



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

SFT978 Series

0.1 AMP, 900 VOLTS High Voltage, Medium Power NPN Transistor

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFT978

- └ Screening ^{2/}
 - ___ = Not Screened
 - TX = TX Level
 - TXV = TXV Level
 - S = S Level
- └ Package
 - /5 = TO-5
 - G = CERPACK
 - S.5 = SMD.5

Features:

- BV_{CEO} to 900 Volts
- Low Leakage at High Temperature
- High Linear Gain, Low Saturation Voltage
- 125°C Operating Temperature
- Gold Eutectic Die Attach
- TX, TXV, and S-Level Screening Available
- Designed for Complementary Use with SFT529
- Available in TO-5, Cerpack, and SMD.22 Cases

Maximum Ratings ^{3/}		Symbol	Max	Unit
Collector – Emitter Voltage		V _{CEO}	900	V
Collector – Base Voltage		V _{CBO}	1000	V
Emitter – Base Voltage		V _{EBO}	6	V
Collector Current		I _C	100	mA
Base Current		I _B	50	mA
Total Power Dissipation	TO-5	P _D	3.0	W
	CERPACK		10.0	
	SMD.5		10.0	
Operating & Storage Temperature		T _J & T _{STG}	-65 to +125	°C
Maximum Thermal Resistance (Junction to Case)	TO-5	R _{θJC}	33	°C/W
	CERPACK		10	°C/W
	SMD.5		10	°C/W
Maximum Thermal Resistance (Junction to Ambient)	TO-5	R _{θJA}	175	°C/W
	CERPACK		---	°C/W
	SMD.5		---	°C/W

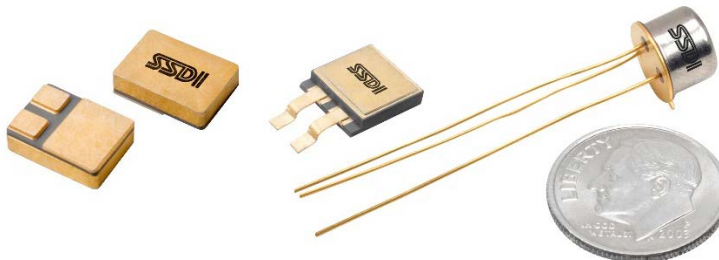
NOTES:

- 1/ For ordering information, price, operating curves, and availability, contact factory.
- 2/ Screening based on MIL-PRF-19500. Screening flows available on request.
- 3/ Unless otherwise specified, maximum ratings/electrical characteristics at 25°C.

SMD.5 (S.5)

CERPACK (G)

TO-5 (/5)



*Dime used for size reference

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

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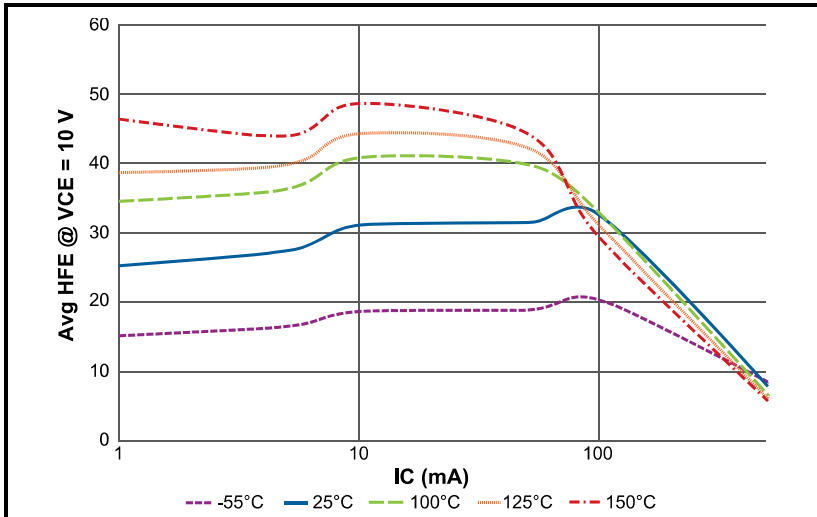


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Electrical Characteristics ^{3/}		Symbol	Min	Typ	Max	Unit
Collector – Emitter Breakdown Voltage	$I_C = 10 \text{ mA}$	BV_{CEO}	900	1000	-	V
Collector – Base Breakdown Voltage	$I_C = 200 \mu\text{A}$	BV_{CBO}	1000	1700	-	V
Emitter – Base Breakdown Voltage	$I_E = 200 \mu\text{A}$	BV_{EBO}	6	7.5	-	V
Collector Cutoff Current	$V_{CB} = 1000 \text{ V}, T_A = 25^\circ\text{C}$	I_{CBO1}	-	0.05	1	μA
	$V_{CB} = 1000 \text{ V}, T_A = 100^\circ\text{C}$	I_{CBO2}	-	0.3	5	
	$V_{CB} = 1000 \text{ V}, T_A = 125^\circ\text{C}$	I_{CBO3}	-	2.0	-	
	$V_{CE} = 800 \text{ V}, T_A = 25^\circ\text{C}$	I_{CEO1}	-	0.1	0.5	
	$V_{CE} = 800 \text{ V}, T_A = 100^\circ\text{C}$	I_{CEO2}	-	10	100	
	$V_{CE} = 800 \text{ V}, T_A = 125^\circ\text{C}$	I_{CEO3}	-	150	-	
Emitter Cutoff Current	$V_{EB} = 6 \text{ V}, T_A = 25^\circ\text{C}$	I_{EBO}	-	0.01	1	μA
	$V_{EB} = 6 \text{ V}, T_A = 100^\circ\text{C}$		-	0.10	5	
	$V_{EB} = 6 \text{ V}, T_A = 125^\circ\text{C}$		-	0.15	-	
DC Current Gain	$I_C = 1 \text{ mA}, V_{CE} = 2 \text{ V}$	H_{FE}	15	30	-	
	$I_C = 1 \text{ mA}, V_{CE} = 10 \text{ V}$		-	30	-	
	$I_C = 50 \text{ mA}, V_{CE} = 2 \text{ V}$		18	35	-	
	$I_C = 50 \text{ mA}, V_{CE} = 10 \text{ V}$		-	45	-	
	$I_C = 100 \text{ mA}, V_{CE} = 2 \text{ V}$		15	25	-	
	$I_C = 100 \text{ mA}, V_{CE} = 10 \text{ V}$		25	45	-	
Collector-Emitter Saturation Voltage	$I_C = 50 \text{ mA}, I_B = 10 \text{ mA}$	$V_{CE(SAT)}$	-	60	150	mV
	$I_C = 500 \text{ mA}, I_B = 100 \text{ mA}$		-	275	-	
Base-Emitter Saturation Voltage	$I_C = 50 \text{ mA}, I_B = 10 \text{ mA}$	$V_{BE(SAT)}$	-	740	850	mV
	$I_C = 500 \text{ mA}, I_B = 100 \text{ mA}$		-	915	-	
Current Gain Bandwidth Product	$I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V}, f = 1 \text{ MHz}$	f_T	5	6.5	-	MHz
Output Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0 \text{ A}, f = 1 \text{ MHz}$	C_{ob}	-	12	30	pF
Input Capacitance	$V_{EB} = 0.5 \text{ V}, I_E = 0 \text{ A}, f = 1 \text{ MHz}$	C_{ib}	-	450	600	pF
Turn on Delay Time	$V_{CC} = 100 \text{ V}$ $I_C = 100 \text{ mA}$ $I_{B1} = I_{B2} = 10 \text{ mA}$	t_d	-	120	200	ns
Rise Time		t_r	-	350	450	ns
Storage Time		t_s	-	4.5	5	μs
Fall Time		t_f	-	400	500	ns



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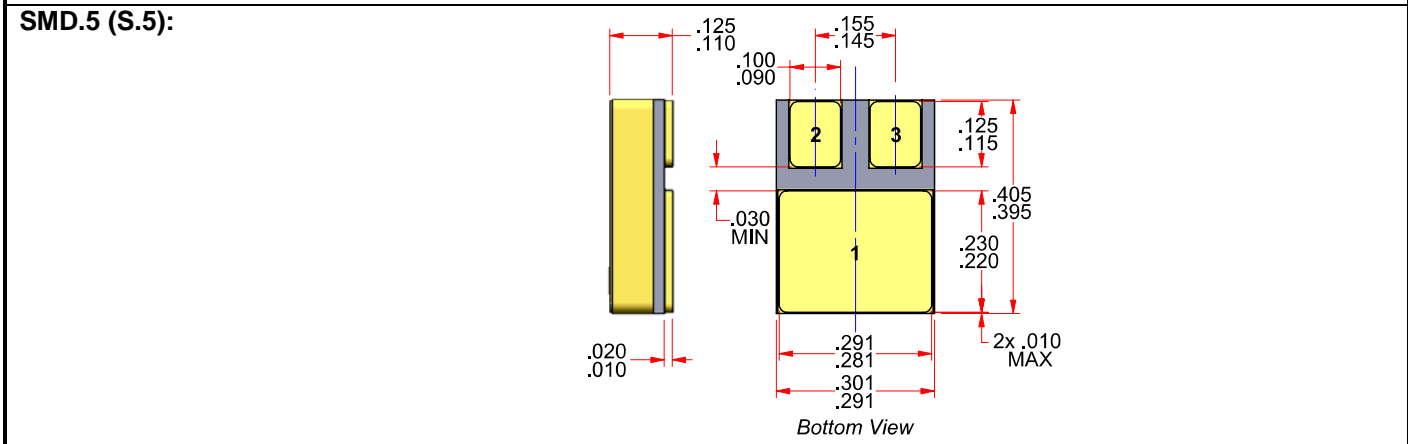
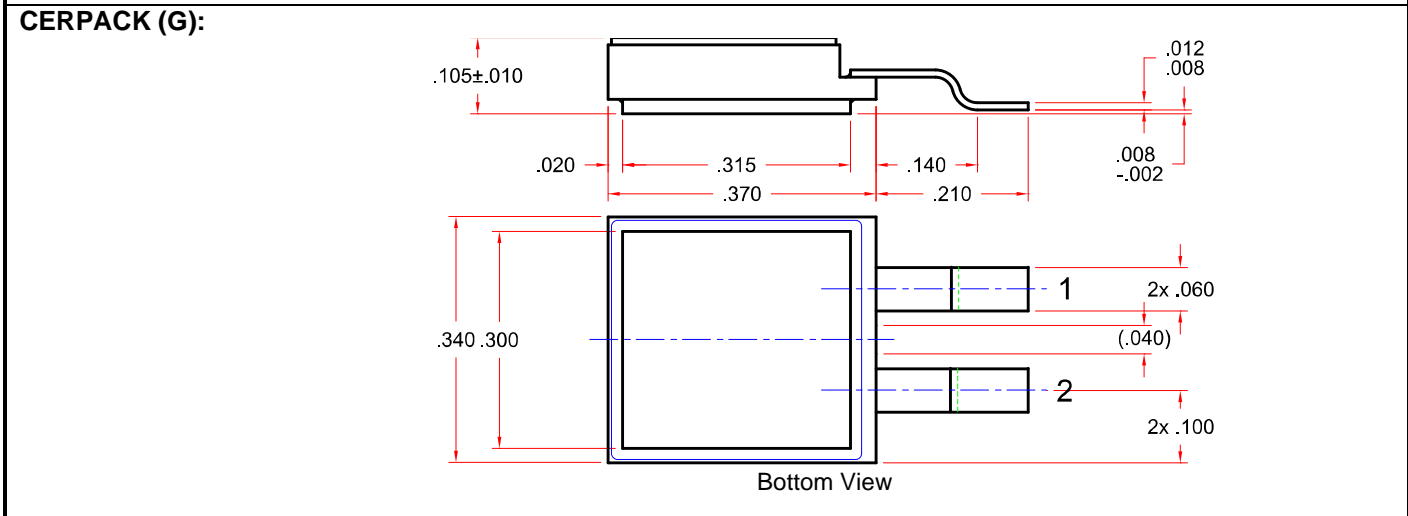
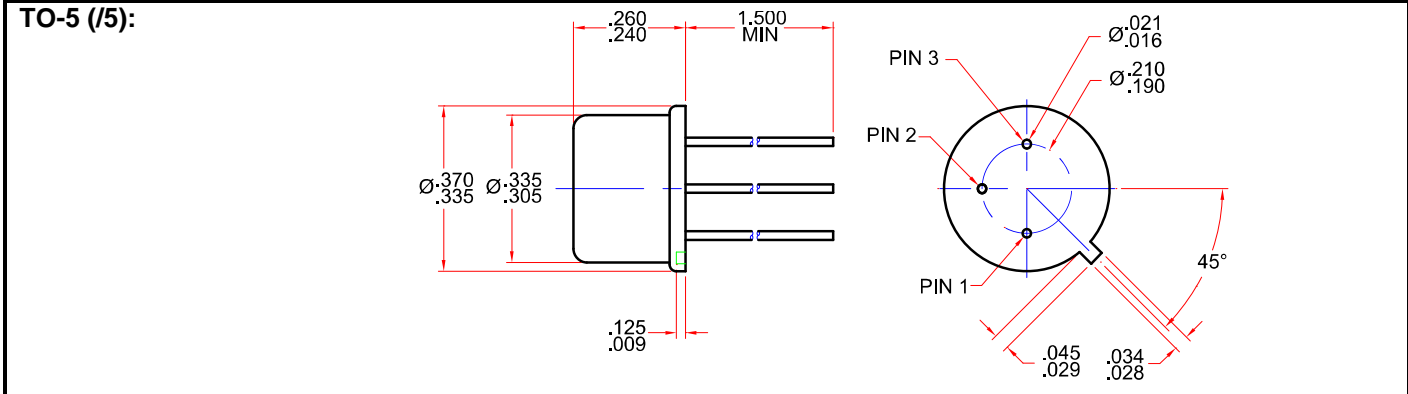


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CASE OUTLINES



PIN ASSIGNMENT (Standard)			
Package	Collector	Emitter	Base
TO-5 (I5)	Pin 3	Pin 1	Pin 2
CERPACK (G)	Case	Pin 1	Pin 2
SMD.5 (S.5)	Pin 1	Pin 2	Pin 3