



# Solid State Devices, Inc.

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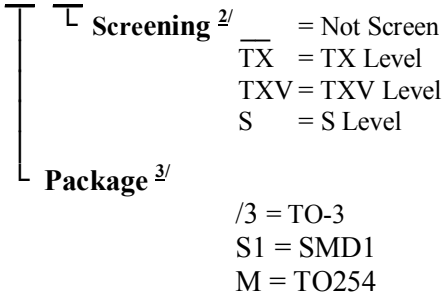
## SFT4100 Series

### 15 AMP HIGH SPEED NPN TRANSISTOR 200 VOLTS

#### DESIGNER'S DATA SHEET

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

SFT4100



##### 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%

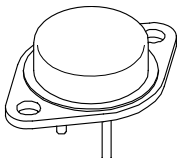
<sup>1/</sup> For Ordering Information, Price, and Availability Contact Factory.

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

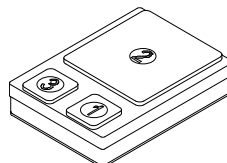
<sup>3/</sup> For Package Outlines Contact Factory.

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

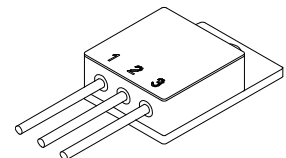
TO-3



SMD1



TO-254



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

DATA SHEET #: TR0105B

DOC



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# SFT4100 Series

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

**CASE OUTLINES:**

