



**Solid State Devices, Inc.**

14701 Firestone Blvd \* La Mirada, Ca 90638  
 Phone: (562) 404-4474 \* Fax: (562) 404-1773  
 ssdi@ssdi-power.com \* www.ssdi-power.com

# SFT4100 Series

## 15 AMP HIGH SPEED NPN TRANSISTOR 200 VOLTS

**DESIGNER'S DATA SHEET**

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

**SFT4100**

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

└── Package<sup>3/</sup>

      /3 = TO-3  
       S1 = SMD1  
       M = TO254

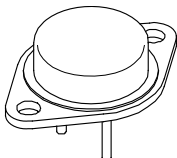
- Features:**
- Fast Switching,  $t_f = 60$  nsec typ.
  - Very Low Leakage and Saturation
  - BVCEO 165 Volts Min
  - High Linear Gain
  - 200°C Operating Temperature
  - Gold Eutectic Die Attach
  - Available in hermetic isolated and "hot case" power packages
  - Higher Current Devices Available

Maximum Ratings	Symbol	Value	Units
Collector – Emitter Voltage	$V_{CEO}$	165	Volts
Collector – Base Voltage	$V_{CBO}$	250	Volts
Emitter – Base Voltage	$V_{EBO}$	7	Volts
Continues Collector Current	$I_C$	15	Amps
Base Current	$I_B$	3	Amps
Power Dissipation @ $T_C = 25^\circ C$	$P_D$	120	W
Operating & Storage Temperature	Top & Tstg	-65 to +200	°C
Maximum Thermal Resistance	Junction to Case	$R_{\theta JC}$	1.46 °C/W

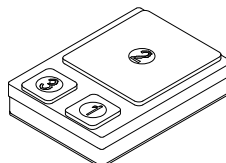
**NOTES:**

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

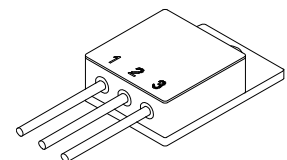
**TO-3**



**SMD1**



**TO-254**





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Electrical Characteristic <sup>4/</sup>	Symbol	Min	Typ	Max	Units	
Collector – Emitter Breakdown Voltage	$I_C = 200\text{mA}$ <b>BV<sub>CEO</sub></b>	165	200	—	Volts	
Collector – Base Breakdown Voltage	$I_C = 200\mu\text{A}$ <b>BV<sub>CBO</sub></b>	-	250	—	Volts	
Emitter – Base Breakdown Voltage	$I_E = 50\text{mA}$ <b>BV<sub>EBO</sub></b>	7	15	—	Volts	
Collector – Cutoff Current	$V_{CE} = 160\text{V}$ <b>I<sub>CEO</sub></b>	—	0.03	1000	$\mu\text{A}$	
Collector – Cutoff Current	$V_{CE} = 250\text{V}, V_{EB} = 1.5\text{V}$ $V_{CE} = 250\text{V}, V_{EB} = 1.5\text{V}, T_C = 125\text{C}$ <b>I<sub>CEX</sub></b>	—	0.01 1.0	1000 5000	$\mu\text{A}$	
Emitter – Cutoff Current	$V_{EB} = 5\text{V}$ <b>I<sub>EBO</sub></b>	—	0.01	1000	$\mu\text{A}$	
DC Current Gain *	$V_{CE} = 4\text{V}, I_C = 5\text{A}$ $V_{CE} = 4\text{V}, I_C = 8\text{A}$ <b>h<sub>FE</sub></b>	15 8	30 30	45 —	—	
Collector – Emitter Saturation Voltage *	$I_C = 5.0\text{A}, I_B = 500\text{mA}$ $I_C = 8.0\text{A}, I_B = 1.0\text{A}$ <b>V<sub>CE(Sat)</sub></b>	— —	0.25 0.35	1.2 1.6	Volts	
Base – Emitter Saturation Voltage *	$I_C = 8.0\text{A}, I_B = 1.0\text{A}$ <b>V<sub>BE(Sat)</sub></b>	—	1.12	2.0	Volts	
Current Gain Bandwidth Product	$V_{CE} = 15\text{V}, I_C = 1.0\text{A}, f = 10\text{MHz}$ <b>f<sub>T</sub></b>	8	20	—	MHz	
Clamped E <sub>S/B</sub> Collector Current	$V_{Clamp} = 200\text{V}, L = 500\ \mu\text{H}$	8			A	
Safe Operating Area	$V_{CE} = 30\text{V}, I_C = 4.0\text{A}, t = 1\text{s}$ $V_{CE} = 135\text{V}, I_C = 0.15\text{A}, t = 1\text{s}$ <b>SOA1</b> <b>SOA2</b>					
ON Time	$V_{CC} = 150\text{V},$ $I_C = 8\text{A},$ $I_{B1} = I_{B2} = 1\text{A}$	<b>t<sub>ON</sub></b>	—	100	1000	nsec
Storage Time		<b>t<sub>S</sub></b>	—	1200	1700	nsec
Fall Time		<b>t<sub>f</sub></b>	—	60	800	nsec

**CASE OUTLINES:**

