Solid State Devices, Inc.
14701 Firestone Blvd * La Mirada, CA 90638
Phone: (562) 404-7855 * Fax: (562) 404-1773
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SFT5094, SFT5096 and SFT5096A Series

1 Amp, 500 Volts
High Voltage PNP Transistor

DESIGNER'S DATA SHEET

Part Number / Ordering Information 1/

SFT5094
SFT5096
SFT5096A — —

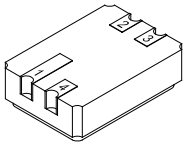
— **Screening** 2/
— = No Screening
TX = TX Level
TXV = TXV Level
S = S Level

Package 3/
-4 = 4 Pin CLCC
/5 = TO-5
G = CERPACK
S.22 = SMD.22
S.22C = SMD.22C (ceramic lid)

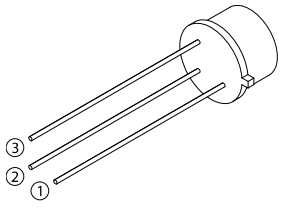
Features:
- BV_{CER} to 550 Volts
- Low Leakage at High Temperature
- High Linear Gain, Low Saturation Voltage
- 200°C Operating Temperature
- Gold Eutectic Die Attach
- TX, TXV, S-Level Screening Available
- Designed for Complementary Use with SFT5013 thru SFT5014
- Replacement for 2N3743, 2N5094 and 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	V_{CEO}	350	400	550	**Volts**
(R_{BE} = 1kΩ)	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°C)	P_D	1.0			**Watts**
(T_A = 25°C)		0.4			**Watts**
Derate above T_C = 25°C		5.7			**mW/°C**
Operating & Storage Temperature	T_J & T_{STG}	-65 to +200			**°C**
Maximum Thermal Resistance 4 Pin CLCC	$R_{\theta JC}$	175			**°C/W**
(Junction to Case) TO-5		30			**°C/W**
CERPACK		9			**°C/W**
SMD.22 / SMD.22C		9 (**SFT5096A**: typ 5)			**°C/W**
Maximum Thermal Resistance 4 Pin CLCC	$R_{\theta JA}$	440			**°C/W**
(Junction to Ambient) TO-5		---			**°C/W**
CERPACK		440			**°C/W**
SMD.22 / SMD.22C		440			**°C/W**

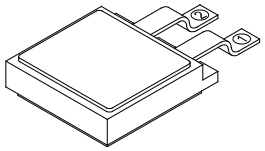
4 Pin CLCC (-4)



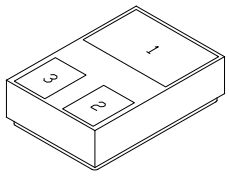
TO-5 (/5)



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.

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SFT5094, SFT5096 and SFT5096A Series

Electrical Characteristics [4/]		Symbol	Min			Max	Units
			SFT5094	SFT5096	SFT5096A		
Collector – Emitter Breakdown Voltage*	(I_C = 5 mA)	BV_{CEO}	350	400	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* (I_C = 25 mA, I_B = 2.5 mA)	**SFT5094, SFT5096**	$V_{CE\ (SAT)}$	—			500	mV
	SFT5096A		—			100	
Base-Emitter Saturation Voltage (I_C = 25 mA, I_B = 2.5 mA)	**SFT5094, SFT5096**	$V_{BE\ (SAT)}$	—			1.0	Volts
	SFT5096A		—			0.75	
Current Gain Bandwidth Product* (I_C = 10 mA, V_{CE} = 10 V, f = 10 MHz)	**SFT5094, SFT5096**	f_T	25 (typ. 40)			—	MHz
	SFT5096A		40 (typ. 50)				
Output Capacitance (V_{CB} = 20 V, I_E = 0 A, f = 1.0MHz)	**SFT5094, SFT5096**	C_{ob}	—			10	pF
	SFT5096A		—			15	
Turn on Delay Time (V_{CC}= 100 V, I_C= 100 mA, I_{B1} = I_{B2} = 10 mA)	**all**	t_d	(typ. 50)			500	ns
Rise Time	**all**	t_r	(typ. 130)			1200	ns
Storage Time	**SFT5094, SFT5096**	t_s	(typ. 1.15)			2.0	µs
	SFT5096A		(typ. 3.8)			4.0	us
Fall Time	**SFT5094, SFT5096**	t_f	(typ. 350)			500	ns
	SFT5096A		(typ. 470)			750	ns

Notes: * Pulse Test: Pulse Width = 300 µs. Duty Cycle = 2%.

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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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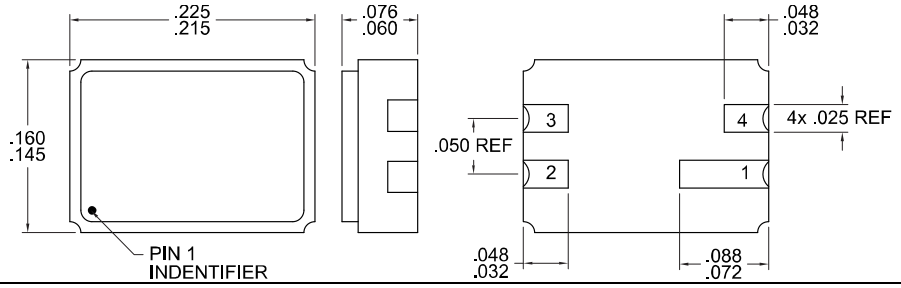
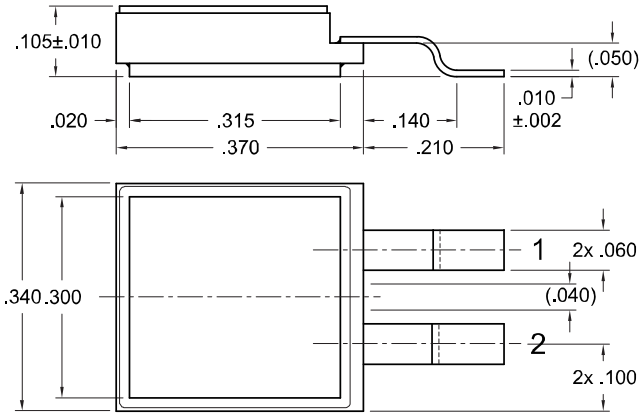
SFT5094 and SFT5096
Series

FIGURE 1 – CASE OUTLINES (dimensions in inches)

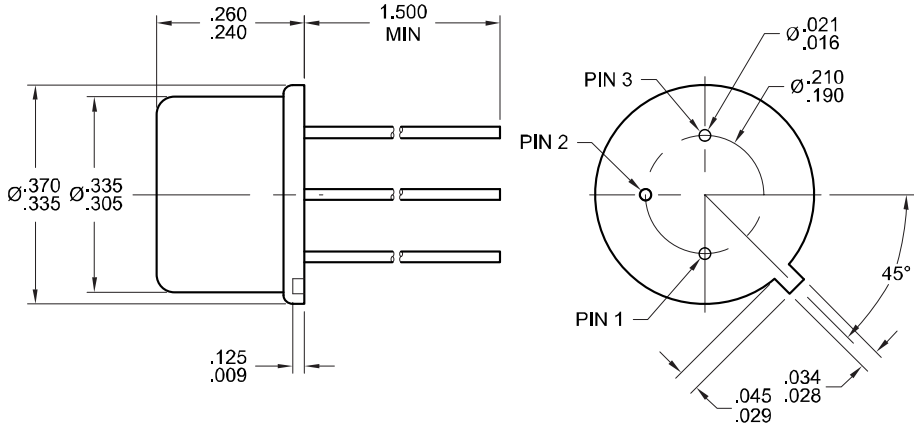
4 Pin CLCC (-4):



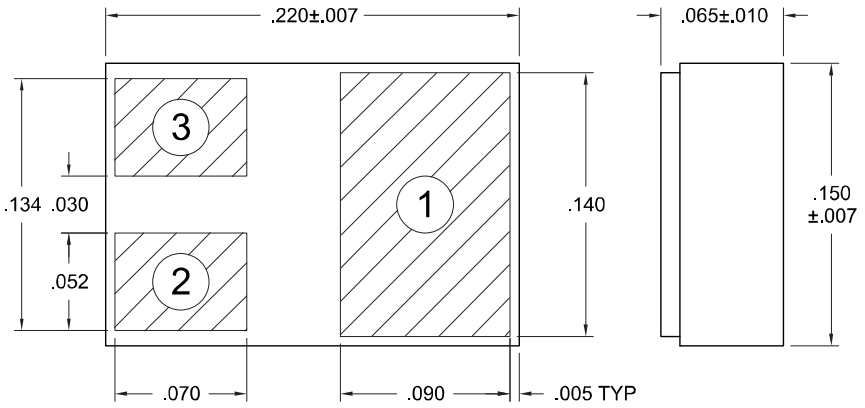
CERPACK (G):



TO-5 (/5):



SMD.22 (S.22) or SMD.22C (S.22C):



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	DOC