



**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 <sup>1/</sup>**

**SFT390604A2**

$\square$  Screening <sup>2/</sup>      = Commercial  
 TX = TX Level  
 TXV = TXV Level  
 S = S Level  
 Package GW = Gullwing

**SFT390604A2  
Series**

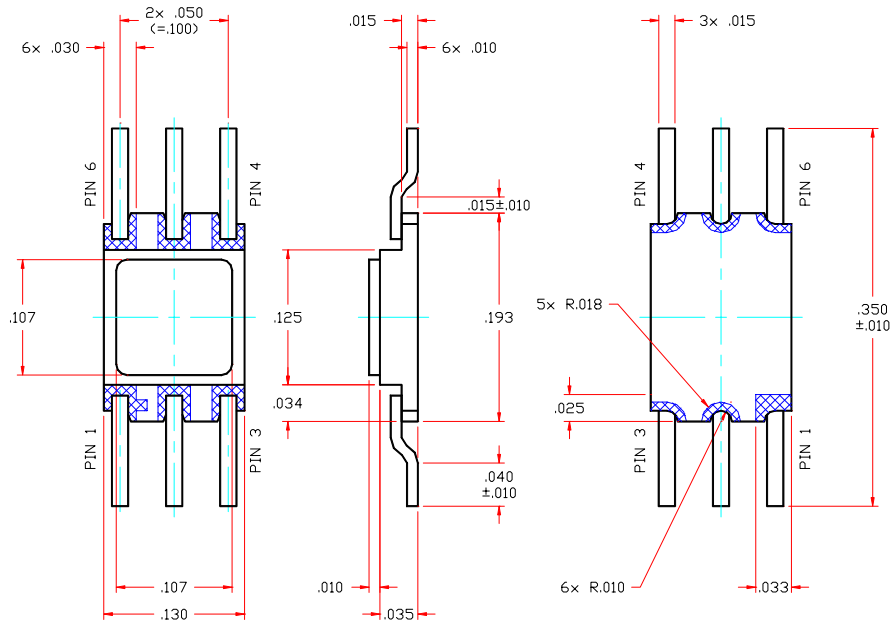
**Dual Microminiature Package  
800 mA 75 Volts  
NPN/PNP Transistor**

**Features:**

- High Speed Switching Transistor
- Multiple Devices Reduce Board Space
- High Power Dissipation: Up to 600 mW / device
- TX, TXV, S-Level screening available
- Replaces both 2N3906AU (PNP) & 2N3904AU(NPN) in one package

Maximum Ratings (per device)	Symbol	PNP Value	NPN Value	Units
Collector – Emitter Voltage	V <sub>CEO</sub>	40	40	Volts
Collector – Base Voltage	V <sub>CB0</sub>	40	60	Volts
Emitter – Base Voltage	V <sub>CB0</sub>	6	6	Volts
Continues Collector Current	I <sub>C</sub>	200	200	mAmps
Power Dissipation @ TC = 25°C	P <sub>D</sub>	600	600	mW
Operating & Storage Temperature	Top & Tstg	-65 to +200	-65 to +200	°C
Maximum Thermal Resistance (Junction to Case)	R <sub>θJC</sub>	0.29	0.29	°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 #: TR0036 B**

**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

**SFT390604A2  
 Series**

Electrical Characteristic <sup>4/ 5/</sup>	Symbol	PNP Limit	NPN Limit	Units		
Collector – Emitter Sustaining Voltage	$I_C = 1 \text{ mA}$	$BV_{CEO}$	40 min	40 min	V	
Collector – Base Breakdown Voltage	$I_C = 10 \mu\text{A}$	$BV_{CBO}$	40 min	60 min	V	
Emitter – Base Breakdown Voltage	$I_C = 10 \mu\text{A}$	$BV_{EBO}$	5 min	5 min	V	
Collector Cutoff Current	$V_{ce} = 30 \text{ V}, V_{be} = 3.0 \text{ V}$	$I_{CEX}$	50 max	50 max	nA	
Collector Cutoff Current	$V_{cb} = -30 \text{ V}$	$I_{CBO}$	50 max	50 max	nA	
Emitter Cutoff Current	$V_{eb} = -3.0 \text{ V}$	$I_{EBO}$	50 max	50 max	nA	
DC Forward Current Transfer Ratio *	$V_{CE} = 1.0\text{V}, I_C = 0.1 \text{ mA}$ $V_{CE} = 1.0\text{V}, I_C = 1.0 \text{ mA}$ $V_{CE} = 1.0\text{V}, I_C = 10 \text{ mA}$ $V_{CE} = 1.0\text{V}, I_C = 50 \text{ mA}$ $V_{CE} = 1.0\text{V}, I_C = 100 \text{ mA}$	$H_{FE}$	60 min 80 min 100 - 300 60 min 30 min	40 min 70 min 100 - 300 60 min 30 min		
Collector – Emitter Saturation Voltage *	$I_C = 10\text{mA}, I_B = 1.0\text{mA}$ $I_C = 50\text{mA}, I_B = 5.0\text{mA}$	$V_{CE(Sat)}$	0.25 max 0.40 max	0.20 max 0.30 max	V	
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 to 0.85 0.95 max	0.65 to 0.85 0.95 max	V	
Frequency Transition	$V_{CE} = 20\text{V}, I_C = 20\text{mA}$	$f_T$	250 min	300 min	MHz	
Output Capacitance	$V_{CE} = 10\text{V}, f = 1\text{MHz}$	$c_{ob}$	4.5 max	4.0 max	pF	
Input Capacitance	$V_{CE} = 0.5\text{V}, f = 1\text{MHz}$	$c_{ib}$	10 max	8.0 max	pF	
Switch Times	Turn-on Delay Time Rise Time Storage Time Fall Time	$V_{cc}=3\text{V}, I_C = 10 \text{ mA}$ $I_{B1} = 1\text{mA}, I_{B2}=-1\text{mA}$ $V_{be(off)} = 0.5 \text{ V}$	$t_d$ $t_r$ $t_s$ $t_f$	35 max 35 max 225 max 75 max	35 max 35 max 200 max 50 max	nsec
Small Signal Current Gain (f = 1 khz)	$V_{CE} = 10\text{V}, I_C = 1.0 \text{ mA}$	$h_{fe}$	100 - 400	100 - 400		
Noise Figure	$I_c = 100 \mu\text{A}, V_{ce} = 5 \text{ V}, R_s = 1.0 \text{ k}\Omega, f = 1 \text{ khz}$	<b>NF</b>	4.0 max	5.0 max	db	

**NOTES:** 2/ Screening per MIL-PRF-19500  
 \* Pulse Test: Pulse Width = 300μsec, Duty Cycle = 2% 3/ For Package Outlines Contact Factory.  
 1/ For Ordering Information, Price, and Availability 4/ Unless Otherwise Specified, All Electrical Characteristics @25°C.  
 Contact Factory. 5/ Negative bias conditions for the PNP device type

**Available Part Numbers:**  
**SFT390604A2GW**

PIN ASSIGNMENT						
Package	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
	PNP Device			NPN Device		
<b>GW</b>	Collector	Base	Emitter	Collector	Base	Emitter