



PRELIMINARY

# Solid State Devices, Inc.

14701 Firestone Blvd \* La Mirada, CA 90638  
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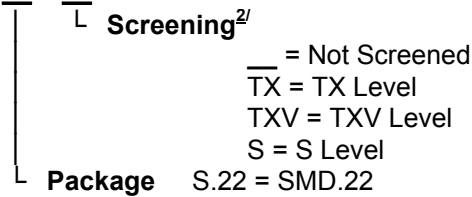
# SFT4373

## 1.5 AMP NPN Transistor 60 Volts

### DESIGNER'S DATA SHEET

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

SFT4373



#### Features:

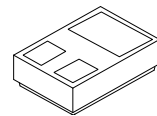
- Radiation tolerant
- Fast switching
- High frequency
- Low saturation voltage
- 200°C operating temperature
- Gold eutectic die attach
- TX, TXV, and S Level Screening Available<sup>2/</sup>

Maximum Ratings <sup>3/</sup>	Symbol	Values	Units
Collector – Emitter Voltage	V <sub>CEO</sub>	80	Volts
Collector – Base Voltage	V <sub>CBO</sub>	160	Volts
Emitter – Base Voltage	V <sub>EBO</sub>	7.5	Volts
Collector Current	I <sub>C</sub>	Continuous Pulsed (2% Duty Cycle)	Amps
Base Current	I <sub>B</sub>	0.6	Amps
Total Device Dissipation T <sub>C</sub> = 100°C Derate above T <sub>C</sub> = 100°C	P <sub>D</sub>	6.6 66	Watts mW/°C
Operating & Storage Temperature	T <sub>J</sub> & T <sub>STG</sub>	-65 to +200	°C
Thermal Resistance	R <sub>θJC</sub>	5.5	°C/W

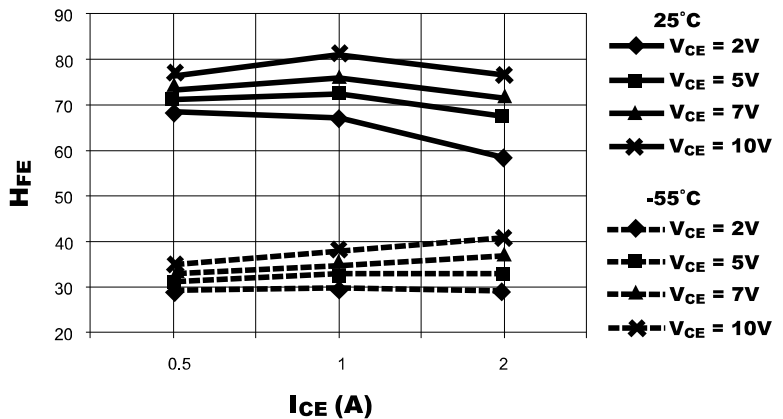
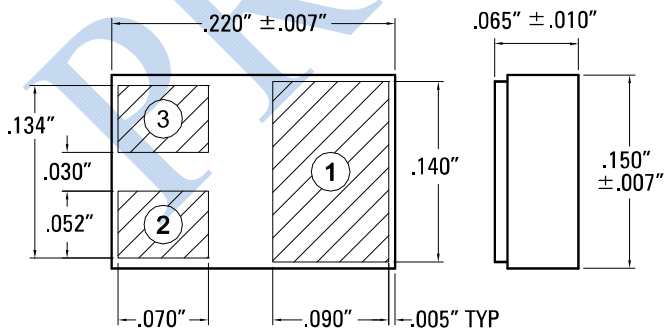
#### NOTES:

- 1/ For ordering information, price, operating curves, and availability - contact factory.
- 2/ Screening based on MIL-PRF-19500. Screening flows available on request.
- 3/ Unless otherwise specified, maximum ratings/electrical characteristics at 25°C.

#### SMD.22 (S.22)



#### CASE OUTLINE: SMD.22



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

DATA SHEET #: TR0122A

DOC



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# SFT4373

Electrical Characteristics <sup>3/</sup>	Symbol	Min	Typ	Max	Units	
Collector – Emitter Breakdown Voltage $I_C = 10\text{mA}$	$BV_{CEO}$	80	100	-	Volts	
Collector – Base Breakdown Voltage $I_C = 100\mu\text{A}$	$BV_{CBO}$	160	230	-	Volts	
Emitter – Base Breakdown Voltage $I_E = 200\mu\text{A}$	$BV_{EBO}$	7.5	8.8	-	Volts	
Collector – Base Cutoff Current $V_{CB} = 60\text{V}, T_C = 25^\circ\text{C}$ $V_{CB} = 60\text{V}, T_C = 125^\circ\text{C}$	$I_{CBO}$	-	0.001 0.25	0.1 10	$\mu\text{A}$	
Collector – Emitter Cutoff Current $V_{CE} = 30\text{V}, T_C = 25^\circ\text{C}$ $V_{CE} = 30\text{V}, T_C = 125^\circ\text{C}$	$I_{CEO}$	-	0.002 6.6	0.1 50	$\mu\text{A}$	
Emitter Cutoff Current $V_{BE} = 5\text{V}$	$I_{EBO}$	-	0.001	1	$\mu\text{A}$	
DC Current Gain*	$H_{FE}$	$I_C = 0.5\text{A}, V_{CE} = 2\text{V}$	35	68.4	-	
		$I_C = 1.0\text{A}, V_{CE} = 2\text{V}$	35	67.4		
		$I_C = 2.0\text{A}, V_{CE} = 2\text{V}$	30	58.4		
		$I_C = 0.5\text{A}, V_{CE} = 5\text{V}$	35	71.3		
		$I_C = 1.0\text{A}, V_{CE} = 5\text{V}$	35	72.5		
		$I_C = 2.0\text{A}, V_{CE} = 5\text{V}$	35	67.8		
		$I_C = 0.5\text{A}, V_{CE} = 10\text{V}$	40	76.7		
DC Current Gain*	$H_{FE}$	$I_C = 0.5\text{A}, V_{CE} = 2\text{V}, T_C = -55^\circ\text{C}$	15	29.5		
		$I_C = 1.0\text{A}, V_{CE} = 2\text{V}, T_C = -55^\circ\text{C}$	-	30		
		$I_C = 2.0\text{A}, V_{CE} = 2\text{V}, T_C = -55^\circ\text{C}$	15	29		
		$I_C = 0.5\text{A}, V_{CE} = 5\text{V}, T_C = -55^\circ\text{C}$	-	31.5		
		$I_C = 1.0\text{A}, V_{CE} = 5\text{V}, T_C = -55^\circ\text{C}$	-	32.5		
		$I_C = 2.0\text{A}, V_{CE} = 5\text{V}, T_C = -55^\circ\text{C}$	-	33		
		$I_C = 0.5\text{A}, V_{CE} = 10\text{V}, T_C = -55^\circ\text{C}$	18	35		
Collector-Emitter Saturation Voltage*	$V_{CE(SAT)}$	$I_C = 1.0\text{A}, I_B = 100\text{mA}$	-	0.15	0.25	V
		$I_C = 2.4\text{A}, I_B = 480\text{mA}$	-	0.25	0.5	
Base-Emitter Saturation Voltage $I_C = 1.0\text{A}, I_B = 0.1\text{A}$	$V_{BE(SAT)}$	-	0.82	1.2	V	
Current Gain Bandwidth Product $I_C = 0.1\text{A}, V_{CE} = 5\text{V}, f = 10\text{MHz}$	$f_T$	80	100	-	MHz	
Output Capacitance $V_{CB} = 10\text{V}, I_E = 0\text{A}, f = 1.0\text{MHz}$	$C_{ob}$	-	40	50	pF	
Input Capacitance $V_{BE} = -0.5\text{V}, I_C = 0\text{A}, f = 1.0\text{MHz}$	$C_{ib}$	-	400	500	pF	
Turn On Time ( $t_d + t_r$ )	$V_{CC} = 20\text{V}, I_C = 1.0\text{A}, V_{BE(off)} = 3.7\text{V}$ $I_{B1} = I_{B2} = 100\text{mA}$	$t_{(on)}$	-	60	120	nsec
Turn Off Time ( $t_s + t_f$ )		$t_{(off)}$	-	320	500	nsec

<b>Notes:</b> * Pulse Test: Pulse Width = 300 $\mu\text{s}$ . Duty Cycle = 2%. 1/ For ordering information, price, operating curves, and availability - contact factory. 2/ Screening based on MIL-PRF-19500. Screening flows available on request. 3/ Unless otherwise specified, maximum ratings/electrical characteristics at 25°C.	<b>PIN ASSIGNMENT (Standard)</b>			
	<b>Package</b>	<b>Collector</b>	<b>Emitter</b>	<b>Base</b>
	<b>SMD.22 (S.22)</b>	1	2	3