



Solid State Devices, Inc.

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DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFT5094
 SFT5096
 SFT5096A

Screening ^{2/}

— = No Screening
 TX = TX Level
 TXV = TXV Level
 S = S Level

Package ^{3/}

-4 = 4 Pin CLCC
 /5 = TO-5
 G = CERPACK
 S.22 = SMD.22
 S.22C = SMD.22C (ceramic lid)

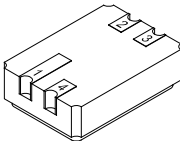
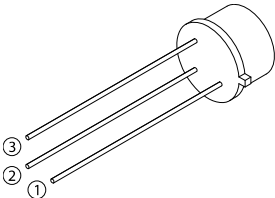
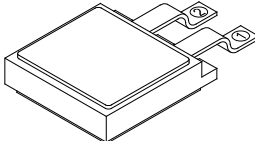
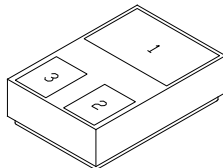
SFT5094, SFT5096 and SFT5096A Series

1 Amp, 500 Volts High Voltage PNP Transistor

Features:

- BV_{CER} to 550 Volts
- Low Leakage at High Temperature
- High Linear Gain, Low Saturation Voltage
- 200°C Operating Temperature
- Gold Eutectic Die Attach
- TX, TXV, S-Level Screening Available
- Designed for Complementary Use with SFT5013 thru SFT5014
- Replacement for 2N3743, 2N5094 and 2N5096 with Lower Thermal Resistance
- Available with TO-5, Cerpack, CLCC, and SMD.22 Cases
- Available as an SMD.22 with ceramic lid for improved high voltage isolation

Maximum Ratings ^{4/}	Symbol	SFT5094	SFT5096	SFT5096A	Units
Collector – Emitter Voltage ($R_{BE} = 1k\Omega$)	V_{CEO}	350	400	550	Volts
	V_{CER}	450	500	550	Volts
Collector – Base Voltage	V_{CBO}	450	500	550	Volts
Emitter – Base Voltage	V_{EBO}	6	6	12	Volts
Collector Current	I_C	1.0			Amps
Base Current	I_B	0.5			Amps
Total Power Dissipation ($T_C = 25^\circ C$) Derate above $T_C = 25^\circ C$ ($T_A = 25^\circ C$)	P_D	1.0			Watts
		0.4			Watts
		5.7			mW/°C
Operating & Storage Temperature	T_J & T_{STG}	-65 to +200			°C
Maximum Thermal Resistance (Junction to Case)	$R_{\theta JC}$	175			°C/W
		30			°C/W
		9			°C/W
		9 (SFT5096A: typ 5)			°C/W
Maximum Thermal Resistance (Junction to Ambient)	$R_{\theta JA}$	440			°C/W
		---			°C/W
		440			°C/W
		440			°C/W

4 Pin CLCC (-4)	TO-5 (/5)	CERPACK (G)	SMD.22 (S.22) or SMD.22C (S.22C)
			

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/} For package outlines, see figure 1.

^{4/} Unless otherwise specified, maximum ratings / electrical characteristics at 25°C.

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

DATA SHEET #: TR0081H

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SFT5094, SFT5096 and SFT5096A Series

Electrical Characteristics ^{4/}		Symbol	Min			Max	Units
Collector – Emitter Breakdown Voltage*	(I _C = 5 mA)	BV_{CEO}	SFT5094 350	SFT5096 400	SFT5096A 550	—	Volts
	(I _C = 100 μA, R _{BE} = 1 kΩ)	BV_{CER}	450	500	550	—	
Collector – Base Breakdown Voltage*	(I _C = 100 μA)	BV_{CBO}	450	500	550	—	Volts
Emitter – Base Breakdown Voltage	(I _E = 50 μA)	BV_{EBO}	6	6	12	—	Volts
Collector Cutoff Current	(V _{CB} = Rated, T _A = 25°C)	I_{CBO1}	—			1.0	μA
	(V _{CB} = Rated, T _A = 100°C)	I_{CBO2}	—			50	
Emitter Cutoff Current	(V _{EB} = 6 V)	I_{EBO}	—			1.0	μA
DC Current Gain*	(I _C = 1 mA, V _{CE} = 10 V)	H_{FE}	20		150	250	
	(I _C = 25 mA, V _{CE} = 10 V)		40		150	300	
	(I _C = 100 mA, V _{CE} = 10 V)		20		150	250	
Collector-Emitter Saturation Voltage*	SFT5094, SFT5096 SFT5096A (I _C = 25 mA, I _B = 2.5 mA)	V_{CE (SAT)}	—			500 100	mV
Base-Emitter Saturation Voltage	SFT5094, SFT5096 SFT5096A (I _C = 25 mA, I _B = 2.5 mA)	V_{BE (SAT)}	—			1.0 0.75	Volts
Current Gain Bandwidth Product*	SFT5094, SFT5096 SFT5096A (I _C = 10 mA, V _{CE} = 10 V, f = 10 MHz)	f_T	25 (typ. 40) 40 (typ. 50)			—	MHz
Output Capacitance	SFT5094, SFT5096 SFT5096A (V _{CB} = 20 V, I _E = 0 A, f = 1.0MHz)	C_{ob}	—			10 15	pF
Turn on Delay Time	V _{CC} = 100 V I _C = 100 mA I _{B1} = I _{B2} = 10 mA	t_d	(typ. 50)			500	ns
Rise Time		t_r	(typ. 130)			1200	ns
Storage Time		t_s	(typ. 1.15)			2.0	μs
Fall Time		t_f	(typ. 3.8)			4.0	us
			(typ. 350)			500	ns
			(typ. 470)			750	ns

Notes: * Pulse Test: Pulse Width = 300 μs. 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/ For package outlines, see figure 1.

4/ Unless otherwise specified, maximum ratings / electrical characteristics at 25°C.

PIN ASSIGNMENT (Standard)

Package	Collector	Emitter	Base
4 Pin CLCC (-4)	Pin 1	Pin 2	Pin 3
TO-5 (/5)	Pin 3	Pin 1	Pin 2
CERPACK (G)	Case	Pin 1	Pin 2
SMD.22 (S.22)	Pin 1	Pin 2	Pin 3

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FIGURE 1 – CASE OUTLINES (dimensions in inches)

The drawing illustrates the mechanical specifications of the 16-pin DIP package. It includes three views: a top view, a side view, and a detailed view of the pins.

- Top View:** Shows the overall footprint with a width of .225 inches (nominal) and .215 inches (minimum), and a height of .160 inches (nominal) and .145 inches (minimum). A dot indicates the location of PIN 1, labeled as the PIN 1 INDENTIFIER.
- Side View:** Shows the package height with a nominal dimension of .076 inches and a minimum dimension of .060 inches.
- Pin Detail View:** Shows the pin configuration with four pins labeled 1, 2, 3, and 4. The pin pitch is .050 inches (nominal) and .048 inches (minimum). The pin width is .048 inches (nominal) and .032 inches (minimum). The distance between the center of pin 4 and the right edge is .088 inches (nominal) and .072 inches (minimum). The distance between the center of pin 3 and the right edge is .048 inches (nominal) and .032 inches (minimum). The distance between the center of pin 4 and the right edge is 4x .025 inches (nominal) and .025 inches (minimum).

Technical drawing of a mechanical part showing two views: a top view and a side view.

Top View Dimensions:

- Overall width: $.105 \pm .010$
- Overall length: $.370$
- Central feature width: $.315$
- Central feature depth: $.140$
- Fillet radius: $.010 \pm .002$
- Side flange width: $.210$

Side View Dimensions:

- Overall height: $.340 \pm .003$
- Base thickness: $.020$
- Side flange height: $.050$
- Distance between hole centers: $.040$
- Hole diameter: $2 \times .060$
- Hole depth: $2 \times .100$

Technical drawing of a rectangular component with three numbered regions (1, 2, 3) and various dimensions. The drawing includes a top view and a side view.

Top View Dimensions:

- Overall width: $.220 \pm .007$
- Overall height: $.140$
- Region 1 (right): width $.090$, height $.140$
- Region 2 (bottom left): width $.070$, height $.052$
- Region 3 (top left): width $.070$, height $.134$
- Gap between Region 2 and Region 3: $.030$
- Gap between Region 1 and Region 2: $.005 \text{ TYP}$

Side View Dimensions:

- Overall width: $.065 \pm .010$
- Overall height: $.150 \pm .007$

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