



Solid State Devices, Inc.

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DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFT390604A2

└ Screening ^{2/} = Commercial
TX = TX Level
TXV = TXV Level
S = S Level

└ Package GW = Gullwing

SFT390604A2 Series

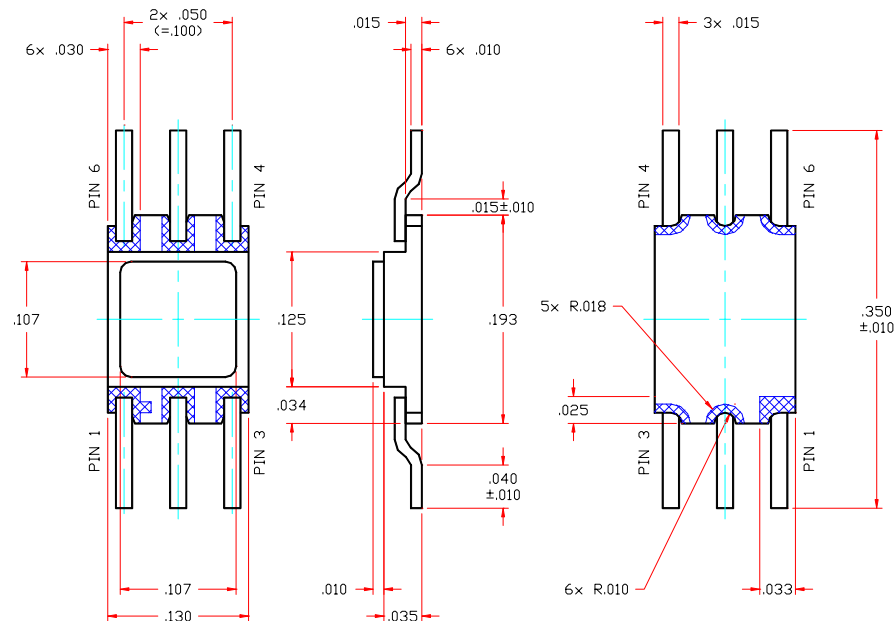
Dual Microminiature Package 800 mA 75 Volts NPN/PNP Transistor

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 @ $T_C = 25^\circ\text{C}$	P_D	600	600	mW
Operating & Storage Temperature	Top & Tstg	-65 to +200	-65 to +200	$^\circ\text{C}$
Maximum Thermal Resistance (Junction to Case)	$R_{\theta JC}$	0.29	0.29	$^\circ\text{C}/\text{mW}$

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

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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:

* 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.

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