PRELIMINARY

# SFT5333

SOLID STATE DEVICES, INC.
14005 Stage Road * Santa Fe Springs, Ca 90670
Phone: (562) 404-4474 * Fax: (562) 404-1773

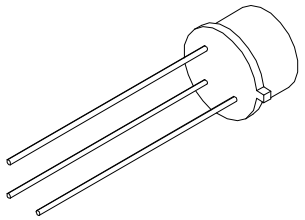
## DESIGNER'S DATA SHEET

## 2 AMP 100 VOLTS HIGH SPEED PNP TRANSISTOR

### FEATURES:

- Radiation Tolerant
- Fast Switching, 150ns MAX t(on)
- High Frequency, fT 85MHz MIN.
- BVCEO 70Volts MIN.
- Low Saturation Voltage.
- 200°C Operating, Gold Eutectic Die Attach.
- Designed for Complementary Use with SFT4300.

TO-5



| MAXIMUM RATINGS | SYMBOL | VALUE | UNITS |
|---|---|---|---|
| Collector-Emitter Voltage | $V_{CEO}$ | 70 | Volts |
| Collector-Base Voltage | $V_{CBO}$ | 100 | Volts |
| Emitter-Base Voltage | $V_{EBO}$ | 6 | Volts |
| Collector Current | $I_C$ | 2 | Amps |
| Base Current | $I_B$ | 1 | Amps |
| Total Device Dissipation @ $T_C$=100°C<br>Derate above 100°C | $P_D$ | 6.6<br>66 | W<br>mW/°C |
| Operating and Storage Temperature | $T_J$, $T_{STG}$ | -65 to +200 | °C |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 15.2 | °C/W |

| ELECTRICAL CHARACTERISTICS | SYMBOL | MIN | MAX | UNITS |
|---|---|---|---|---|
| Collector-Emitter Breakdown Voltage<br>($I_C$ = 30 $mA_{DC}$) | $BV_{CEO}$ | 70 | - | Volts |
| Collector-Base Breakdown Voltage<br>($I_C$ = 200 $\mu A_{DC}$) | $BV_{CBO}$ | 100 | - | Volts |
| Emitter-Base Breakdown Voltage<br>($I_E$ = 200 $\mu A_{DC}$) | $BV_{EBO}$ | 6 | - | Volts |
| Collector Cutoff Current ($V_{CB}$ =90$V_{DC}$, $T_C$ =25°C)<br>($V_{CB}$ =90$V_{DC}$, $T_C$ =100°C) | $I_{CBO}$ | - | 1<br>75 | µA<br>µA |
| Collector Cutoff Current<br>($V_{CE}$ = 40 $V_{DC}$) | $I_{CEO}$ | - | 5 | µA |

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

**DATA SHEET #: TR0002C**

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| ELECTRICAL CHARACTERISTICS | | SYMBOL | MIN | MAX | UNITS |
|---|---|---|---|---|---|
| **Emitter Cutoff Current** ($V_{EB}$ = 6$V_{DC}$) | | $I_{EBO}$ | - | 1 | µA |
| **DC Current Gain *** ($I_C$ = 1.0 $A_{DC}$, $V_{CE}$ = 5 $V_{DC}$)<br>($I_C$ = 2.0 $A_{DC}$, $V_{CE}$ = 5 $V_{DC}$) | | $H_{FE}$ | 40<br>40 | 250 | |
| **Collector-Emitter Saturation Voltage *** ($I_C$ = 1.0 $A_{DC}$, $I_B$ =100 $mA_{DC}$)<br>($I_C$ = 2.0$A_{DC}$, $I_B$ = 200 $mA_{DC}$) | | $V_{CE\,(SAT)}$ | -<br>- | 0.45<br>1.0 | Volts |
| **Base-Emitter Voltage *** ($I_C$ = 2.0 $A_{DC}$, $V_{CE}$ = 4 $V_{DC}$) | | $V_{BE\,(ON)}$ | - | 1.5 | Volts |
| **Current Gain Bandwidth Product** ($I_C$ =1.0 $A_{DC}$, $V_{CE}$ =10 $V_{DC}$, f =10MHz) | | fT | 85 | - | MHz |
| **Output Capacitance** ($V_{CB}$ = 30$V_{DC}$, $I_E$ = 0$A_{DC}$, f =1.0MHz) | | $C_{ob}$ | - | 75 | pF |
| **Input Capacitance** ($V_{BE}$ = 6$V_{DC}$, $I_C$ = 0$A_{DC}$, f =1.0MHz) | | $C_{ib}$ | - | 300 | pF |
| **Turn On Time** | ($V_{CC}$ =20$V_{DC}$, $I_C$ =1.0$A_{DC}$, $V_{EB(OFF)}$=3.7$V_{DC}$, $I_{B1}$=$I_{B2}$=100$mA_{DC}$, $R_L$=20 Ohms) | $t_{(on)}$ | - | 150 | ns |
| **Turn Off Time** | | $t_{(off)}$ | - | 450 | ns |

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

**CASE OUTLINE: TO-5**

**PIN 1: EMITTER**
**PIN 2: BASE**
**PIN 3: COLLECTOR**