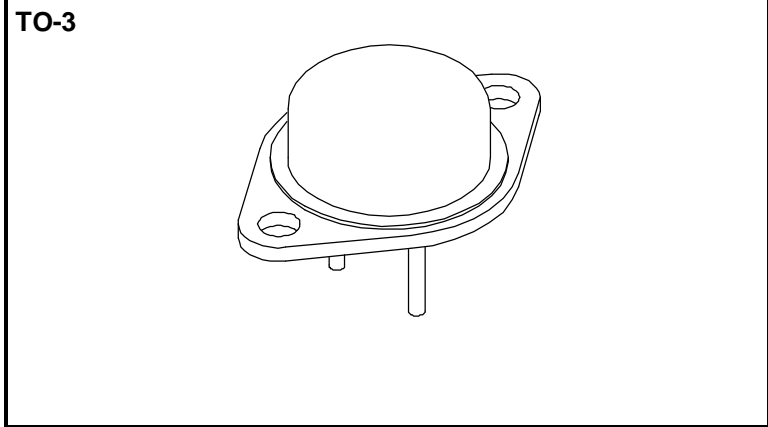




**Solid State Devices, Inc.**  
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# SFT6650/3

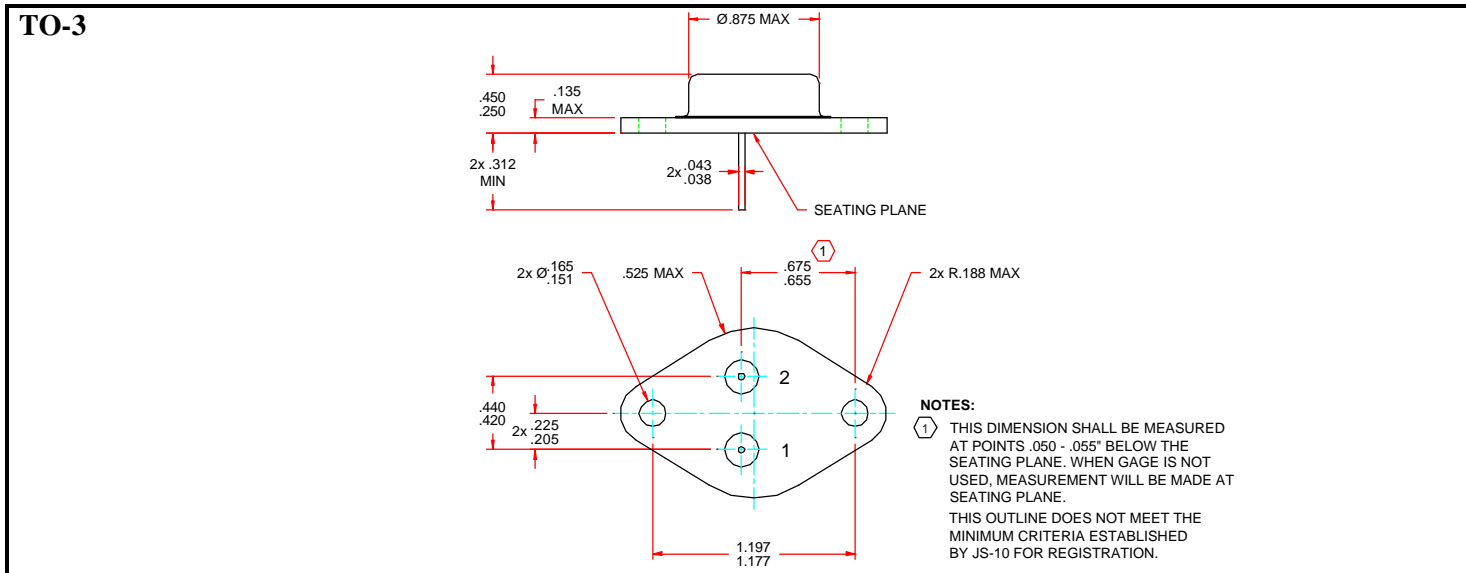
## DESIGNER'S DATA SHEET



**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	$P_{D1}$ $P_{D2}$	5 85	W
Operating & Storage Temperature	Top & Tstg	-65 to +175	°C
Maximum Thermal Resistance Junction to Case	$R_{qJC}$	1.76	°C/W





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# SFT6650/3

Electrical Characteristics <sup>4/</sup>		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 *	$V_{CE} = 3\text{V}, I_C = 1\text{ A}$ $V_{CE} = 3\text{V}, I_C = 5\text{ A}$ $V_{CE} = 3\text{V}, I_C = 10\text{ A}$	$H_{FE1}$ $H_{FE2}$ $H_{FE3}$	300 1000 100	7,000 9,000 1500	— 20,000 —	
Collector to Emitter Saturation Voltage	$I_C = 5\text{ A}, I_B = 10\text{ mA}$ $I_C = 10\text{ A}, I_B = 100\text{ mA}$	$V_{CE(sat)1}$ $V_{CE(sat)2}$	— —	1.4 2.2	2.0 3.0	V
Base to Emitter Voltage	$I_C = 5\text{ A}, V_{CE} = 3\text{V}$ $I_C = 10\text{ A}, V_{CE} = 3\text{V}$	$V_{BE(on)1}$ $V_{BE(on)2}$	— —	2.0 2.8	2.8 4.5	V
Frequency Transition (Small Signal Current Gain) @ $f = 1\text{ MHz}$	$V_{CE} = 5\text{V}, I_C = 1\text{ A}, f = 1\text{ MHz}$	$h_{fe}$	50	350	400	
Output Capacitance	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	$C_{obo}$	—	100	300	pF
Switching characteristics	$V_{CC} = 30\text{V}, I_C = 5\text{ A},$ $I_{B1} = I_{B2} = 20\text{ mA}$	$t_{on}$ $t_{off}$	— —	0.5 2.0	2.5 10	ms
Safe Operating Area $T_C = 25^\circ\text{C}, 1\text{ cycle}, 1\text{ sec}$	$V_{CE} = 8.5\text{V}, I_C = 10\text{ A}$ $V_{CE} = 25\text{V}, I_C = 3.4\text{ A}$ $V_{CE} = 80\text{V}, I_C = 0.14\text{ A}$	SOA1 SOA2 SOA3				

**NOTES:**

\* Pulse Test: Pulse Width = 300  $\mu\text{sec}$ , 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

**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**