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

SPT5502 and SPT5503

DESIGNER'S DATA SHEET

Part Number / Ordering Information 1/

SPT5502
SPT5503

Screening 2/ __ = Not Screened
TX = TX Level
TXV = TXV Level
S = S Level

Package
__ = TO-5

1 AMP
HIGH VOLTAGE / HIGH SPEED
NPN TRANSISTOR

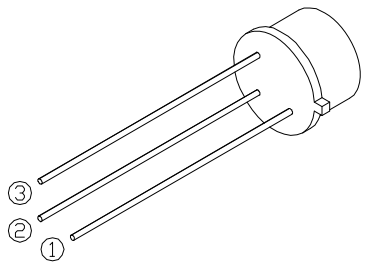
700 - 800 VOLTS
6 WATTS

Features:
- BVCBO to 800 Volts
- Fast Switching: t_D = 100 nsec max
- Good Safe Operating Area
- Linear Gain from 50mA to 1.0A
- TX, TXV, S-Level Screening Available 2/ - Consult Factory

Maximum Ratings 3/		Symbol	Value	Units
Collector – Emitter Voltage	SPT5502 SPT5503	V_{CER}	700 800	V
Collector – Emitter Voltage	SPT5502 SPT5503	V_{CEO}	350 400	V
Collector – Base Voltage	SPT5502 SPT5503	V_{CBO}	700 800	V
Emitter – Base Voltage		V_{EBO}	10	V
Collector Current		I_C	1.0	A
Base Current		I_B	0.5	A
Total Device Dissipation Derate above T_C = 25ºC	T_C = 25ºC	P_D	6.0 34.3	W mW/ºC
Operating & Storage Temperature		Top & Tstg	-65 to +200	ºC
Thermal Resistance		$R_{\theta JC}$	29	ºC/W

NOTES:
* Pulse Test: Pulse Width = 300µsec, Duty Cycle = 2%
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, All Electrical Characteristics @25ºC.

TO-5



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Electrical Characteristic[3/]		Symbol	Min	Max	Units
Collector – Emitter Breakdown Voltage (I_C = 200µA, I_B = 0A, R_{BE} = 1kΩ)	SPT5502 SPT5503	BV_{CER}	700 800	— —	V_{DC}
Collector – Cutoff Current (I_B = 0A_{DC})	V_{CE} = 300V_{DC} V_{CE} = 400V_{DC}	I_{CEO}	— —	10 10	µA_{DC}
Collector – Cutoff Current (V_{CE} = Rated V_{CE}, $V_{EB(off)}$ = 1.5V_{DC})	T_C = 25°C T_C = 100°C	I_{CEX}	— —	10 0.5	µA_{DC} mA_{DC}
Collector – Cutoff Current (V_{CB} = Rated V_{CB}, I_E = 0A_{DC})		I_{CBO}	—	10	µA_{DC}
Emitter – Cutoff Current (V_{BE} = 10 V_{DC}, I_C = 0A_{DC})		I_{EBO}	—	1	µA_{DC}
DC Current Gain * (V_{CE} = 5V_{DC})	I_C = 50mA_{DC} I_C = 0.5A_{DC} I_C = 1A_{DC}	h_{FE}	15 10 5	— 90 50	—
Collector – Emitter Saturation Voltage *	I_C = 0.5A_{DC}, I_B = 0.1A_{DC} I_C = 1A_{DC}, I_B = 0.25A_{DC}	$V_{CE(Sat)}$	— —	0.5 1.0	V_{DC}
Base – Emitter Saturation Voltage *	I_C = 0.5A_{DC}, I_B = 0.1A_{DC} I_C = 1A_{DC}, I_B = 0.25A_{DC}	$V_{BE(Sat)}$	— —	1.0 1.2	V_{DC}
Current Gain Bandwidth Product (V_{CE} = 10V_{DC}, I_C = 100mA_{DC}, f = 1MHz)		f_T	35	—	MHz
Output Capacitance (V_{CB} = 20V_{DC}, I_E = 0, f = 1MHz)		C_{ob}	—	35	pF
Second Breakdown Collector Current with Base Forward Biased (V_{CE} = 200V_{DC}, t = 1 sec(Non-Repetitive))		$I_{S/B}$	50	—	mA_{DC}
Delay Time	V_{CC} = 125V_{DC}, I_C = 1A_{DC},	t_d	—	100	nsec
Rise Time	I_{B1} = 200mA_{DC}	t_r	—	300	
Storage Time	V_{CC} = 125V_{DC}, I_C = 1A_{DC},	t_s	—	3	µsec
Fall Time	I_{B1} = I_{B2} = 200mA_{DC}	t_f	—	500	nsec

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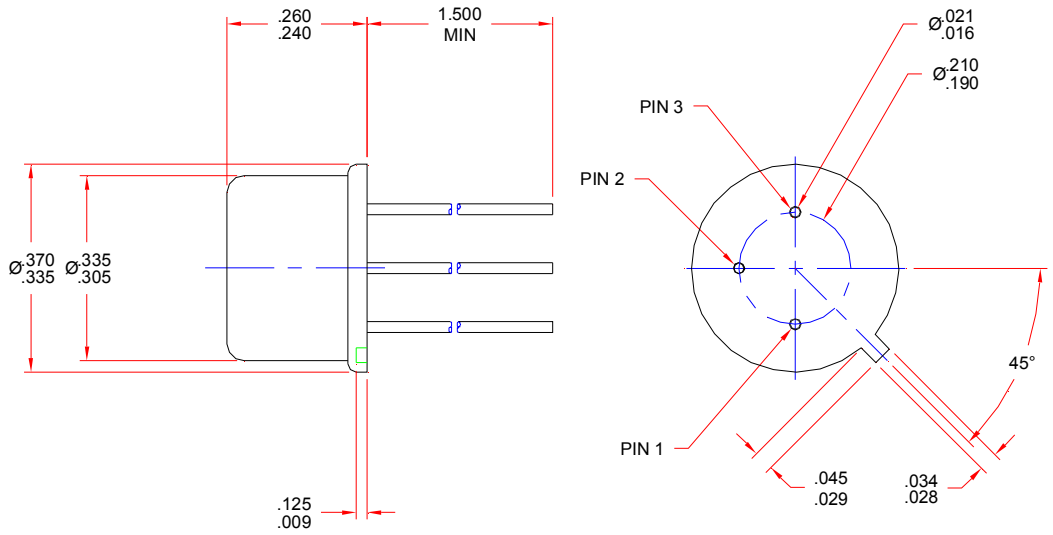

PIN ASSIGNMENT

Package	Pin 1	Pin 2	Pin 3 (Case)
TO-5	Emitter	Base	Collector