

X00122

SFT502 AND SFT504

5 AMP

HIGH SPEED NPN TRANSISTOR

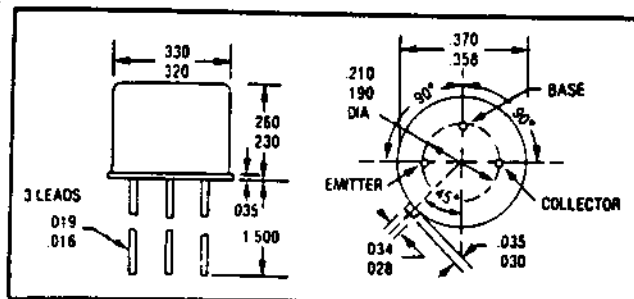
200 VOLTS

SSDII

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CASE STYLE W

JEDEC TO-5



FEATURES

- RADIATION TOLERANT
- FAST SWITCHING
- HIGH FREQUENCY, 100 MHZ TYPICAL
- BV_{CEO} 150 VOLTS MIN.
- HIGH LINEAR GAIN
- VERY LOW LEAKAGE AND SATURATION
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- DESIGNED FOR COMPLEMENTARY USE WITH SFT501 AND SFT503

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V _{CEO}	150	Volts
Collector - Base Voltage	V _{CBO}	200	Volts
Emitter - Base Voltage	V _{EB0}	7	Volts
Collector Current	I _C	5	Amps
Base Current	I _B	1	Amps
Total Device Dissipation @ TC = 50 °C	P _D	10	Watts
Derate above 50 °C		66.6	W/°C
Operating and Storage Temperature	T _J , T _{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	R _{θJC}	15	°C/W

ELECTRICAL CHARACTERISTICS

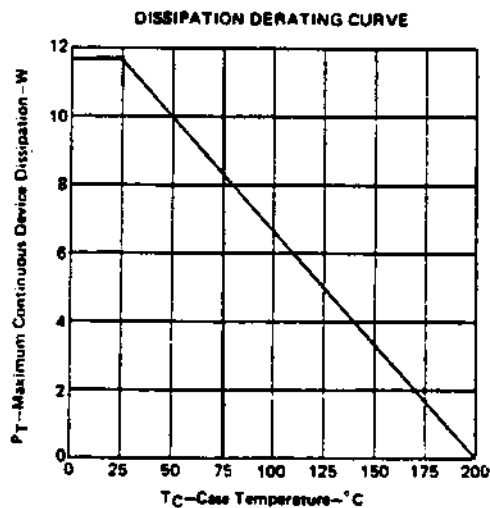
Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* (I _C = 50 mAdc)	BV _{CEO} *	150		Vdc
Collector - Base Breakdown Voltage (I _C = 200 μAdc)	BV _{CBO}	200		Vdc
Emitter - Base Breakdown Voltage (I _E = 200 μAdc)	BV _{EB0}	10		Vdc

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current $V_{CE} = 100 \text{ Vdc}$	I_{CEO}		10	$\mu\text{A dc}$
Collector Cutoff Current $V_{CB} = 100 \text{ Vdc}$	I_{CBO}		500	nA dc
Emitter Cutoff Current $V_{EB} = 6 \text{ Vdc}$	I_{EBO}		500	nA dc
DC Current Gain* $(I_C = 50 \text{ mAdc}, V_{CE} = 5 \text{ Vdc})$ SFT502 $(I_C = 50 \text{ mAdc}, V_{CE} = 5 \text{ Vdc})$ SFT504 $(I_C = 2.5 \text{ Adc}, V_{CE} = 5 \text{ Vdc})$ SFT502 $(I_C = 2.5 \text{ Adc}, V_{CE} = 5 \text{ Vdc})$ SFT504 $(I_C = 5 \text{ Adc}, V_{CE} = 5 \text{ Vdc})$ SFT502 $(I_C = 5 \text{ Adc}, V_{CE} = 5 \text{ Vdc})$ SFT504	h_{FE}	20 50 30 50 20 40		
Collector - Emitter Saturation Voltage* $(I_C = 2.5 \text{ Adc}, I_B = 250 \text{ mAdc})$ $(I_C = 5 \text{ Adc}, I_B = 500 \text{ mAdc})$	$V_{CE(SAT)}$		0.75 1.5	Vdc
Base - Emitter Saturation Voltage* $(I_C = 2.5 \text{ Adc}, I_B = 250 \text{ mAdc})$ $(I_C = 5 \text{ Adc}, I_B = 500 \text{ mAdc})$	$V_{BE(SAT)}$		1.3 1.5	Vdc
Current - Gain - Bandwidth Product $(I_C = 500 \text{ mAdc}, V_{CE} = 5 \text{ Vdc}, f = 10 \text{ MHz})$	f_T	80		MHz
Output Capacitance $(V_{CB} = 10 \text{ Vdc}, I_E = 0.1 = 1 \text{ MHz})$	C_{ob}		225	pF
Input Capacitance $(V_{BE} = 10 \text{ Vdc}, I_C = 0.1 = 1 \text{ MHz})$	C_{ib}		900	pF
Delay Time	$(V_{CC} = 50 \text{ Vdc},$ $I_C = 5 \text{ Adc},$ $I_{B1} = I_{B2} = 500 \text{ mAdc})$	t_d	50	ns
Rise Time		t_r	250	ns
Storage Time		t_s	900	ns
Fall Time		t_f	300	ns

*Pulse Test: Pulse width = 300 μs , DutyCycle = 2%

TYPICAL OPERATING CURVES



SSDII SOLID STATE DEVICES, INC.