Solid State Devices, Inc.
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Phone: (562) 404-7855 * Fax: (562) 404-1773
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SPT6233 – SPT6235 Series

DESIGNER'S DATA SHEET

5 AMP 250 – 350 Volts NPN Transistor

Part Number / Ordering Information [1/]

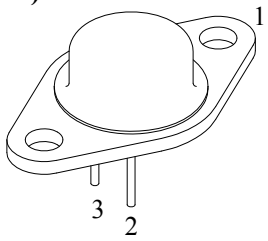
SPT6233 __ __ __ __
SPT6234 __ __ __ __
SPT6235

- **Screening** [2/] __ = Not Screen, TX = TX Level, TXV = TXV Level, S = S Level
- **Lead Bend** [3/ 4/] __ = Straight Leads, UB = Up Bend, DB = Down Bend
- **Pin Out Configuration** [5/] __ = Normal, R = Optional
- **Package** [3/] /66 = TO-66, M = TO-254, J = TO-257

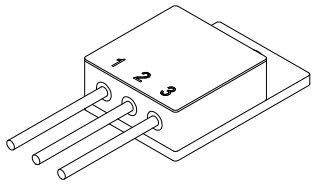
Features:
- Switching Power Transistor
- Isolated and Non-isolated Packages Available
- High Power Dissipation: Up to 50W
- Rugged SOA
- Also Available in TO-39, TO-111, and Isolated TO-59, Consult Factory
- Replacement for 2N6233 through 2N6235
- TX, TXV, S-Level Screening Available

Maximum Ratings		Symbol	Value	Units
Collector – Emitter Voltage	SPT6233 SPT6234 SPT6235	V_{CEO}	225 275 325	Volts
Collector – Base Voltage	SPT6233 SPT6234 SPT6235	V_{CBO}	250 300 350	Volts
Emitter – Base Voltage		V_{CBO}	6	Volts
Continuous Collector Current		I_C	5	Amps
Power Dissipation @ TC = 25ºC	TO-66 (/66) TO-254 (M) TO-257 (J)	P_D	50 39 33	W
Operating & Storage Temperature		Top & Tstg	-65 to +200	ºC
Maximum Thermal Resistance Junction to Case	TO-66 (/66) TO-254 (M) TO-257 (J)	$R_{\theta JC}$	3.2 4.5 5.3	ºC/W

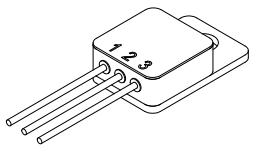
TO-66 (/66)



TO-254 (M)



TO-257 (J)



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

DATA SHEET #: TR0029E

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SPT6233 – SPT6235 Series

Electrical Characteristics 6/		Symbol	Min	Typ	Max	Units
Collector – Emitter Sustaining Voltage (I_C = 20 mA)	SPT6233 SPT6234 SPT6235	BV_{CEO}	225 275 325	— — —	— — —	Volts
Emitter – Cutoff Current	V_{BE} = 6 V	I_{EBO}	—	—	100	uA
Collector – Cutoff Current	SPT6233, V_{CB} = 250 V SPT6234, V_{CB} = 300 V SPT6235, V_{CB} = 350 V	I_{CBO}	—	—	100	uA
Collector – Cutoff Current	SPT6233, V_{CE} = 225 V SPT6234, V_{CE} = 275 V SPT6235, V_{CE} = 325 V	I_{CEO}	—	—	1.0	mA
Collector – Cutoff Current (V_{BE} = -1.5 V, T_c = 150 ºC)	SPT6233, V_{CE} = 250 V SPT6234, V_{CE} = 300 V SPT6235, V_{CE} = 350 V	I_{CEX}	—	—	1.0	mA
DC Forward Current Transfer Ratio *	V_{CE} = 5V, I_C = 0.1A V_{CE} = 5V, I_C = 1A V_{CE} = 5V, I_C = 3A	h_{FE}	25 15 9	— — —	— 125 —	—
Collector – Emitter Saturation Voltage *	I_C = 5A, I_B = 1A I_C = 1.0A, I_B = 0.1A	$V_{CE(SAT)}$	— —	— —	2.5 0.5	Volts
Base – Emitter Saturation Voltage *	I_C = 5A, I_B = 1A I_C = 1.0A, I_B = 0.1A	$V_{BE(SAT)}$	— —	— —	2.0 1.0	Volts
Base – Emitter On Voltage *	I_C = 1A, Vce = 5 V	$V_{BE(ON)}$	—	—	1.0	Volts
Safe Operating Area (tp = 1 sec)	V_{CE} = 10V V_{CE} = 45V	**SOA**	5.0 1.0	— —	— —	Amp
Frequency Transition	V_{CE} = 10V, I_C = 0.25A, f= 10MHz	f_T	20	—	—	MHz
Output Capacitance	V_{CE} = 10V, f = 1MHz	C_{ob}	—	—	250	pF
Rise Time (V_{CC} = 200V, I_C = 1.0A, I_{B1} = 0.1A)		t_r	—	0.5	0.75	µsec
Storage Time (V_{CC} = 200V, I_C = 1.0A, I_{B1} = I_{B2} = 0.1A)		t_S	—	3.5	5.0	µsec
Fall Time (V_{CC} = 200V, I_C = 1.0A, I_{B1} = I_{B2} = 0.1A)		t_f	—	0.5	0.8	µsec

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/ Up and Down Bend Configurations are Available for 'M' (TO-254) and 'J' (TO-257) Packages Only.

5/ Optional Pin Out Configurations are Available for 'M' (TO-254) and 'J' (TO-257) Packages Only.

6/ Unless Otherwise Specified, All Electrical Characteristics @25ºC.

Available Part Numbers:

SPT6233/66; SPT6233M; SPT6233J; SPT6233MR; SPT6233JR
SPT6234/66; SPT6234M; SPT6234J; SPT6234MR; SPT6234JR
SPT6235/66; SPT6235M; SPT6235J; SPT6235MR; SPT6235JR

PIN ASSIGNMENT (Standard)			
Package	**Collector**	**Emitter**	**Base**
TO-66 (/66)	Case (1)	Pin 2	Pin 3
TO-254 (M)	Pin 1	Pin 2	Pin 3
TO-257 (J)	Pin 1	Pin 2	Pin 3

PIN ASSIGNMENT (Optional)			
Package	**Collector**	**Emitter**	**Base**
TO-254 (MR)	Pin 2	Pin 3	Pin 1
TO-257 (JR)	Pin 2	Pin 3	Pin 1