



Solid State Devices, Inc.

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SFTN5096

1 AMP, 500 Volts High Voltage PNP Transistor

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFTN5094
 SFTN5096

Screening ^{2/} = No Screening
 TX = TX Level
 TXV = TXV Level
 S = S Level

Package ^{3/} -4 = 4 Pin CLCC
 /5 = TO-5
 G = CERPACK
 S22 = SMD.22

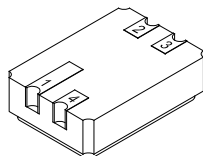
Features:

- BV_{CER} to 500 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 SFT5015
- Replacement for 2N5094 and 2N5096 with Lower Thermal Resistance
- Available with TO-5, Cerpack, CLCC, and SMD.22 Cases

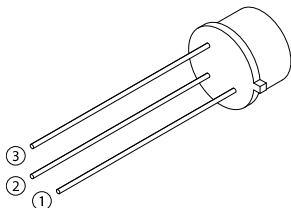
Maximum Ratings ^{4/}

	Symbol	SFT5096	Units
Collector – Emitter Voltage ($R_{BE} = 1k\Omega$)	V_{CEO}	450	Volts
	V_{CER}	500	Volts
Collector – Base Voltage	V_{CBO}	500	Volts
Emitter – Base Voltage	V_{EBO}	6	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 5.7	Watts mW /°C
Operating & Storage Temperature	T_J & T_{STG}	-65 to +200	°C
Maximum Thermal Resistance (Junction to Case)	$R_{\theta JC}$	4 Pin CLCC	175
		TO-5	30
		CERPACK	9
		SMD.22	9
Maximum Thermal Resistance (Junction to Ambient)	$R_{\theta JA}$	4 Pin CLCC	440
		TO-5	---
		CERPACK	440
		SMD.22	440

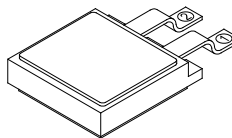
4 Pin CLCC (-4)



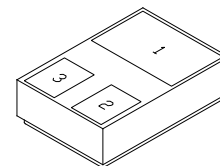
TO-5 (/5)



CERPACK (G)



SMD.22 (S22)



NOTES: ^{1/} For Ordering Information, Price, Operating Curves, and Availability Contact Factory.

^{2/} Screened to MIL-PRF-19500.

^{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 #: TR0124A

DOC



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SFTN5096

Electrical Characteristics ^{4/}	Symbol	Min	Typ	Max	Units	
Collector – Emitter Breakdown Voltage*	$I_C = 5 \text{ mA}$ BV_{CEO}	450	500	—	Volts	
	$I_C = 100 \text{ } \mu\text{A}, R_{BE} = 1\text{k } \Omega$ BV_{CER}	500	—	—		
Collector – Base Breakdown Voltage*	$(I_C = 100 \text{ } \mu\text{A})$ BV_{CBO}	500		—	Volts	
Emitter – Base Breakdown Voltage	$(I_E = 50 \text{ } \mu\text{A})$ BV_{EBO}	7.5		—	Volts	
Collector Cutoff Current	$(V_{CB} = \text{Rated}, T_A = 25^\circ\text{C})$ I_{CB01}	—	0.01	1.0	μA	
	$(V_{CB} = \text{Rated}, T_A = 100^\circ\text{C})$ I_{CB02}	—	0.1	50		
Emitter Cutoff Current	$(V_{EB} = 6 \text{ V})$ I_{EBO}	—	0.001	1.0	μA	
DC Current Gain*	$I_C = 1 \text{ mA}, V_{CE} = 5 \text{ V}$	100	200	250		
	$I_C = 25 \text{ mA}, V_{CE} = 5 \text{ V}$	100	200	250		
	$I_C = 100 \text{ mA}, V_{CE} = 5 \text{ V}$	100	200	250		
	$I_C = 500 \text{ mA}, V_{CE} = 5 \text{ V}$	70	120	200		
	$I_C = 25 \text{ mA}, V_{CE} = 5 \text{ V } T_A = -55^\circ\text{C}$	75	125	-		
Collector-Emitter Saturation Voltage*	$I_C = 25 \text{ mA}, I_B = 2.5 \text{ mA}$	—	60	100	mV	
	$I_C = 250 \text{ mA}, I_B = 25 \text{ mA}$ V_{CE(SAT)}	—	135	175		
Base-Emitter Saturation Voltage	$I_C = 25 \text{ mA}, I_B = 2.5 \text{ mA}$	—	650	0.75	Volts	
	$I_C = 250 \text{ mA}, I_B = 25 \text{ mA}$ V_{BE(SAT)}	—	750	0.85		
Current Gain Bandwidth Product*	$(I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V}, f = 10 \text{ MHz})$ f_T	25	35	—	MHz	
Output Capacitance	$V_{CB} = 20 \text{ V}, I_E = 0 \text{ A}, f = 1.0\text{MHz}$ C_{ob}	—	24	30	pF	
Turn on Delay Time	$V_{CC} = 100 \text{ V}$ $I_C = 100 \text{ mA}$ $I_{B1} = I_{B2} = 10 \text{ mA}$	t_d	—	115	ns	
Rise Time		t_r	—	170	250	ns
Storage Time		t_s	—	2.6	3.5	μs
Fall Time		t_f	—	250	300	ns

Notes: * Pulse Test: Pulse Width = 300 μs . Duty Cycle = 2%.
 1/ For Ordering Information, Price, Operating Curves, and Availability Contact Factory.
 2/ Screened to MIL-PRF-19500.
 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	Pin 1	Pin 2	Pin 3

