



Solid State Devices, Inc.

14830 Valley View Blvd * La Mirada, Ca 90638

Phone: (562) 404-7855 * Fax: (562) 404-1773

ssdi@ssdi-power.com * www.ssdi-power.com

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFT3904A2

\square Screening ^{2/} ___ = Commercial
 TX = TX Level
 TXV = TXV Level
 S = S Level
 Package GW = Gullwing

**SFT3904A2
Series**

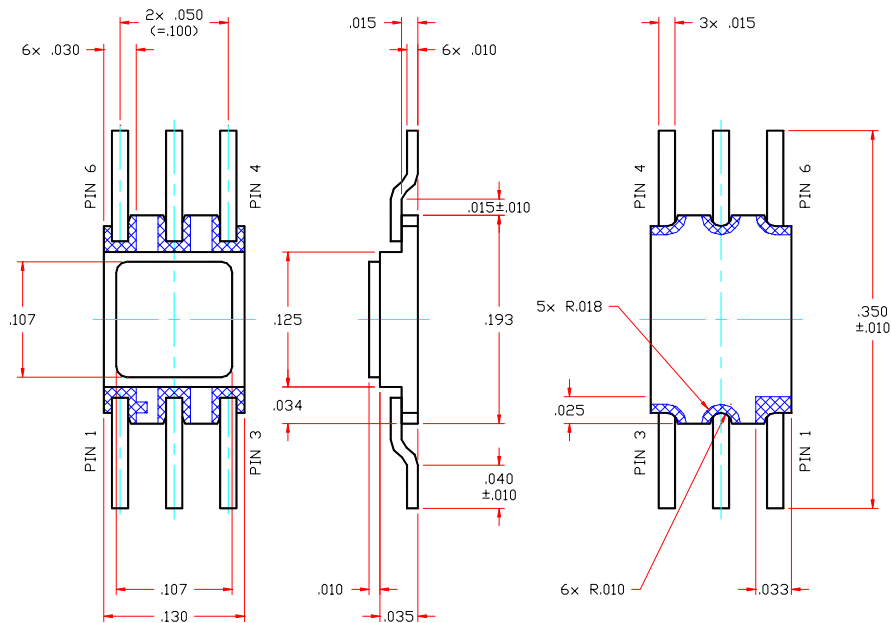
**Dual Microminiature Package
800 mA 75 Volts
Dual NPN Transistor**

Features:

- High Speed Switching Transistor
- Multiple Devices Reduce Board Space
- High Power Dissipation: Up to 600 mW / device
- Replacement for 2N3904AU
- TX, TXV, S-Level screening available
- PNP complimentary parts available (SFT3906A2)

Maximum Ratings	Symbol	Value	Units
Collector – Emitter Voltage	V_{CEO}	40	Volts
Collector – Base Voltage	V_{CBO}	60	Volts
Emitter – Base Voltage	V_{CBO}	6	Volts
Continues Collector Current	I_C	200	mAmps
Power Dissipation @ $T_C = 25^\circ C$	P_D	600	mW
Operating & Storage Temperature	Top & Tstg	-65 to +200	$^\circ C$
Maximum Thermal Resistance (Junction to Case)	$R_{\theta JC}$	0.29	$^\circ C/mW$

Gullwing (GW)



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

DATA SHEET #: TR0034 A

Doc



Solid State Devices, Inc.

14830 Valley View Blvd * La Mirada, Ca 90638
 Phone: (562) 404-7855 * Fax: (562) 404-1773
 ssdi@ssdi-power.com * www.ssdi-power.com

SFT3904A2 Series

Electrical Characteristic ^{4/}		Symbol	Min	Max	Units	
Collector – Emitter Sustaining Voltage	$I_C = 1 \text{ mA}$	BV_{CEO}	40	—	Volts	
Collector – Base Breakdown Voltage	$I_C = 10 \mu\text{A}$	BV_{CBO}	60	—	Volts	
Emitter – Base Breakdown Voltage	$I_C = 10 \mu\text{A}$	BV_{EBO}	6	—	Volts	
Collector Cutoff Current	$V_{ce} = 30 \text{ V}, V_{be} = -3.0 \text{ V}$	I_{CEX}	—	50	nA	
Collector Cutoff Current	$V_{cb} = 30 \text{ V}$	I_{CBO}	—	50	nA	
Emitter Cutoff Current	$V_{eb} = 3.0 \text{ V}$	I_{EBO}	—	50	nA	
DC Forward Current Transfer Ratio *	$V_{CE} = 1.0\text{V}, I_C = 0.1 \text{ mA}$	H_{FE}	40	—		
	$V_{CE} = 1.0\text{V}, I_C = 1.0 \text{ mA}$		70	—		
	$V_{CE} = 1.0\text{V}, I_C = 10 \text{ mA}$		100	300		
	$V_{CE} = 1.0\text{V}, I_C = 50 \text{ mA}$		60	—		
	$V_{CE} = 1.0\text{V}, I_C = 100 \text{ mA}$		30	—		
Collector – Emitter Saturation Voltage *	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$ $I_C = 50\text{mA}, I_B = 5.0\text{mA}$	$V_{CE(Sat)}$	— —	0.2 0.3	Volts	
Base – Emitter Saturation Voltage *	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$ $I_C = 50\text{mA}, I_B = 5.0\text{mA}$	$V_{BE(Sat)}$	0.65 —	0.85 0.95	Volts	
Frequency Transition	$V_{CE} = 20\text{V}, I_C = 20\text{mA}$	f_T	300	—	MHz	
Output Capacitance	$V_{CE} = 10\text{V}, f = 1\text{MHz}$	c_{ob}	—	4.0	pF	
Input Capacitance	$V_{CE} = 0.5\text{V}, f = 1\text{MHz}$	c_{ib}	—	8.0	pF	
Switch Times	Turn-on Delay Time	$V_{cc}=3\text{V}, I_C = 10 \text{ mA}$ $I_{B1} = 1\text{mA}, I_{B2}=-1\text{mA}$ $V_{be(off)} = 0.5 \text{ V}$	t_d	—	35	n sec
	Rise Time		t_r	—	35	
	Storage Time		t_s	—	200	
	Fall Time		t_f	—	50	
Small Signal Current Gain ($f = 1 \text{ kHz}$)	$V_{CE} = 10\text{V}, I_C = 1.0 \text{ mA}$	h_{fe}	100	400		
Noise Figure	$I_c = 100 \mu\text{A}, V_{ce} = 5 \text{ V}, R_s = 1.0 \text{ k}\Omega, f = 1 \text{ kHz}$	NF	—	5.0	db	

NOTES:

* Pulse Test: Pulse Width = 300μsec, Duty Cycle = 2%
 1/ For Ordering Information, Price, and Availability Contact Factory.

2/ Screening per MIL-PRF-19500

3/ For Package Outlines Contact Factory.

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

Available Part Numbers:
 SFT3904A2GW

PIN ASSIGNMENT						
Package	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
GW	Collector1	Base1	Emitter1	Collector2	Base2	Emitter2



DATA SHEET APPROVAL FORM

Data Sheet Number TR0034 Rev A Check Box to Include on Web:
Part Number(s): SFT3904A2GW

Approval	Sign	Date
Engineering Manager:	<u>Dave Guy</u>	<u>09/19/03</u>
Executive / CEO	<u>Arnold Applebaum</u>	<u>09/22/03</u>
Operation Manager:	<u>Ed Applebaum</u>	<u>09/22/03</u>
Marketing Manager:	<u>Sharon Pfifer</u>	<u>09/22/03</u>
Quality Manager:	<u>Brian Greene</u>	<u>09/22/03</u>

Revisions

ECO No	REV	DATE	DESCRIPTION	APPROVAL