



**Solid State Devices, Inc.**

14701 Firestone Blvd \* La Mirada, CA 90638  
 Phone: (562) 404-4474 \* Fax: (562) 404-1773  
 ssdi@ssdi-power.com \* www.ssdi-power.com

**SFT85707GW**

**Dual Microminiature Package  
 NPN & PNP Pair  
 Small Signal / RF Transistor**

**DESIGNER'S DATA SHEET**

Part Number / Ordering Information<sup>1/</sup>

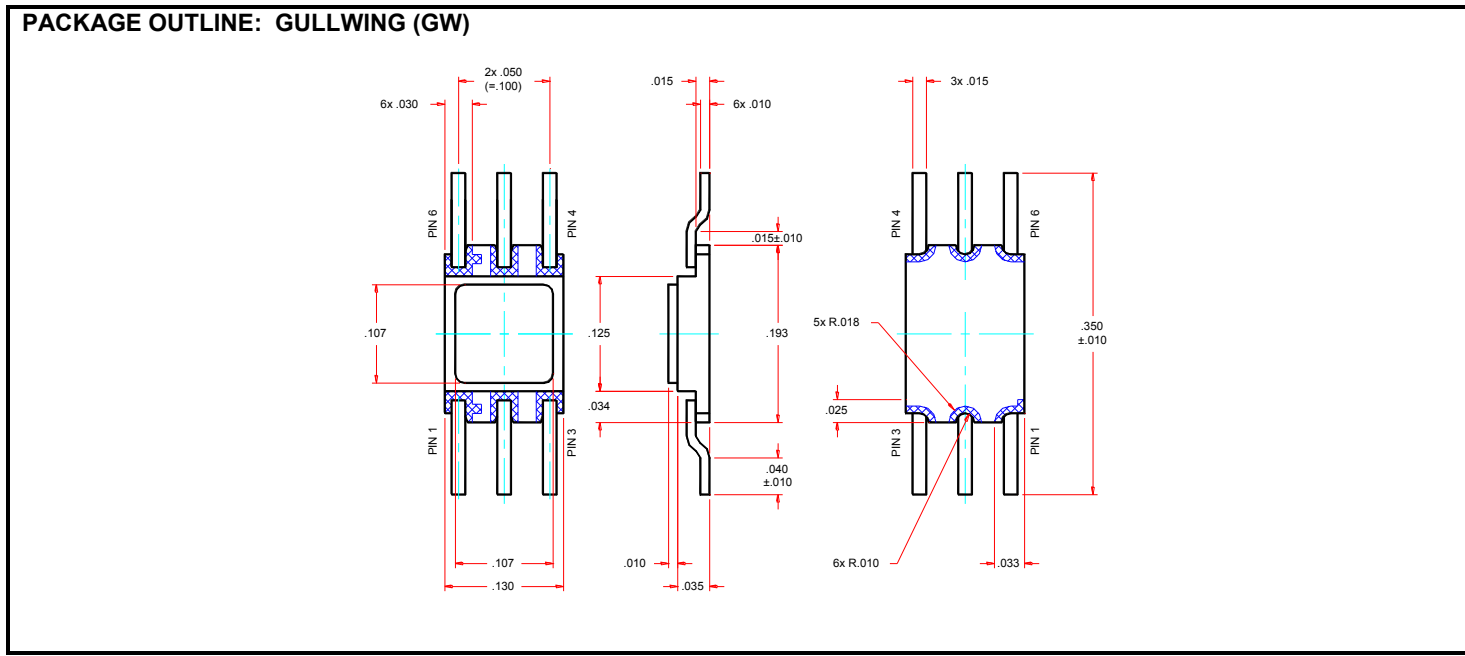
SFT85707 \_ \_

Screening<sup>2/</sup> \_ \_ = Not Screened  
 TX = TX Level  
 TXV = TXV Level  
 S = S Level

Package<sup>3/</sup> GW = GULLWING

- Features:**
- High Speed, Saturated Switching, and Driver Applications
  - Low Power IF and RF Amplifier Applications in the UHF Range
  - TX, TXV, S-Level Screening Available<sup>2/</sup>

Maximum Ratings		Symbol	2N2857 NPN	2N2907 PNP	Units
Collector – Emitter Voltage		V <sub>CEO</sub>	15	60	Volts
Collector – Base Voltage		V <sub>CB0</sub>	30	60	Volts
Emitter – Base Voltage		V <sub>EBO</sub>	3.0	5.0	Volts
Collector Current		I <sub>C</sub>	40	600	mA
Power Dissipation Per Device	T <sub>A</sub> = 25°C	P <sub>D</sub> <sup>5/</sup>	200	500	mW
Total Power Dissipation	T <sub>A</sub> = 25°C	P <sub>D</sub> <sup>5/</sup>	660		mW
Maximum Thermal Resistance	(Junction to Ambient)	R <sub>0JA</sub> <sup>5/</sup>	880	350	°C/W
Operating & Storage Temperature		T <sub>J</sub> & T <sub>STG</sub>	-65 to +200	-65 to +200	°C



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

**DATA SHEET #: TR0079D**

**DOC**



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Electrical Characteristics <sup>4/</sup>	Symbol	NPN Bias	Limit	PNP Bias	Limit
Collector – Emitter Blocking Voltage *	<b>BV<sub>CEO</sub></b>	I <sub>C</sub> =3 mA	15 V min	I <sub>C</sub> = 10 mA	-60 V min
Collector – Base Leakage Current	<b>I<sub>CBO1</sub></b>	V <sub>CB</sub> = 30 V	1 uA max	V <sub>CB</sub> = 60 V	-10 uA max
Emitter – Base Leakage Current	<b>I<sub>EBO</sub></b>	V <sub>BE</sub> = 3 V	10 uA max	V <sub>BE</sub> = 5 V V <sub>BE</sub> = 4 V	-10 uA max -50 nA max
Collector Cutoff Current	<b>I<sub>CBO2</sub></b>	V <sub>CB</sub> = 15 V V <sub>CB</sub> = 15 V, T <sub>A</sub> = 150°C	10 nA max 1 μA max	V <sub>CB</sub> = -50 V, T <sub>A</sub> = 25°C V <sub>CB</sub> = -50 V, T <sub>A</sub> = 150°C	-10 nA max -10 μA max
Emitter Cutoff Current	<b>I<sub>CES</sub></b>	V <sub>CE</sub> = 16 V, V <sub>BE</sub> = 0 V	100 nA	V <sub>CE</sub> = -50 V, V <sub>BE</sub> = 0 V	50 nA
DC Current Forward Transfer Ratio *	<b>h<sub>FE</sub></b>	I <sub>C</sub> = 3 mA, V <sub>CE</sub> = 1 V	30 - 150	—	—
DC Current Forward Transfer Ratio *	<b>h<sub>FE</sub></b>	—	—	I <sub>C</sub> = 100 μA, V <sub>CE</sub> = 10 V I <sub>C</sub> = 1 mA, V <sub>CE</sub> = 10 V I <sub>C</sub> = 10 mA, V <sub>CE</sub> = 10 V I <sub>C</sub> = 150 mA, V <sub>CE</sub> = 10 V I <sub>C</sub> = 500 mA, V <sub>CE</sub> = 10 V	75 min 100 - 450 100 min 100 - 300 50 min
Small Signal Current Gain * (f = 1 kHz)	<b>h<sub>fe</sub></b>	I <sub>C</sub> = 2 mA, V <sub>CE</sub> = 6 V	20 - 220	I <sub>C</sub> = 1 mA, V <sub>CE</sub> = 10 V	100 min
Collector-Emitter Saturation Voltage *	<b>V<sub>CE(SAT)</sub></b>	I <sub>C</sub> = 10 mA, I <sub>B</sub> = 1 mA	0.4 V max	I <sub>C</sub> = 150 mA, I <sub>B</sub> = 15 mA I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50 mA	-0.4 V max -1.6 V max
Base-Emitter Saturation Voltage *	<b>V<sub>BE(SAT)</sub></b>	I <sub>C</sub> = 10 mA, I <sub>B</sub> = 1 mA	1.0 V max	I <sub>C</sub> = 150 mA, I <sub>B</sub> = 15 mA I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50 mA	-1.3 V max -2.6 V max
Small-Signal Power Gain	<b>G<sub>pe</sub></b>	I <sub>C</sub> = 1.5 mA, V <sub>CE</sub> = 6 V, f = 450 MHz <sup>6/</sup>	12.5 – 21 dB	—	—
Noise Figure	<b>NF</b>	I <sub>C</sub> = 1.5 mA, V <sub>CE</sub> = 6 V, f = 450 MHz <sup>6/</sup>	4.5 dB max	—	—
Current Gain – Bandwidth Product	<b>f<sub>T</sub></b>	V <sub>CE</sub> = 6 V, I <sub>C</sub> = 5 mA, f = 100 MHz	1.0 GHz min	V <sub>CE</sub> = -20 V, I <sub>C</sub> = 20 mA, f = 100 MHz	200 MHz min
Collector Base Time Constant	<b>R<sub>b</sub>C<sub>c</sub></b>	V <sub>CB</sub> = 6 V, I <sub>E</sub> = 2 mA, f = 31.9 MHz <sup>6/</sup>	4 - 15 ps	—	—
Output Capacitance	<b>C<sub>ob/cb</sub></b>	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0 A, f = 0.1 to 1 MHz	1.0 pF max	V <sub>CB</sub> = -10 V, I <sub>E</sub> = 0 A, f = 1.0 MHz	8 pF max
Input Capacitance	<b>C<sub>ib</sub></b>	—	—	V <sub>BE</sub> = -2.0 V, I <sub>C</sub> = 0 A, f = 1.0 MHz	30 pF max
Delay Time	<b>t<sub>(on)</sub></b>	<b>t<sub>d</sub></b>	—	V <sub>CC</sub> = -30 V, I <sub>C</sub> = 150 mA, I <sub>B1</sub> = I <sub>B2</sub> = 15 mA	45 ns max
Rise Time			<b>t<sub>r</sub></b>		
Storage Time	<b>t<sub>(off)</sub></b>	<b>t<sub>s</sub></b>	—	V <sub>CC</sub> = -6 V, I <sub>C</sub> = 150 mA, I <sub>B1</sub> = I <sub>B2</sub> = 15 mA	300 ns max
Fall Time			<b>t<sub>f</sub></b>		

<p><b>NOTES:</b></p> <p>* Pulse Test: Pulse Width = 300μsec, Duty Cycle = 2%</p> <p><sup>1/</sup> For Ordering Information, Price, and Availability Contact Factory.</p> <p><sup>2/</sup> Screening based on MIL-PRF-19500. Screening flows available on request.</p>	<p><sup>3/</sup> For Package Outlines Contact Factory.</p> <p><sup>4/</sup> Unless Otherwise Specified, All Electrical Characteristics @25°C</p> <p><sup>5/</sup> Mounted on F__ PCB</p> <p><sup>6/</sup> parameter guaranteed by design</p>
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**Available Part Numbers:**  
**SFT85707GW**

PIN ASSIGNMENT						
Package	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
Gullwing	Collector	Base	Emitter	Collector	Base	Emitter
	PNP	PNP	PNP	NPN	NPN	NPN