

X00116



14830 Valley View Avenue  
 La Mirada, California 90638  
 (213) 921-9660  
 TWX 910-583-4807  
 FAX 213-921-2396

# SFT1002 AND SFT1004

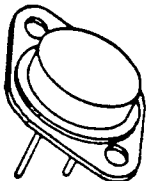
## 100 AMP

### HIGH SPEED NPN TRANSISTOR

## 250 VOLTS

### CASE STYLE R

TO-3 WITH .060 PINS



### FEATURES

- RADIATION TOLERANT
- FAST SWITCHING
- HIGH FREQUENCY, 80 MHZ TYPICAL
- BV<sub>CEO</sub> 150 VOLTS MIN.
- HIGH LINEAR GAIN
- LOW LEAKAGE AND SATURATION VOLTAGE
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- DESIGNED FOR COMPLEMENTARY USE WITH SFT1001 AND SFT1003

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V <sub>CEO</sub>	150	Volts
Collector - Base Voltage	V <sub>CBO</sub>	250	Volts
Emitter - Base Voltage	V <sub>EBO</sub>	10	Volts
Collector Current	I <sub>C</sub>	100	Amps
Base Current	I <sub>B</sub>	20	Amps
Total Device Dissipation @ TC = 25°C	P <sub>D</sub>	200	Watts
Derate above 25 °C		1.14	W/°C
Operating and Storage Temperature	T <sub>j</sub> , T <sub>stg</sub>	-65 to +200	°C

### THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	0.875	°C/W

### ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* (I <sub>C</sub> = 50 mA Adc)	BV <sub>CEO</sub> *	150		Vdc
Collector - Base Breakdown Voltage (I <sub>C</sub> = 200 μA Adc)	BV <sub>CBO</sub>	250		Vdc
Emitter - Base Breakdown Voltage (I <sub>E</sub> = 200 μA Adc)	BV <sub>EBO</sub>	10		Vdc

NOTE: All specifications subject to change without notice.

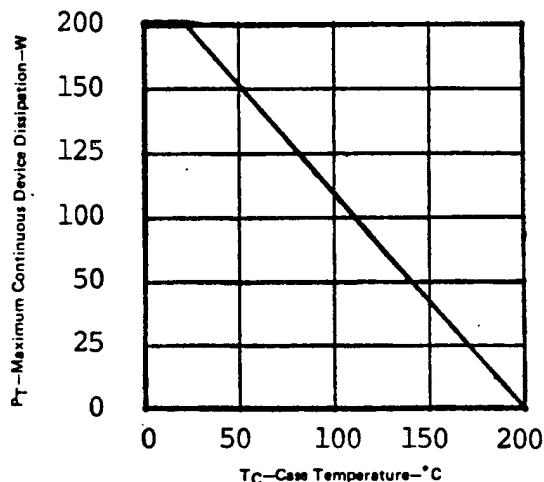
# ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current ( $V_{CE} = 120 \text{ V}$ )	$I_{CEO}$		10	$\mu\text{A}$
Collector Cutoff Current ( $V_{CB} = 150 \text{ V}$ )	$I_{CBO}$		10	$\mu\text{A}$
Emitter Cutoff Current ( $V_{EB} = 10 \text{ V}$ )	$I_{EBO}$		1	$\mu\text{A}$
DC Current Gain* ( $I_C = 50$ Adc, $V_{CE} = 5$ Vdc) ( $I_C = 100$ Adc, $V_{CE} = 5$ Vdc)	$h_{FE}$	10 25 5 15		
Collector - Emitter Saturation Voltage* ( $I_C = 50$ Adc, $I_B = 5$ Adc) ( $I_C = 100$ Adc, $I_B = 10$ Adc)	$V_{CE(SAT)}$		0.7 1.3	Vdc
Base - Emitter Saturation Voltage* ( $I_C = 50$ Adc, $I_B = 5$ Adc) ( $I_C = 100$ Adc, $I_B = 10$ Adc)	$V_{BE(SAT)}$		1.5 2.0	Vdc
Current - Gain - Bandwidth Product ( $I_C = 1.0$ Adc, $V_{CE} = 10$ Vdc, $f = 10$ MHz)	$f_T$	50		MHz
Output Capacitance ( $V_{CB} = 10$ Vdc, $I_E = 0$ , $f = 1$ MHz)	$C_{ob}$		800	pf
Input Capacitance ( $V_{BE} = 10$ Vdc, $I_C = 0$ , $f = 1$ MHz)	$C_{ib}$		2000	pf
Delay Time	$(V_{CC} = 100 \text{ Vdc},$ $I_C = 20 \text{ Adc},$ $I_{B1} = I_{B2} = 2 \text{ Adc})$	$t_d$	100	ns
Rise Time		$t_r$	500	ns
Storage Time		$t_s$	800	ns
Fall Time		$t_f$	100	ns

Pulse Test: Pulse width = 300 us, DutyCycle = 2%

## TYPICAL OPERATING CURVES

DISSIPATION DERATING CURVE



**SSDII** SOLID STATE DEVICES, INC.