



**Solid State Devices, Inc.**

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# SFT5333S.22

## 2 AMP, 100 VOLTS GENERAL PURPOSE PNP TRANSISTOR

**DESIGNER'S DATA SHEET**

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

SFT5333

Screening <sup>2/</sup>

— = Not Screened  
 TX = TX Level  
 TXV = TXV Level  
 S = S Level

Package

S.22 = SMD.22

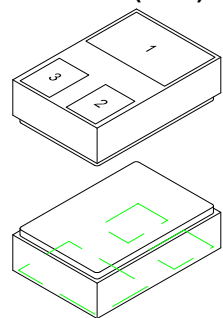
- Features:**
- Radiation Tolerant
  - Fast Switching
  - Hermetic Surface Mount Device with Excellent Thermal Properties
  - Complementary Use with SFT4300S.22
  - Available in Reverse Polarity
  - TX, TXV, S-Level Screening Available <sup>2/</sup>

Maximum Ratings <sup>3/</sup>	Symbol	Value	Units
Collector – Emitter Voltage	V <sub>CEO</sub>	70	V
Collector – Base Voltage	V <sub>CB</sub>	100	V
Emitter – Base Voltage	V <sub>BE</sub>	6	V
Continuous Collector Current	I <sub>C</sub>	2	A
	I <sub>Cmax</sub>	5	
Base Current	I <sub>B</sub>	1	A
Power Dissipation	P <sub>D</sub>	T <sub>C</sub> = 25°C <sup>4/</sup>	15
		T <sub>A</sub> = 25°C <sup>5/</sup>	1.0
Operating & Storage Temperature	T <sub>OP</sub> & T <sub>STG</sub>	-65 to +200	°C
Maximum Thermal Resistance	R <sub>θJC</sub>	11.67 (typ 8)	°C/W
	R <sub>θJA</sub>	175	

**NOTES:**

- 1/ For ordering information, price, and availability – contact factory.
- 2/ Screening based on MIL-PRF-19500. Screening flows available on request.
- 3/ Unless otherwise specified, all electrical characteristics @ 25°C.
- 4/ Derated 85.7 mW/°C above T<sub>C</sub>= 25°C
- 5/ Derated 5.7 mW/°C above T<sub>A</sub>= 25°C

**SMD.22 (S.22)**





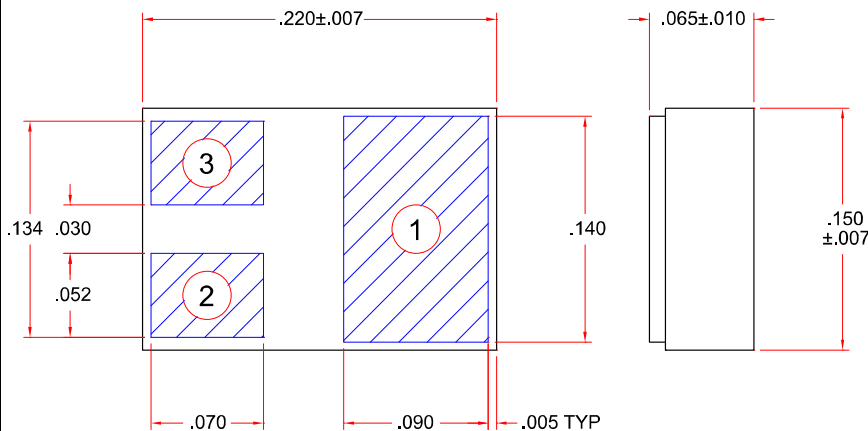
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Electrical Characteristics <sup>3/</sup>		Symbol	Min	Typ	Max	Units
Collector – Emitter Sustaining Voltage	$I_C = 30 \text{ mA}$	$BV_{CEO(sus)}$	70	85	-	V
Collector – Base Breakdown Voltage	$I_C = 0.2 \text{ mA}$	$BV_{CBO}$	100	130	-	V
Emitter – Base Breakdown Voltage	$I_E = 0.2 \text{ mA}$	$BV_{EBO}$	6	7	-	V
Collector – Emitter Cutoff Current	$V_{CE} = 40 \text{ V}; I_B = 0$	$I_{CEO}$	-	0.02	5	$\mu\text{A}$
Collector – Base Cutoff Current	$V_{CB} = 90 \text{ V}; I_E = 0; T_A = 100^\circ\text{C}$	$I_{CBO1}$	-	0.02	1	$\mu\text{A}$
		$I_{CBO2}$	-	1	75	$\mu\text{A}$
Emitter – Base Cutoff Current	$V_{BE} = 6 \text{ V}; I_C = 0$	$I_{EBO}$	-	0.03	1	$\mu\text{A}$
DC Current Gain	$I_C = 1.0 \text{ A}, V_{CE} = 5 \text{ V}$	$HFE_1$	40	165	250	
	$I_C = 2.0 \text{ A}, V_{CE} = 5 \text{ V}$	$HFE_2$	40	140	-	
	$I_C = 5.0 \text{ A}, V_{CE} = 5 \text{ V}$	$HFE_3$	-	60	-	
Collector – Emitter Saturation Voltage	$I_C = 1.0 \text{ A}, I_B = 100 \text{ mA}$	$V_{CE(sat)1}$	-	0.2	0.45	V
	$I_C = 2.0 \text{ A}, I_B = 200 \text{ mA}$	$V_{CE(sat)2}$	-	0.33	1.0	
	$I_C = 5.0 \text{ A}, I_B = 500 \text{ mA}$	$V_{CE(sat)3}$	-	0.7	-	
Collector – Base Saturation Voltage	$I_C = 1.0 \text{ A}, I_B = 100 \text{ mA}$	$V_{BE(sat)1}$	-	0.87	-	V
	$I_C = 2.0 \text{ A}, I_B = 200 \text{ mA}$	$V_{BE(sat)2}$	-	0.97	-	
	$I_C = 5.0 \text{ A}, I_B = 500 \text{ mA}$	$V_{BE(sat)3}$	-	1.2	-	
Base – Emitter ON Voltage	$I_C = 2.0 \text{ A}, V_{CE} = 4 \text{ V}$	$V_{BE(on)}$	-	0.8	1.5	V
Current Gain Bandwidth Product	$I_C = 1.0 \text{ A}, V_{CE} = 10 \text{ V}, f = 10 \text{ MHz}$	$f_T$	85	100	-	MHz
Input Capacitance	$V_{BE} = 6 \text{ V}, I_C = 0, f = 1 \text{ MHz}$	$C_{ib}$	-	220	300	pF
Output Capacitance	$V_{CB} = 30 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	$C_{ob}$	-	45	75	pF
Switching Times	$V_{CC} = 20 \text{ V}; I_C = 1 \text{ A}; V_{EB(off)} = 3.7 \text{ V}; I_{B1} = I_{B2} = 100 \text{ mA}; R_L = 20 \Omega$	$t_{on}$	-	0.04	0.15	$\mu\text{s}$
		$t_{off}$	-	0.43	0.45	

**CASE OUTLINE: SMD.22 (S.22)**



**NOTES:** \*Pulse Test: Pulse Width = 300  $\mu\text{sec}$ , Duty Cycle = 2%  
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 5/ Derated 5.7 mW/°C above  $T_A = 25^\circ\text{C}$

PIN 1 = COLLECTOR; PIN 2 = EMITTER; PIN 3 = BASE

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

**DATA SHEET #: TR0098B**

**DOC**