



Solid State Devices, Inc.

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SFT5151 and SFT5153

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFT5151
SFT5153



Screening ^{2/} = Not Screened

TX = TX Level

TXV = TXV Level

S = S Level

Package ^{3/}

 = TO-5

S.5 = SMD.5

10 AMP POWER TRANSISTORS SILICON PNP

100 VOLTS
10 WATTS

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 SFT5152 and SFT5154
- Replacement for 2N5151 and 2N5153
- TX, TXV, S-Level Screening Available ^{2/} - 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%

^{1/} For Ordering Information, Price, Operating Curves, and Availability Contact Factory.

^{2/} Screening per MIL-PRF-19500

^{3/} For Package Outlines Contact Factory.

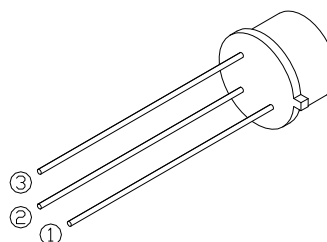
^{4/} Unless Otherwise Specified, All Electrical Characteristics @25°C.

Available parts:

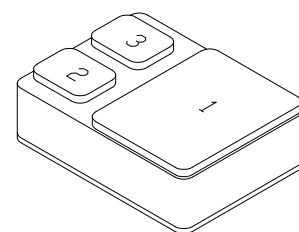
SFT5151, SFT5151S.5

SFT5153, SFT5153S.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 #: TR0109B

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SFT5151 and SFT5153

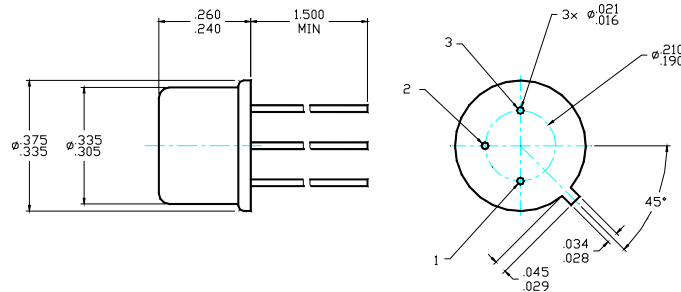
Electrical Characteristic ^{4/}			Symbol	Min	Max	Units
Collector– Emitter Breakdown Voltage*		$I_C = 100\text{mA}$	BV_{CEO}	80	—	Volts
Collector – Base Breakdown Voltage		$I_C = 200\mu\text{A}$	BV_{CBO}	100	—	Volts
Emitter – Base Breakdown Voltage		$I_E = 200\mu\text{A}$	BV_{EBO}	5.5	—	Volts
Collector – Cutoff Current		$V_{CE} = 40\text{V}$	I_{CEO}	—	50	μA
Collector – Cutoff Current		$V_{CE} = 60\text{V}, V_{BE} = 2\text{V}, T_A = 150^\circ\text{C}$	I_{CEV}	—	25	μA
Collector – Cutoff Current		$V_{CE} = 60\text{V}$ $V_{CE} = 100\text{V}$	I_{CES}	—	1.0 1.0	μA mA
Emitter – Cutoff Current		$V_{EB} = 4\text{V}$ $V_{EB} = 5.5\text{V}$	I_{EBO}	—	1.0 1.0	μA mA
DC Current Gain *	SFT5151	$V_{CE} = 5\text{V}, I_C = 50\text{mA}$ $V_{CE} = 5\text{V}, I_C = 2.5\text{A}$ $V_{CE} = 5\text{V}, I_C = 2.5\text{A}, T_A = -55^\circ\text{C}$ $V_{CE} = 5\text{V}, I_C = 5\text{A}$	h_{FE}	20 30 15 20	— 250 — —	—
	SFT5153	$V_{CE} = 5\text{V}, I_C = 50\text{mA}$ $V_{CE} = 5\text{V}, I_C = 2.5\text{A}$ $V_{CE} = 5\text{V}, I_C = 2.5\text{A}, T_A = -55^\circ\text{C}$ $V_{CE} = 5\text{V}, I_C = 5\text{A}$		50 70 25 40	— 250 — —	
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		$V_{CE} = 5\text{V}, I_C = 0.1\text{A}, f = 1\text{kHz}$ SFT5151 SFT5153	h_{fe}	20 50	—	—
Current Gain Bandwidth Product		$V_{CE} = 5\text{V}, I_C = 0.5\text{A}, f = 20\text{MHz}$ SFT5151 SFT5153	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	—	—	—
Delay Time	$V_{CC} = 30\text{V}, V_{EB(off)} = 3.7\text{V}$ $I_C = 5\text{A}$		t_{ON}	—	500	nsec
Rise Time			t_{OFF}	—	1500	nsec
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	μsec
Fall Time			t_f	—	0.5	μsec

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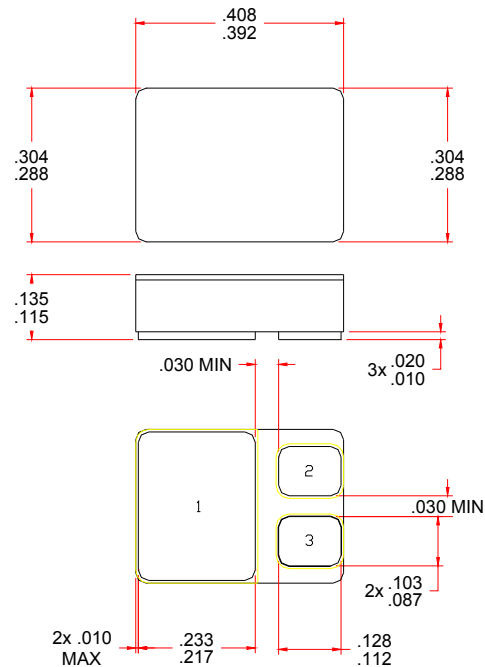
TO-5



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