



# Solid State Devices, Inc.

14701 Firestone Blvd \* La Mirada, CA 90638  
Phone: (562) 404-4474 \* Fax: (562) 404-1773  
ssdi@ssdi-power.com \* www.ssdi-power.com

## DESIGNER'S DATA SHEET

### Part Number / Ordering Information <sup>1/</sup>

SFT8600

└─ Screening <sup>2/</sup>

    — = Not Screened

    TX = TX Level

    TXV = TXV Level

    S = S Level

└─ Package

    /5 = TO-5

# SFT8600/5

## 1 AMP 1000 Volts NPN Transistor

### FEATURES:

- BVCEO to 400 volts
- Very Low Saturation Voltage
- Very Low Leakage
- High Gain from 20 mA to 250 mA
- 200°C Operating, Gold Eutectic Die Attach
- Superior Performance over JEDEC 2N5010-15 Series
- High Speed Switching  $t_f = 0.4\mu\text{S}$  TYP

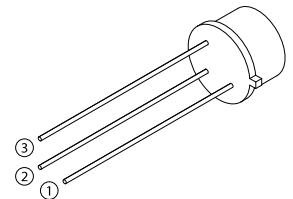
Maximum Ratings	Symbol	Value	Units
Collector – Emitter Voltage (RBE = 1KΩ)	V <sub>CEO</sub> V <sub>CER</sub>	400 1000	V
Collector – Base Voltage	V <sub>CB0</sub>	1000	V
Emitter – Base Voltage	V <sub>EBO</sub>	6	V
Collector Current	I <sub>C</sub>	1	A
Base Current	I <sub>B</sub>	100	mA
Total Device Dissipation @ TC = 100° C Derate above 25° C	P <sub>D</sub>	3.3 33	W mW/°C
Operating and Storage Temperature	T <sub>j</sub> , T <sub>stg</sub>	-65 to +200	°C
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	30	°C/W

### NOTES:

<sup>1/</sup> For ordering information, price, operating curves, and availability - contact factory.

<sup>2/</sup> Screening based on MIL-PRF-19500. Screening flows available on request.

TO-5 (/5)



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

**DATA SHEET #: XN0033J**

**DOC**



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# SFT8600/5

Electrical Characteristic	Symbol	Min	Max	Units	
<b>Collector – Emitter Breakdown Voltage</b> (IC= 10mAdc) (IC= 20μAdc, RBE = 1KΩ)	<b>BV<sub>CEO</sub></b> <b>BV<sub>CER</sub></b>	400 1000	—	V	
<b>Collector–Base Breakdown Voltage</b> (IC= 20μAdc)	<b>BV<sub>CBO</sub></b>	1000	—	V	
<b>Emitter–Base Breakdown Voltage</b> (IE= 20μAdc)	<b>BV<sub>EBO</sub></b>	6	—	V	
<b>Collector Cutoff Current</b> (VCB= 800V) (VCB= 800V @ TC= 150°C)	<b>I<sub>CBO</sub></b>	—	10 500	μAdc	
<b>Collector Cutoff Current</b> (VCE= 400 Vdc)	<b>I<sub>CEO</sub></b>	—	10	μAdc	
<b>Emitter Cutoff Current</b> (VEB= 4V)	<b>I<sub>EBO</sub></b>	—	1	μAdc	
<b>DC Current Gain*</b> (IC= 100mAdc, VCE= 5Vdc, TC= -55°) (IC= 5mAdc, VCE= 5Vdc) (IC= 10mAdc, VCE= 5Vdc) (IC= 100mAdc, VCE= 5Vdc) (IC= 250mAdc, VCE= 5Vdc)	<b>h<sub>FE</sub></b>	10 30 40 20 15	200	—	
<b>Collector – Emitter Saturation Voltage*</b> (IC= 20mAdc, IB= 2mAdc) (IC= 100mAdc, IB=10mAdc)	<b>V<sub>CE(Sat)</sub></b>	— —	0.3 0.5	Vdc	
<b>Base – Emitter Saturation Voltage *</b> (IC= 20mAdc, IB= 2mAdc) (IC=100mAdc, IB=10mAdc)	<b>V<sub>BE(Sat)</sub></b>	— —	0.8 1.0	Vdc	
<b>Current Gain Bandwidth Product</b> (IC= 100mAdc, VCE= 10Vdc, f= 10MHz)	<b>f<sub>T</sub></b>	8.0	—	MHz	
<b>Output Capacitance</b> (VCB= 20Vdc, IE= 0 Adc, f= 1.0MHz)	<b>Cob</b>	—	15	pF	
Delay Time	(VCC = 125Vdc,	<b>td</b>	---	50	nsec
Rise Time	IC = 100 mAdc,	<b>tr</b>	---	150	nsec
Storage Time	IB1 = 20 mAdc,	<b>ts</b>	---	3	μsec
Fall Time	IB2 = 40 mAdc)	<b>tf</b>	---	800	nsec

\* Pulse Test: Pulse Width = 300 μS, Duty Cycle = 2%

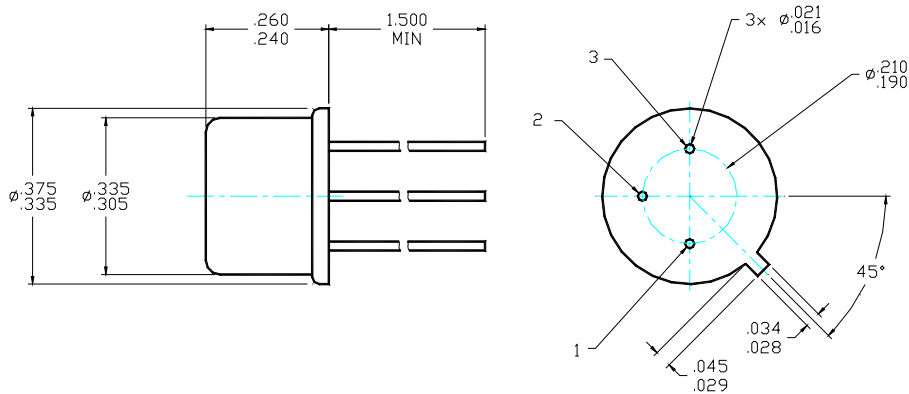


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**SFT8600/5**

**CASE OUTLINE: TO-5**

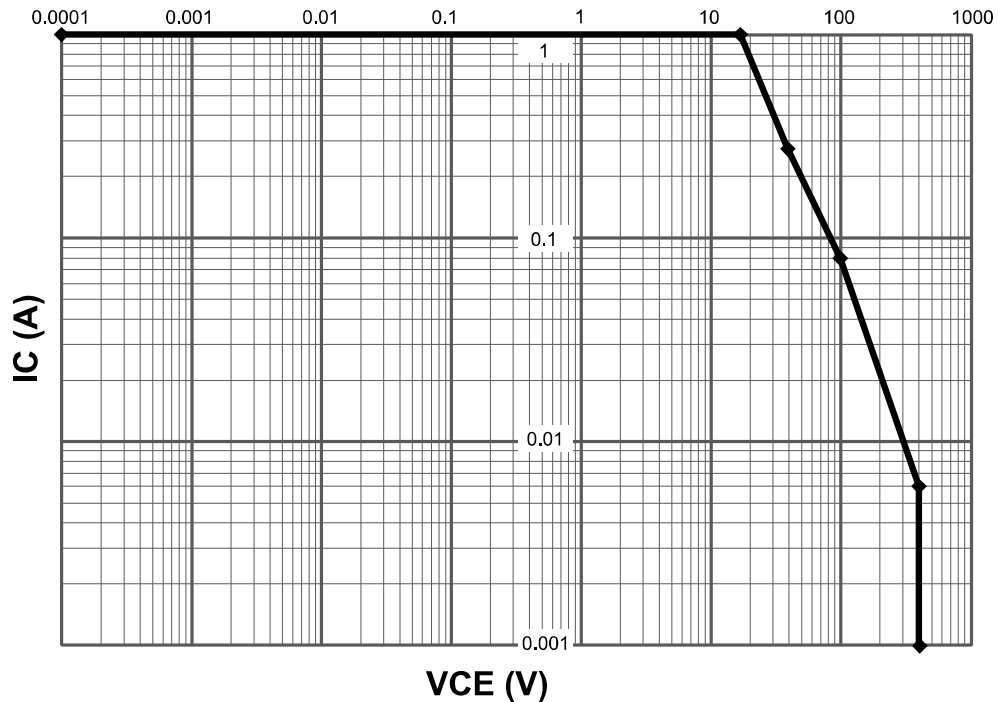
**FIGURE 1  
 OUTLINE AND DIMENSIONS**



All dimensions are in inches  
 Tolerances:  
 (unless otherwise specified)  
 XX:  $\pm 0.01$ "  
 XXX:  $\pm 0.005$ "

Pin 1: Emitter  
 Pin 2: Base  
 Pin 3: Collector  
 Case: Collector

**FIGURE 2  
 SAFE OPERATING AREA (t = 1 sec)**



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