



Solid State Devices, Inc.

14830 Valley View Blvd * La Mirada, Ca 90638

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DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFT390604A2

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

**SFT390604A2
Series**

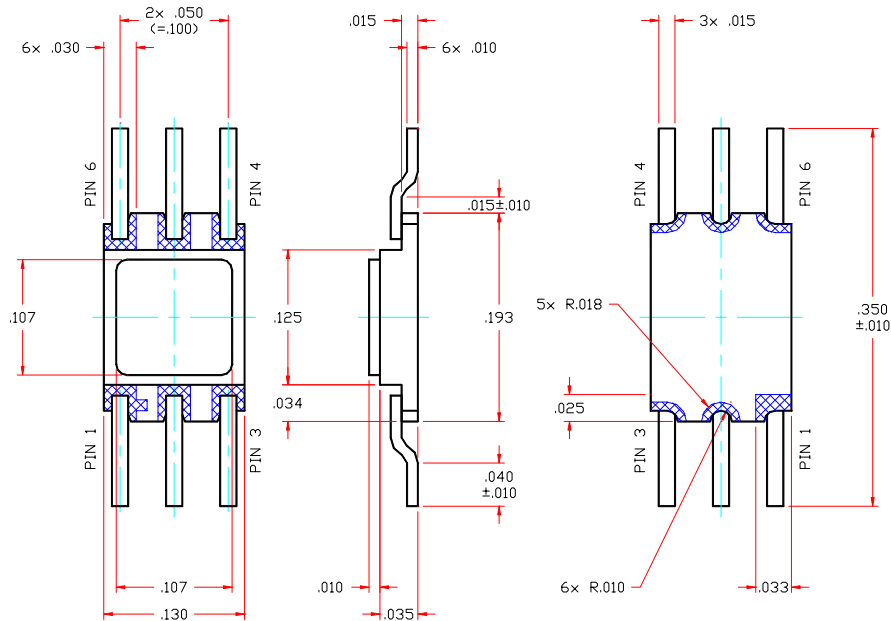
**Dual Microminiature Package
800 mA 75 Volts
NPN/PNP Transistor**

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_{CEO} | 40 | 40 | Volts |
| Collector – Base Voltage | V_{CBO} | 40 | 60 | Volts |
| Emitter – Base Voltage | V_{CBO} | 6 | 6 | Volts |
| Continues Collector Current | I_C | 200 | 200 | mAmps |
| Power Dissipation @ $T_C = 25^\circ C$ | P_D | 600 | 600 | mW |
| Operating & Storage Temperature | Top & Tstg | -65 to +200 | -65 to +200 | $^\circ C$ |
| Maximum Thermal Resistance (Junction to Case) | $R_{\theta JC}$ | 0.29 | 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 #: TR0036 B

Doc

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| SFT390604A2 Series |
|-------------------------------|

| Electrical Characteristic ^{4/ 5/} | 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 ($f = 1 \text{ kHz}$) | $V_{CE} = 10\text{V}, I_C = 1.0 \text{ mA}$ | h_{fe} | 100 - 400 | 100 - 400 | | |
| Noise Figure | $I_c = 100 \mu\text{A}, V_{ce} = 5 \text{ V}, R_s = 1.0 \text{ k}\Omega, f = 1 \text{ kHz}$ | NF | 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 | | |
| GW | Collector | Base | Emitter | Collector | Base | Emitter |
| | | | | | | |