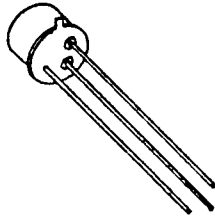


|                                                                                |  |                                                                                            |
|--------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------|
| <b>SFT177G</b>                                                                 |  | <b>X00123</b>                                                                              |
| <b>7 AMP</b><br><b>HIGH ENERGY</b><br><b>NPN TRANSISTOR</b><br><b>80 VOLTS</b> |  | <b>SSDI</b>                                                                                |
|                                                                                |  | 14849 FIRESTONE BLVD.<br>LA MIRADA, CA 90638<br>TEL: (213) 921-9660<br>FAX: (213) 921-2396 |

**CASE STYLE**  
**JEDEC TO-5**

**FEATURES**

- ▶ DESIGNED FOR COMPLIMENTARY USE WITH SFT179G
- ▶ VERY RUGGED, SINGLE DIFFUSED CONSTRUCTION
- ▶ FAST SWITCHING, 1 $\mu$ s STORAGE TIME
- ▶ BVCEO 80 VOLTS MIN
- ▶ LINEAR GAIN, LOW SATURATION VOLTAGE
- ▶ 200 °C OPERATING, GOLD EUTECTIC DIE ATTACH

**MAXIMUM RATINGS**

| RATING                                                    | SYMBOL   | VALUE       | UNIT            |
|-----------------------------------------------------------|----------|-------------|-----------------|
| Collector-Emitter Voltage                                 | VCEO     | 80          | Volts           |
| Collector-Base Voltage                                    | VCBO     | 100         | Volts           |
| Emitter-Base Voltage                                      | VEBO     | 7           | Volts           |
| Collector Current                                         | IC       | 7           | Amps            |
| Base Current                                              | IB       | 2           | Amps            |
| Total Device Dissipation @ TC=50 °C<br>Derate above 50 °C | PD       | 10<br>66.6  | Watts<br>mW/ °C |
| Operating and Storage Temperature                         | Tj, Tstg | -65 to +200 | °C              |

**THERMAL CHARACTERISTICS**

| CHARACTERISTIC                       | SYMBOL        | VALUE | UNIT |
|--------------------------------------|---------------|-------|------|
| Thermal Resistance, Junction to Case | R $\theta$ JC | 15    | °C/W |

**ELECTRICAL CHARACTERISTICS**

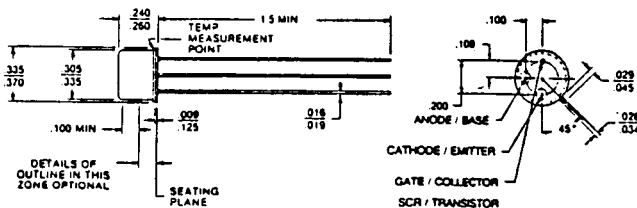
| CHARACTERISTIC                                                          | SYMBOL | MIN | MAX | UNIT            |
|-------------------------------------------------------------------------|--------|-----|-----|-----------------|
| Collector-Emitter Breakdown Voltage *<br>(IC = 100mA <sub>dc</sub> )    | BVCEO* | 80  |     | V <sub>dc</sub> |
| Collector-Base Breakdown Voltage *<br>(IC = 200 $\mu$ A <sub>dc</sub> ) | BVCBO  | 100 |     | V <sub>dc</sub> |
| Emitter-Base Breakdown Voltage *<br>(IE = 200 $\mu$ A <sub>dc</sub> )   | BVEBO  | 7   |     | V <sub>dc</sub> |

# ELECTRICAL CHARACTERISTICS

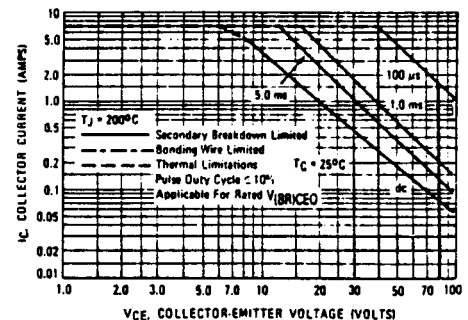
| CHARACTERISTICS                                                                                                                                                                               |                                                                                                      | SYMBOL                 | MIN.           | MAX.          | UNIT                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------|----------------|---------------|-----------------------------------------------------|
| Collector Cutoff Current ( $V_{CE}=60\text{ Vdc}$ )<br>( $V_{CE}=80\text{ Vdc}$ , $V_{BE}=1.5\text{ Vdc}$ )<br>( $V_{CE}=80\text{ Vdc}$ , $V_{BE}=1.5\text{ Vdc}$ , $T_C=150^\circ\text{C}$ ) |                                                                                                      | $I_{CEO}$<br>$I_{CEX}$ |                | 5<br>5<br>1.0 | $\mu\text{Adc}$<br>$\mu\text{Adc}$<br>$\text{mAdc}$ |
| Collector Cutoff Current ( $V_{CB}=100\text{ Vdc}$ )                                                                                                                                          |                                                                                                      | $I_{CBO}$              |                | 5             | $\mu\text{Adc}$                                     |
| Emitter Cutoff Current ( $V_{EB}=5\text{ Vdc}$ )                                                                                                                                              |                                                                                                      | $I_{EBO}$              |                | 5             | $\mu\text{Adc}$                                     |
| DC Current Gain *<br>( $I_C=500\text{ mAdc}$ , $V_{CE}=4\text{ Vdc}$ )<br>( $I_C=2.5\text{ Adc}$ , $V_{CE}=4\text{ Vdc}$ )<br>( $I_C=5\text{ Adc}$ , $V_{CE}=4\text{ Vdc}$ )                  |                                                                                                      | $h_{FE} *$             | 50<br>50<br>15 | 200           |                                                     |
| Collector-Emitter Saturation Voltage *<br>( $I_C = 2\text{ Adc}$ , $I_B = 200\text{ mAdc}$ )<br>( $I_C = 4\text{ Adc}$ , $I_B = 400\text{ mAdc}$ )                                            |                                                                                                      | $V_{CE(SAT)} *$        |                | 0.5<br>0.7    | $\text{Vdc}$<br>$\text{Vdc}$                        |
| Base-Emitter Saturation Voltage *<br>( $I_C = 4\text{ Adc}$ , $I_B = 0.4\text{ Adc}$ )                                                                                                        |                                                                                                      |                        |                | 1.4           | $\text{Vdc}$                                        |
| Current-Gain - Bandwidth Product<br>( $I_C=250\text{ mAdc}$ , $V_{CE}=10\text{ Vdc}$ , $f=1\text{ MHz}$ )                                                                                     |                                                                                                      | $f_T$                  | 5              |               | $\text{MHz}$                                        |
| Output Capacitance<br>( $V_{CB}=10\text{ Vdc}$ , $I_E=0$ , $f=1\text{ MHz}$ )                                                                                                                 |                                                                                                      | $C_{ob}$               |                | 150           | $\text{pf}$                                         |
| Rise Time                                                                                                                                                                                     | (Vcc = 30Vdc, VEB(off) =<br>3 Vdc, $I_C = 2.5\text{ Adc}$ ,<br>$I_{B1} = I_{B2} = 250\text{ mAdc}$ ) | $t_r$                  |                | 700           | $\text{ns}$                                         |
| Storage Time                                                                                                                                                                                  |                                                                                                      | $t_s$                  |                | 1.2           | $\mu\text{s}$                                       |
| Fall Time                                                                                                                                                                                     |                                                                                                      | $t_f$                  |                | 1.2           | $\mu\text{s}$                                       |

\*) Pulse Test: Pulse width = 300  $\mu\text{s}$ , Duty Cycle = 2 %.

## PHYSICAL DIMENSIONS



## TYPICAL OPERATING CURVES



**SSDI**

**SOLID STATE DEVICES, INC.**

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SFT177G