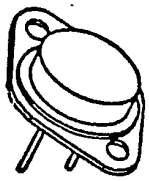
SFT2010 SFT2012 SFT2014
200 AMP
HIGH ENERGY NPN TRANSISTOR
V_{CEO} 100, 120, 140 VOLTS

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

CASE STYLE R
TO–3 WITH .060 PINS



FEATURES

- BVCBO 250 VOLTS MIN
- 600 WATTS POWER DISSIPATION
- EXCELLENT SOA CURVE
- Es/b OF 800mJ
- GAIN OF OVER 5 AT 200 AMPS
- HIGH REL CONSTRUCTION INCLUDING GOLD EUTECTIC DIE MOUNTING, ALUMINUM WIRING
- PLANAR CHIP CONSTRUCTION WITH LOW LEAKAGE AND VERY FAST SWITCHING

MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Collector - Emitter Voltage	SFT2010 SFT2012 SFT2014	V_{CEO}	100 120 140	Volts
Collector - Base Voltage		V_{CBO}	250	Volts
Emitter - Base Voltage		V_{EBO}	8	Volts
Collector Current		I_C	200	Amps
Base Current		I_B	75	Amps
Total Device Dissipation @ TC = 50 °C Derate above 50 °C		P_D	600 4	Watts W/°C
Operating and Storage Temperature		Tj, Tstg	-65 to 200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	RθJC	0.25	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics		Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* I_C = 200 mAdc	SFT2010 SFT2012 SFT2014	BV_{CEO}*	100 120 140		Vdc
Collector - Base Breakdown Voltage I_C = 100 uAdc		BV_{CBO}	250		Vdc
Emitter - Base Breakdown Voltage I_E = 100 uAdc		BV_{EBO}	8		Vdc

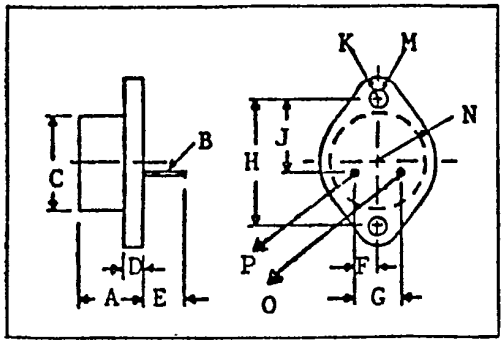
NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current (V_{CB} = 250 Vdc)	I_{CBO}		10	uAdc
Emitter Cutoff Current (V_{EB} = 7 Vdc)	I_{EBO}		10	uAdc
DC Current Gain* (I_C = 10 Adc, V_{CE} = 2 Vdc) (I_C = 100 Adc, V_{CE} = 5 Vdc) (I_C = 200 Adc, V_{CE} = 5 Vdc)	h_{FE}*	40 30 5		
Collector - Emitter Saturation Voltage* (I_C = 120 Adc, I_B = 12 Adc) (I_C = 200 Adc, I_B = 30 Adc)	$V_{CE\ (SAT)}$*		2.0 3.0	Vdc
Base - Emitter Saturation Voltage* (I_C = 120 Adc, I_B = 12 Adc)	$V_{BE\ (SAT)}$*		2.2	Vdc
Current - Gain - Bandwith Product (I_C = 1.0 Adc V_{CE} = 10 Vdc, f = 10 MHz)	f_T	30		MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1 MHz)	C_{ob}		1200	pf
RB SOA (I_B = 1Adc, R_{B1} = R_{B2} = 20 ohms) ($V_{BE(off)}$ = 2.0 Vdc, L = 1.0 mH)	$E_{S/b}$	800		mJ
FB SOA (V_{CE} = 20Vdc, I_C = 30Adc) (V_{CE} = 100Vdc, I_C = 0.75Adc)	$I_{S/b}$	1 1		sec
ON TIME	t_{on}		800	ns
Storage Time (V_{CC} = 60 Vdc, I_C = 10 Adc, I_{B1} = I_{B2} = 1.0 Adc)	t_s		1500	ns
Fall Time	t_f		400	ns

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

PHYSICAL DIMENSIONS



KEY TO DIMENSIONS:

(Inches)

A	=	.250 - .450
B	=	.057 - .062
C	=	.875 MAX.
D	=	.135 MAX.
E	=	.312 MIN.
F	=	.205 - .225
G	=	.420 - .440
H	=	1.177 - 1.197
J	=	.655 - .675
K	=	.188 MAX.
M	=	.151 - .161
N	=	.525 MAX.
O	=	BASE
P	=	EMITTER

SSDI SOLID STATE DEVICES, INC.

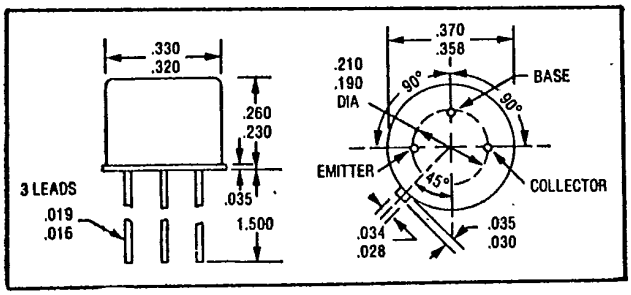
P.O. Box 577, La Mirada, California 90637

Telephone: (213) 921-9660 • TWX 910-583-4807 • FAX#213-921-2396

2N5094 AND 2N5096
1 AMP
HIGH VOLTAGE PNP TRANSISTOR
450–500 VOLTS

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

CASE STYLE W
JEDEC TO–5



FEATURES

- BVCBO TO 500 VOLTS
- LOW SATURATION VOLTAGE
- LOW LEAKAGE AT HIGH TEMPERATURE
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- DESIGNED FOR COMPLEMENTARY USE WITH 2N5095 THRU 2N5097
- 2N5091 AND 2N5093 ALSO AVAILABLE

MAXIMUM RATINGS

Rating	Symbol	2N5094	2N5096	Unit
Collector - Emitter Voltage	V_{CEO}	400	450	Volts
R_{BE} = 1 KOhms	V_{CER}	450	500	Volts
Collector - Base Voltage	V_{CBO}	450	500	Volts
Emitter - Base Voltage	V_{EBO}	6.0		Volts
Collector Current	I_C	1.0		Amps
Base Current	I_B	0.5		Amps
Total Device Dissipation @ TC = 100°C	P_D	2		Watts
Derate above 100 °C		20		mW/°C
Operating and Storage Temperature	Tj, Tstg	-65 to +200		°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	RθJC	50	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics		Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* (I_C = 50 mAdc)	2N5094 2N5096	BV_{CEO}*	400 450		Vdc
(I_C = 100 uAdc, R_{BE} = 1 K Ohms)	2N5094 2N5096	BV_{CER}*	450 500		Vdc
Collector - Base Breakdown Voltage (I_C = 100 uAdc)	2N5094 2N5096	BV_{CBO}	450 500		Vdc
Emitter - Base Breakdown Voltage (I_E = 20 uAdc)		BV_{EBO}	6		Vdc

NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

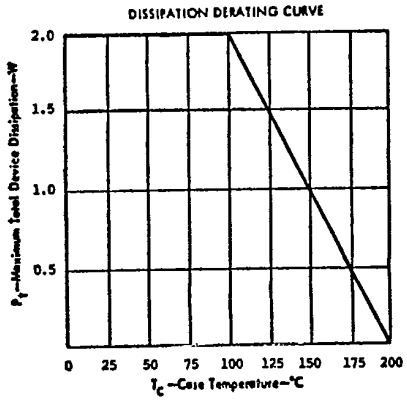
Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current 2N5094 VCB= 450 Vdc; 2N5096 VCB= 500 Vdc	I_{CBO}		500	n Adc
Emitter Cutoff Current (V_{EB} = 4 Vdc)	I_{EBO}		250	n Adc
DC Current Gain* (I_C = 1 mAdc, V_{CE} = 10 Vdc); (I_C = 25 mAdc, V_{CE} = 10 Vdc); (I_C = 100 mAdc, V_{CE} = 15 Vdc)	h_{FE}*	20 40 20	200 250 200	
Collector - Emitter Saturation Voltage* (I_C = 25 mAdc, I_B = 2.5 mAdc)	$V_{CE\ (SAT)}$*		3.0	Vdc
Base - Emitter Saturation Voltage* (I_C = 25 mAdc, I_B = 2.5 mAdc)	$V_{BE\ (SAT)}$*		1.0	Vdc
Current - Gain - Bandwith Product (I_C = 10 mAdc, V_{CE} = 20 Vdc, f = 5 MHz)	f_T	20		MHz
Output Capacitance (V_{CB} = 15 Vdc, I_E = 0, f = 2 MHz)	C_{ob}		20	pf

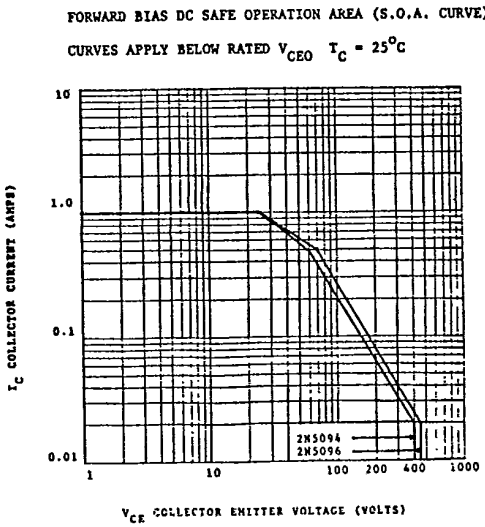
SWITCHING TIMES

Delay Time	(V_{CC} = 150 Vdc,	t_d		700	ns
Rise Time		t_r		1500	ns
Storage Time	I_C = 100 mAdc,	t_s		3	us
Fall Time	I_{B1} = I_{B2} = 10 mAdc)	t_f		200	ns

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

TYPICAL OPERATING CURVES





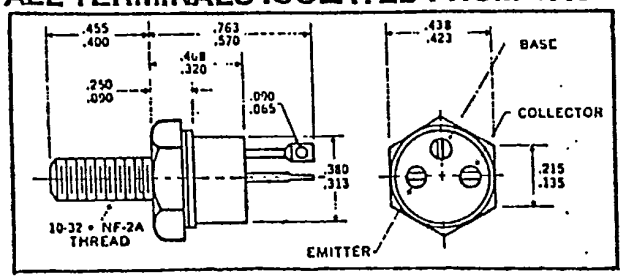
SSDI SOLID STATE DEVICES, INC.

P.O. Box 577, La Mirada, California 90637 Telephone: (213) 921-9660 • TWX 910-583-4807 • FAX#213-921-2396

2N4999 AND 2N5001
2 AMP
HIGH SPEED PNP TRANSISTOR
100 VOLTS

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

CASE STYLE X
JEDEC TO-59
ALL TERMINALS ISOLATED FROM CASE



FEATURES

- RADIATION TOLERANT
- FAST SWITCHING, 200 NSEC MAX ton
- HIGH FREQUENCY, TYPICAL f_T 100 MHZ
- BVCEO 80 VOLTS MIN
- HIGH LINEAR GAIN, LOW SATURATION VOLTAGE
- 200 °C OPERATING, GOLD EUTECTIC DIE ATTACH
- DESIGNED FOR COMPLEMENTARY USE WITH 2N3996 AND 2N3997

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V_{CEO}	80	Volts
Collector - Base Voltage	V_{CBO}	100	Volts
Emitter - Base Voltage	V_{EBO}	5.5	Volts
Collector Current	I_C	2	Amps
Base Current	I_B	1	Amps
Total Device Dissipation @ TC = 50 °C Derate above 50 °C	P_D	30 200	Watts mW/°C
Operating and Storage Temperature	Tj, Tstg	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	RθJC	5.0	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* (I_C = 100 m Adc)	BV_{CEO}*	80		Vdc
Collector - Base Breakdown Voltage (I_C = 200 u Adc)	BV_{CBO}	100		Vdc
Emitter - Base Breakdown Voltage (I_E = 200 uAdc)	BV_{EBO}	5.5		Vdc

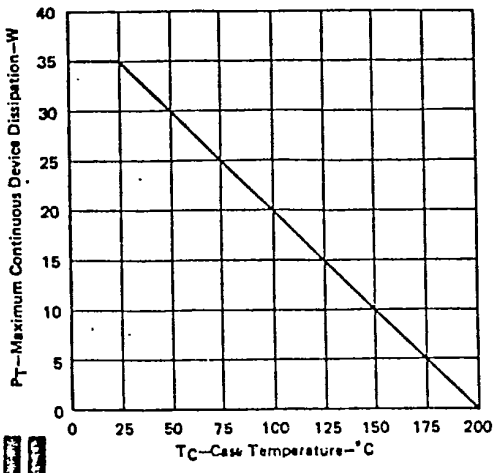
NOTE: All specifications subject to change without notice.

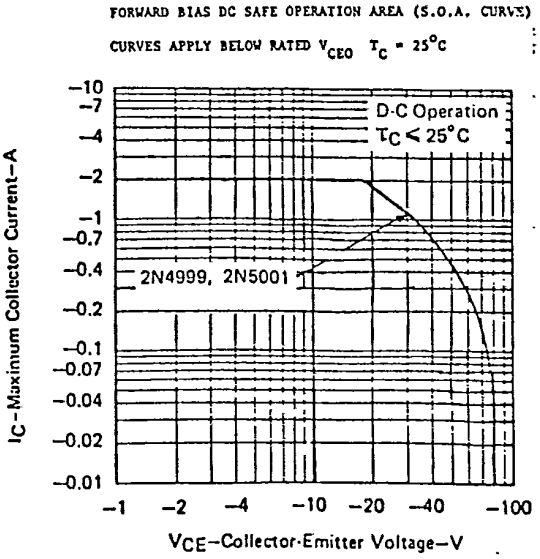
ELECTRICAL CHARACTERISTICS

Characteristics		Symbol	Min.	Max.	Unit
Collector Cutoff Current (V_{CE} = 40 Vdc)		I_{CEO}		50	uAdc
Emitter Cutoff Current (VEB = 4 Vdc)		I_{EBO}		1.0	uAdc
(VEB = 5.5 Vdc)				1.0	mAdc
DC Current Gain*	2N4999 2N5001	h_{FE}*	20 50		
(I_C = 50 mAdc, V_{CE} = 5 Vdc)	2N4999 2N5001		30 70	90 200	
(I_C = 1 Adc, V_{CE} = 5 Vdc)	2N4999 2N5001		5 15		
(I_C = 3 Adc, V_{CE} = 5 Vdc)					
Collector - Emitter Saturation Voltage*					
(I_C = 1 Adc, I_B = 100 mAdc)		$V_{CE\ (SAT)}$*		0.46	Vdc
(I_C = 2 Adc, I_B = 200 mAdc)				0.85	
Base - Emitter Saturation Voltage*					
(I_C = 1 Adc, I_B = 100 m Adc)		$V_{BE\ (SAT)}$*		1.2	Vdc
(I_C = 2 Adc, I_B = 200 m Adc)				1.5	
Current - Gain - Bandwith Product (I_C = 200 Adc, V_{CE} = 5 Vdc, f = 20 MHz)	2N4999 2N5001	f_T	50 60		MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1 MHz)		C_{ob}		120	pf
Base - Emitter Voltage* (VCE = 5 Vdc, IC = 2 Adc)		V_{BE}(on)		1.5	Vdc
Delay Time / Rise Time	(V_{CC} = 30 Vdc, V_{EB}(Off) = 3.7 Vdc, I_C = 2 Adc, IB1 = IB2 = 200 mAdc, R_L = 15 Ohms) (t_{on})	t_d + t_r		200	ns
Storage Time / Fall Time	(t_{off})	t_s + t_f		400	ns

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

TYPICAL OPERATING CURVES





SOLID STATE DEVICES, INC.

P O. Box 577, La Mirada, California 90637

Telephone: (213) 921-9660 • TWX 910-583-4807 • FAX#213-921-2396