



# Solid State Devices, Inc.

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Phone: (562) 404-4474 \* Fax: (562) 404-1773  
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## SFT501 and SFT503 Series

### 5 AMP 200 Volts HIGH SPEED PNP Transistor

#### DESIGNER'S DATA SHEET

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

SFT501    — —  
 SFT503    — —

Screening <sup>2/</sup>    — = Not Screen  
                   TX    = TX Level  
                   TXV = TXV Level  
                   S    = S Level

Package <sup>3/</sup>        — = TO-5

##### Features:

- Radiation Tolerant
- Fast Switching
- High Frequency, 50 MHz Typical
- BVCEO 150 Volts Min
- High Linear Gain
- Very Low Leakage and Saturation
- 200°C Operating Temperature
- Gold Eutectic Die Attach
- Designed for Complementary Use with SFT502 and SFT504

Maximum Ratings	Symbol	Value	Units
Collector – Emitter Voltage	V <sub>CEO</sub>	150	Volts
Collector – Base Voltage	V <sub>CBO</sub>	200	Volts
Emitter – Base Voltage	V <sub>EBO</sub>	7	Volts
Continues Collector Current	I <sub>C</sub>	5	Amps
Base Current	I <sub>B</sub>	1	Amps
Power Dissipation @ TC = 50°C Derate above 50°C	P <sub>D</sub>	10 66.6	W mW/°C
Operating & Storage Temperature	Top & Tstg	-65 to +200	°C
Maximum Thermal Resistance	Junction to Case R <sub>θJC</sub>	22	°C/W

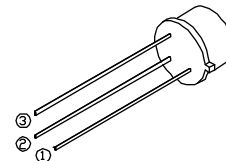
##### NOTES:

- \* Pulse Test: Pulse Width = 300µsec, Duty Cycle = 2%
- <sup>1/</sup> For Ordering Information, Price, and Availability Contact Factory.
- <sup>2/</sup> Screening per MIL-PRF-19500
- <sup>3/</sup> For Package Outlines Contact Factory.
- <sup>4/</sup> Unless Otherwise Specified, All Electrical Characteristics @25°C.

##### Available parts:

SFT501  
SFT503

##### TO-5



##### PIN ASSIGNMENT

Package	Pin 1	Pin 2	Pin 3 (Case)
TO-5	Emitter	Base	Collector

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

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DATA SHEET #: TR0040D

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**SFT501 and SFT503  
Series**

Electrical Characteristic <sup>4/</sup>		Symbol	Min	Typ	Max	Units
Collector – Emitter Breakdown Voltage	$I_C = 50\text{mA}$	$BV_{CEO}$	150	200	—	Volts
Collector – Base Breakdown Voltage	$I_C = 200\mu\text{A}$	$BV_{CBO}$	200	275	—	Volts
Emitter – Base Breakdown Voltage	$I_E = 200\mu\text{A}$	$BV_{EBO}$	7	13	—	Volts
Collector – Cutoff Current	$V_{CE} = 100\text{V}$	$I_{CEO}$	—	—	1.0	$\mu\text{A}$
Collector – Cutoff Current	$V_{CB} = 100\text{V}$	$I_{CBO}$	—	—	500	nA
Emitter – Cutoff Current	$V_{EB} = 6\text{V}$	$I_{EBO}$	—	—	500	nA
<b>DC Current Gain *</b>						
SFT501	$V_{CE} = 5\text{V}, I_C = 50\text{mA}$	$h_{FE}$	20	—	—	—
	$V_{CE} = 5\text{V}, I_C = 2.5\text{A}$		30	—	—	
	$V_{CE} = 5\text{V}, I_C = 5\text{A}$		20	70	—	
SFT503	$V_{CE} = 5\text{V}, I_C = 50\text{mA}$		50	—	—	
	$V_{CE} = 5\text{V}, I_C = 2.5\text{A}$		50	—	—	
	$V_{CE} = 5\text{V}, I_C = 5\text{A}$		40	70	—	
Collector – Emitter Saturation Voltage *	$I_C = 2.5\text{A}, I_B = 250\text{mA}$ $I_C = 5.0\text{A}, I_B = 500\text{mA}$	$V_{CE(Sat)}$	—	0.35 0.6	0.75 1.5	Volts
Base – Emitter Saturation Voltage *	$I_C = 2.5\text{A}, I_B = 250\text{mA}$ $I_C = 5.0\text{A}, I_B = 500\text{mA}$	$V_{BE(Sat)}$	—	1.0 1.2	1.3 1.5	Volts
Current Gain Bandwidth Product	$V_{CE} = 5\text{V}, I_C = 0.5\text{A}, f = 10\text{MHz}$	$f_T$	40	60	—	MHz
Output Capacitance	$V_{CB} = 10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$	$c_{ob}$	—	130	225	pF
Input Capacitance	$V_{BE} = 10\text{V}, I_C = 0\text{A}, f = 1\text{MHz}$	$C_{ib}$	—	450	600	pF
Delay Time	$V_{CC} = 50\text{V},$ $I_C = 5\text{A},$ $I_{B1} = I_{B2} = 0.5\text{A}$	$t_d$	—	25	50	nsec
Rise Time		$t_r$	—	40	250	nsec
Storage Time		$t_s$	—	320	600	nsec
Fall Time		$t_f$	—	130	300	nsec

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