



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

1 AMP HIGH VOLTAGE / HIGH SPEED NPN TRANSISTOR

700 - 800 VOLTS
6 WATTS

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

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 $T_C = 25^\circ\text{C}$	$T_C = 25^\circ\text{C}$	P_D	6.0 34.3	W mW/ $^\circ\text{C}$
Operating & Storage Temperature		Top & Tstg	-65 to +200	$^\circ\text{C}$
Thermal Resistance		$R_{\theta JC}$	29	$^\circ\text{C/W}$

NOTES:

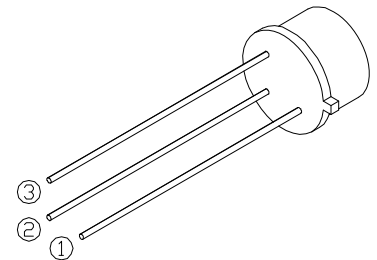
* Pulse Test: Pulse Width = 300 μ sec, Duty Cycle = 2%

^{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 @25 $^\circ\text{C}$.

TO-5



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

DATA SHEET #: TR0026C

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Electrical Characteristic ^{3/}	Symbol	Min	Max	Units	
Collector – Emitter Breakdown Voltage ($I_C = 200\mu A, I_B = 0A, R_{BE} = 1k\Omega$)	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 ($V_{CE} = \text{Rated } V_{CE}, V_{EB(Off)} = 1.5V_{DC}$)	$T_C = 25^\circ C$ $T_C = 100^\circ C$ I_{CEX}	— —	10 0.5	μA_{DC} mA_{DC}	
Collector – Cutoff Current ($V_{CB} = \text{Rated } V_{CB}, I_E = 0A_{DC}$)	I_{CBO}	—	10	μA_{DC}	
Emitter – Cutoff Current ($V_{BE} = 10V_{DC}, I_C = 0A_{DC}$)	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	— 130 65	—	
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 ($V_{CE} = 200V_{DC}, t = 1 \text{ sec(Non-Repetitive)}$)	$I_{S/B}$	50	—	mA_{DC}	
Delay Time	$V_{CC} = 125V_{DC}, I_C = 1A_{DC}, I_{B1} = 200mA_{DC}$	t_d t_r	— —	100 300	nsec
Rise Time					
Storage Time	$V_{CC} = 125V_{DC}, I_C = 1A_{DC}, I_{B1} = I_{B2} = 200mA_{DC}$	t_s t_f	— —	3 500	μsec nsec
Fall Time					

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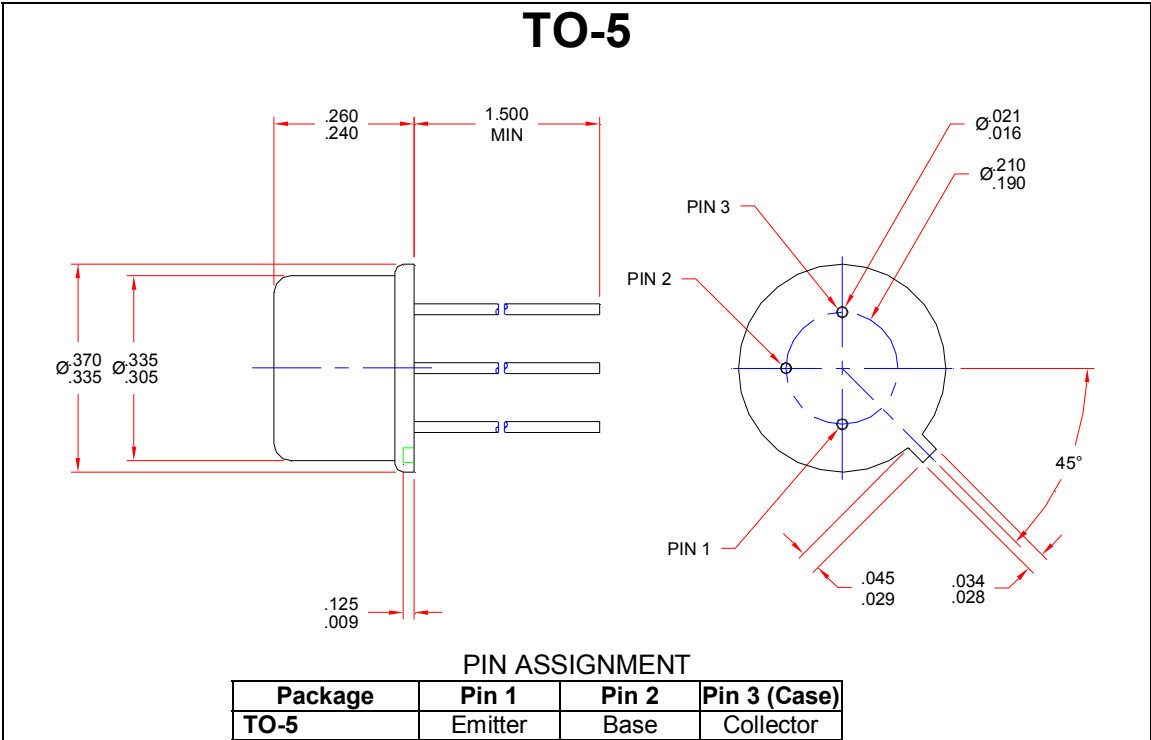
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