



# Solid State Devices, Inc.

14701 Firestone Blvd \* La Mirada, Ca 90638  
Phone: (562) 404-4474 \* Fax: (562) 404-1773  
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## SFT5152 and SFT5154

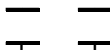
### 10 AMP POWER TRANSISTORS SILICON NPN

100 VOLTS  
10 WATTS

#### DESIGNER'S DATA SHEET

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

SFT5152  
SFT5154



Screening <sup>2/</sup>      = Not Screened

TX = TX Level

TXV = TXV Level

S = S Level

Package <sup>3/</sup>

     = TO-5

S.5 = SMD.5

##### Features:

- Radiation Tolerant
- Fast Switching, 500 nsec max  $t_{on}$
- High Frequency, Typical  $f_t = 100$  MHz
- BVCEO 80 Volts Min
- High Linear Gain, Low Saturation Voltage
- 200°C Operating Temperature
- Designed for Complementary Use with SFT5151 and SFT5153
- Replacement for 2N5152 and 2N5154
- TX, TXV, S-Level Screening Available<sup>2/</sup> - Consult Factory

Maximum Ratings	Symbol	Value	Units
Collector – Emitter Voltage	$V_{CEO}$	80	Volts
Collector – Base Voltage	$V_{CBO}$	100	Volts
Emitter – Base Voltage	$V_{EBO}$	5.5	Volts
Collector Current	$I_C$	10	Amps
Base Current	$I_B$	2.5	Amps
Total Device Dissipation @ $T_C = 50^\circ C$ 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

##### NOTES:

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

<sup>1/</sup>For Ordering Information, Price, Operating Curves, and Availability Contact Factory.

<sup>2/</sup>Screening per MIL-PRF-19500

<sup>3/</sup>For Package Outlines Contact Factory.

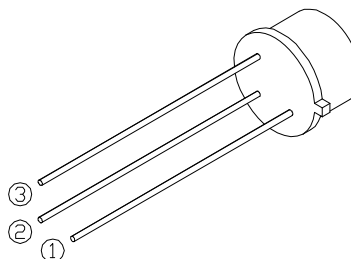
<sup>4/</sup> Unless Otherwise Specified, All Electrical Characteristics @25°C.

##### Available parts:

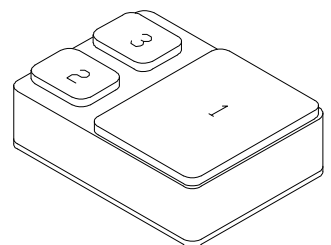
SFT5152, SFT5152S.5

SFT5154, SFT5154S.5

TO-5



SMD.5



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

DATA SHEET #: TR0110A

DOC



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# SFT5152 and SFT5154

Electrical Characteristic <sup>4/</sup>			Symbol	Min	Max	Units
Collector – Emitter Breakdown Voltage*		$I_C = 100\text{mA}$	$BV_{CEO}$	80	—	Volts
Collector – Base Breakdown Voltage		$I_C = 200\mu\text{A}$	$BV_{CBO}$	100	—	Volts
Emitter – Base Breakdown Voltage		$I_E = 200\mu\text{A}$	$BV_{EBO}$	5.5	—	Volts
Collector – Cutoff Current		$V_{CE} = 40\text{V}$	$I_{CEO}$	—	50	$\mu\text{A}$
Collector – Cutoff Current		$V_{CE} = 60\text{V}, V_{BE} = 2\text{V}, T_C = 150^\circ\text{C}$	$I_{CEV}$	—	25	$\mu\text{A}$
Collector – Cutoff Current		$V_{CE} = 60\text{V}$ $V_{CE} = 100\text{V}$	$I_{CES}$	—	1.0 1.0	$\mu\text{A}$ mA
Emitter – Cutoff Current		$V_{EB} = 4\text{V}$ $V_{EB} = 5.5\text{V}$	$I_{EBO}$	—	1.0 1.0	$\mu\text{A}$ mA
DC Current Gain *	SFT5152	$V_{CE} = 5\text{V}, I_C = 50\text{mA}$ $V_{CE} = 5\text{V}, I_C = 2.5\text{A}$ $V_{CE} = 5\text{V}, I_C = 2.5\text{A}, T_A = -55^\circ\text{C}$ $V_{CE} = 5\text{V}, I_C = 5\text{A}$	$h_{FE}$	20	—	—
	SFT5154	$V_{CE} = 5\text{V}, I_C = 50\text{mA}$ $V_{CE} = 5\text{V}, I_C = 2.5\text{A}$ $V_{CE} = 5\text{V}, I_C = 2.5\text{A}, T_A = -55^\circ\text{C}$ $V_{CE} = 5\text{V}, I_C = 5\text{A}$		30 15 20 50 70 25 40	200 — — — 200 — —	
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 *		$I_C = 2.5\text{A}, I_B = 250\text{mA}$ $I_C = 5.0\text{A}, I_B = 500\text{mA}$	$V_{BE(Sat)}$	— —	1.45 2.2	Volts
Common Emitter small signal gain		$V_{CE} = 5\text{V}, I_C = 0.1\text{A}, f = 1\text{kHz}$	$h_{fe}$	20 50	—	—
Current Gain Bandwidth Product		$V_{CE} = 5\text{V}, I_C = 0.5\text{A}, f = 20\text{MHz}$	$f_T$	60 70	—	MHz
Output Capacitance		$V_{CB} = 10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$	$C_{ob}$	—	250	pF
Base – Emitter Voltage*		$V_{CE} = 5\text{V}, I_C = 2.5\text{A}$	$V_{BE(ON)}$	—	1.45	Volts
Safe Operating Area		$V_{CE} = 5\text{V}, I_C = 2.0\text{A}, 1\text{ sec}$ $V_{CE} = 32\text{V}, I_C = 310\text{ mA}, 1\text{ sec}$ $V_{CE} = 80\text{V}, I_C = 12.5\text{mA}, 1\text{ sec}$	$SOA_1$ $SOA_2$ $SOA_3$	—	—	—
ON Time	$V_{CC} = 30\text{V}, V_{EB(off)} = 3.7\text{V}$ $I_C = 5\text{A}$		$t_{ON}$	—	500	nsec
OFF Time			$t_{OFF}$	—	1500	
Storage Time	$V_{EB(off)} = 3.7\text{V}, I_{B1} = I_{B2} = 0.5\text{A},$ $R_L = 6\text{ Ohms}$		$t_s$	—	1.4	$\mu\text{sec}$
Fall Time			$t_f$	—	0.5	

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**DOC**

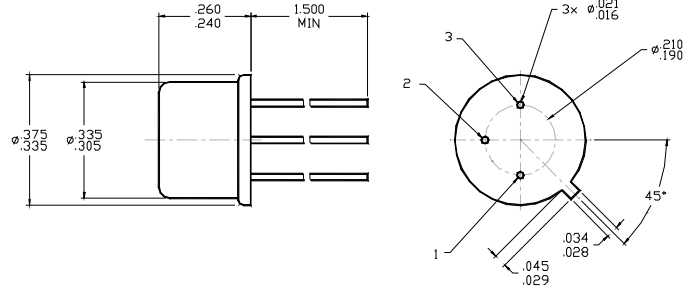


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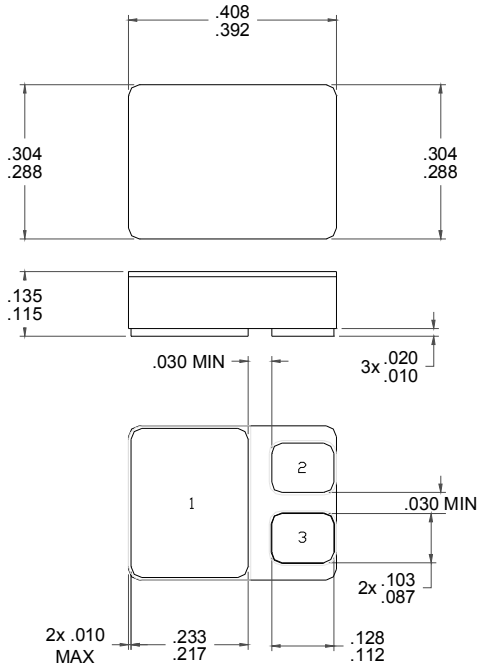
## TO-5



### PIN ASSIGNMENT

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

## SMD.5



### PIN ASSIGNMENT

Package	Pin 1	Pin 2	Pin 3 (Case)
SMD.5	Emitter	Base	Collector

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