



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, Ca 90638
Phone: (562) 404-7855 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SFT502 and SFT504 Series

5 AMP 200 Volts HIGH SPEED NPN Transistor

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFT502 — —
SFT504 — —
 + Screening ^{2/} — = Not Screen
 TX = TX Level
 TXV = TXV Level
 S = S Level

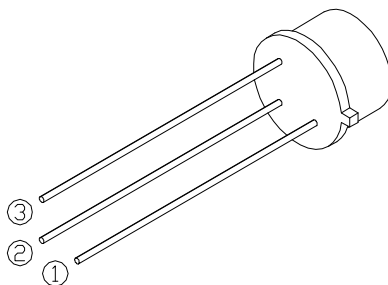
 + Package ^{3/} — = TO-5

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 SFT501 and SFT503

Maximum Ratings	Symbol	Value	Units
Collector – Emitter Voltage	V_{CEO}	150	Volts
Collector – Base Voltage	V_{CBO}	200	Volts
Emitter – Base Voltage	V_{EBO}	7	Volts
Continuous Collector Current	I_C	5	Amps
Base Current	I_B	1	Amps
Power Dissipation @ TC = 50°C Derate above 50°C	P_D	10 66.6	W mW/°C
Operating & Storage Temperature	Top & Tstg	-65 to +200	°C
Maximum Thermal Resistance Junction to Case	$R_{\theta JC}$	15	°C/W

TO-5



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

B176H

DATA SHEET #: TR0041C

DOC

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Electrical Characteristic ^{4/}		Symbol	Min	Typ	Max	Units
Collector – Emitter Breakdown Voltage	$I_C = 50\text{mA}$	BV_{CEO}	150	—	—	Volts
Collector – Base Breakdown Voltage	$I_C = 200\mu\text{A}$	BV_{CBO}	200	—	—	Volts
Emitter – Base Breakdown Voltage	$I_E = 200\mu\text{A}$	BV_{EBO}	7	—	—	Volts
Collector – Cutoff Current	$V_{CE} = 100\text{ V}$	I_{CEO}	—	—	1	μA
Collector – Cutoff Current	$V_{CB} = 100\text{ V}$	I_{CBO}	—	—	500	nA
Emitter – Cutoff Current	$V_{EB} = 6\text{ V}$	I_{EBO}	—	—	500	nA
DC Current Gain *						
SFT502	$V_{CE} = 5\text{V}, I_C = 50\text{mA}$	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	—	—	
SFT504	$V_{CE} = 5\text{V}, I_C = 50\text{mA}$		50	—	—	
	$V_{CE} = 5\text{V}, I_C = 2.5\text{A}$		50	—	—	
	$V_{CE} = 5\text{V}, I_C = 5\text{A}$		40	—	—	
Collector – Emitter Saturation Voltage *	$I_C = 2.5\text{A}, I_B = 250\text{mA}$ $I_C = 5.0\text{A}, I_B = 500\text{mA}$	$V_{CE(Sat)}$	— —	— —	0.75 1.5	Volts
Base – Emitter Saturation Voltage *	$I_C = 2.5\text{A}, I_B = 250\text{mA}$ $I_C = 5.0\text{A}, I_B = 500\text{mA}$	$V_{BE(Sat)}$	— —	— —	1.3 1.5	Volts
Current Gain Bandwidth Product	$V_{CE} = 5\text{V}, I_C = 0.5\text{A}, f = 10\text{MHz}$	f_T	70	—	—	MHz
Output Capacitance	$V_{CB} = 10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$	c_{ob}	—	—	225	pF
Input Capacitance	$V_{BE} = 10\text{V}, I_C = 0\text{A}, f = 1\text{MHz}$	C_{ib}	—	—	900	pF
Delay Time	$V_{CC} = 50\text{V},$ $I_C = 5\text{A},$ $I_{B1} = I_{B2} = 0.5\text{A}$	t_d	—	—	50	nsec
Rise Time		t_r	—	—	250	nsec
Storage Time		t_s	—	—	900	nsec
Fall Time		t_f	—	—	300	nsec

NOTES:

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

1/ For Ordering Information, Price, and Availability Contact Factory.

2/ Screening per MIL-PRF-19500

3/ For Package Outlines Contact Factory.

4/ Unless Otherwise Specified, All Electrical Characteristics @25°C.

Available Part Numbers:

SFT502
SFT504

PIN ASSIGNMENT

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