

SOLID STATE DEVICES INC

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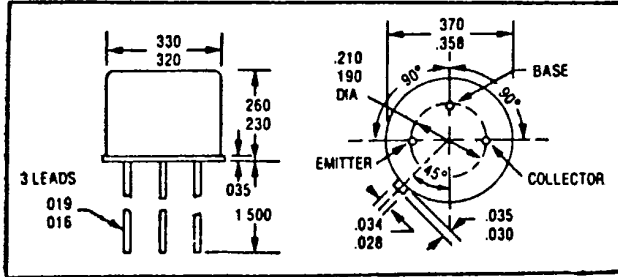
SFT 8500 2 AMP



HIGH VOLTAGE NPN TRANSISTOR 1000 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

- BV_{CEO} 600 VOLTS MIN.
- LOW V_{CE} (SAT) 0.8V
- 175°C OPERATING, GOLD EUTECTIC DIE ATTACH
- LINEAR GAIN FROM 10mA TO 500mA
- HIGH SPEED
- GLASS PASSIVATED
- REPLACES PRODUCT PREVIOUSLY AVAILABLE IN TO-3 ONLY

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V _{CEO}	600	Volts
R _{BE} - 1K Ohms	V _{CER}	1000	Volts
Collector - Base Voltage	V _{CBO}	1000	Volts
Emitter - Base Voltage	V _{EBO}	6	Volts
Collector Current	I _C	2	Amps
Base Current	I _B	.75	mAmps
Total Device Dissipation @ TC = 25°C @ TA = 25°C Unheatsunk	P _D	10 1.0	Watts Watts
Operating and Storage Temperature	T _J , T _{stg}	-65 to +175°	C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	R _{θJC} , (R _{θJA})	15, (150)	C/W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* (I _C = 10 mA _{dc}) (I _C = 20 μA _{dc} , R _{BE} = 1K ohms)	BV _{CEO} BV _{CER}	600 1000		V _{dc} V _{dc}
Collector - Base Breakdown Voltage (I _C = 20 μA _{dc})	BV _{CBO}	1000		V _{dc}
Emitter - Base Breakdown Voltage (I _E = 20 μA _{dc})	BV _{EBO}	6		V _{dc}

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NOTE: All specifications subject to change without notice

ELECTRICAL CHARACTERISTICS

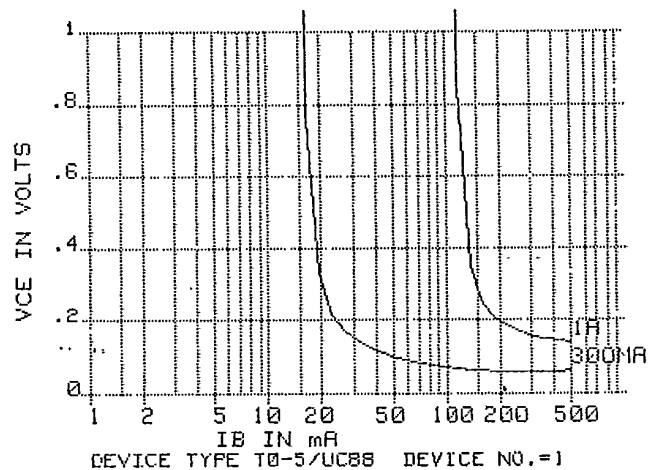
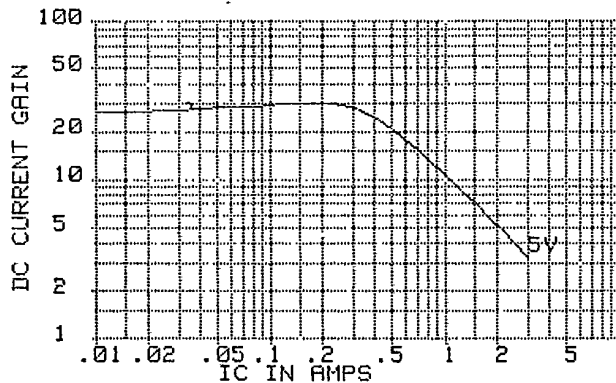
Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current ($V_{CE} = 800V$)	I_{CES}		10	μA_{dc}
Collector Cutoff Current ($V_{CB} = 800V$)	I_{CBO}		10	μA_{dc}
Emitter Cutoff Current ($V_{EB} = 4V$)	I_{EBO}		10	μA_{dc}
DC Current Gain* ($I_C = 20\text{ m A}_{dc}$, $V_{CE} = 5\text{ V}_{dc}$) ($I_C = 100\text{ m A}_{dc}$, $V_{CE} = 5\text{ V}_{dc}$) ($I_C = 500\text{ m A}_{dc}$, $V_{CE} = 5\text{ V}_{dc}$)	h_{FE}	20 20 15	100 100 100	
Collector - Emitter Saturation Voltage* ($I_C = 300\text{ m A}_{dc}$, $I_B = 30\text{ m A}_{dc}$) ($I_C = 1\text{ A}_{dc}$, $I_B = 300\text{ m A}_{dc}$)	$V_{CE(SAT)}$		0.8 1.0	V_{dc} V_{dc}
Base - Emitter Saturation Voltage* $I_C = 1\text{ A}_{dc}$, $I_B = 200\text{ mA}_{dc}$	$V_{BE(SAT)}$		1.1	V_{dc}
Current - Gain - Bandwidth Product ($I_C = 100\text{ m A}_{dc}$, $V_{CE} = 5\text{ V}_{dc}$, $f = 1\text{ MHz}$)	f_T	30		MHz
Output Capacitance ($V_{CB} = 20\text{ V}_{dc}$, $I_E = 0$, $f = 1\text{ MHz}$)	C_{ob}		25	

SWITCHING TIMES

Delay Time	($V_{CC} = 125\text{ V}_{dc}$, $I_C = 2\text{ A}_{dc}$, $I_{B1} = I_{B2} = .2A$)	t_d		150	ns
Rise Time		t_r		200	ns
Storage Time		t_s		3000	ns
Fall Time		t_f		300	ns

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

TYPICAL OPERATING CURVES

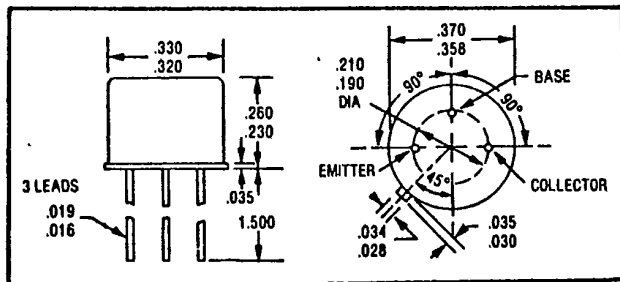


SFT6800 3 AMP HIGH VOLTAGE NPN TRANSISTOR 800 VOLTS



14830 Valley View Avenue
La Mirada, California 90638
(213) 921-9660
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**CASE STYLE W
JEDEC TO-5**



FEATURES

- BV_{CEO} TO 400 VOLTS
- LOW SATURATION VOLTAGE
- VERY LOW LEAKAGE
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- HIGH LINEAR GAIN FROM 1 mA TO 1 AMP
- SUPERIOR PERFORMANCE OVER THE POPULAR 2N5662 AND 2N5663 SERIES
- DESIGNED FOR COMPLEMENTARY USE WITH SFT6900 (PNP)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage $R_{BE} = 1 \text{ K Ohms}$	V_{CEO} V_{CER}	400 800	Volts
Collector - Base Voltage	V_{CBO}	800	Volts
Emitter - Base Voltage	V_{EBO}	10	Volts
Collector Current	I_C	3.0	Amps
Base Current	I_B	1.0	Amps
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	5.0 160	Watts mW/°C
Operating and Storage Temperature	T_j, T_{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	6	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* ($I_C = 50 \text{ mA dc}$) $T_p = 300 \text{ uSec}$ ($I_C = 100 \text{ uA dc}$, $R_{BE} = 1 \text{ K ohms}$)	BV_{CEO} BV_{CER}	400 800		Vdc
Collector - Base Breakdown Voltage ($I_C = 100 \text{ uA dc}$)	BV_{CBO}	800		Vdc
Emitter - Base Breakdown Voltage ($I_E = 20 \text{ uA dc}$)	BV_{EBO}	10		Vdc

NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

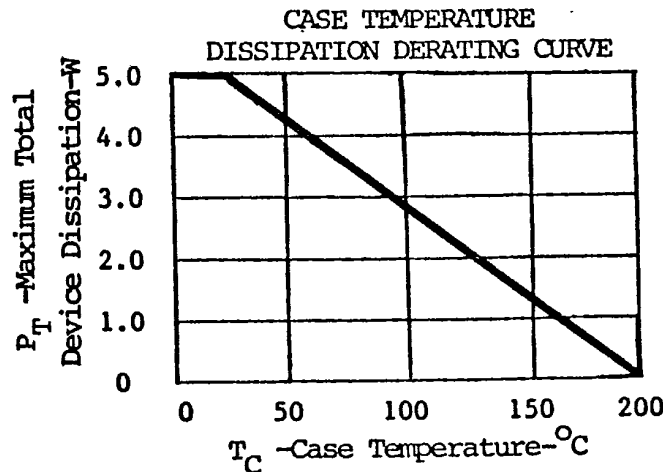
Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current ($V_{CE} = 400 \text{ Vdc}$, $V_{BE} = -1.5 \text{ Vdc}$)	I_{CEV}		200	nAdc
Collector Cutoff Current ($V_{CB} = 400 \text{ Vdc}$)	I_{CBO}		200	nAdc
Emitter Cutoff Current ($V_{EB} = 6 \text{ Vdc}$)	I_{EBO}		200	nAdc
DC Current Gain* ($I_C = 50 \text{ mAdc}$, $V_{CE} = 5 \text{ Vdc}$) ($I_C = 500 \text{ mAdc}$, $V_{CE} = 5 \text{ Vdc}$) ($I_C = 1.0 \text{ Adc}$, $V_{CE} = 5 \text{ Vdc}$)	h_{FE}	50 40 25	250 200	
Collector - Emitter Saturation Voltage* ($I_C = 500 \text{ mAdc}$, $I_B = 50 \text{ mAdc}$) ($I_C = 1.0 \text{ Adc}$, $I_B = 100 \text{ mAdc}$)	$V_{CE(SAT)}$		500 600	mVdc
Base - Emitter Saturation Voltage* ($I_C = 500 \text{ mAdc}$, $I_B = 50 \text{ mAdc}$) ($I_C = 1.0 \text{ Adc}$, $I_B = 100 \text{ mAdc}$)	$V_{BE(SAT)}$		1.0 1.2	Vdc
Current - Gain - Bandwith Product ($I_C = 50 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 20 \text{ MHz}$)	f_T	25		MHz
Output Capacitance ($V_{CB} = 30 \text{ Vdc}$, $I_E = 0$, $f = 2 \text{ MHz}$)	C_{ob}		40	pf

SWITCHING TIMES

Delay Time	($V_{CC} = 150 \text{ Vdc}$, $I_C = 1.0 \text{ Adc}$, $I_{B1} = I_{B2} = 100 \text{ mAdc}$)	t_d				
Rise Time		t_r	+	350	ns	
Storage Time		t_s				
Fall Time		t_f	+	2.0	us	

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

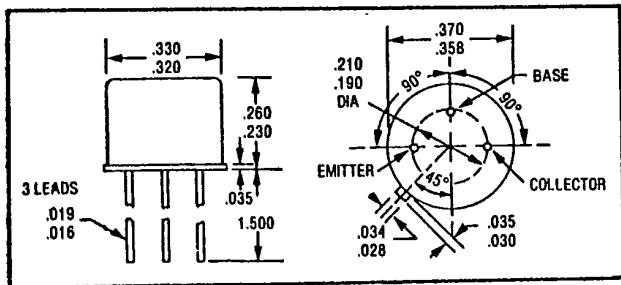
TYPICAL OPERATING CURVES



<h1 style="margin: 0;">2N5152 AND 2N5154</h1> <h2 style="margin: 0;">5 AMP</h2> <h3 style="margin: 0;">HIGH SPEED NPN TRANSISTOR</h3> <h2 style="margin: 0;">100 VOLTS</h2>	
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CASE STYLE W
JEDEC TO-5

FEATURES



- RADIATION TOLERANT
- FAST SWITCHING, 500 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 2N5151 AND 2N5153

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V_{CE0}	80	Volts
Collector - Base Voltage	V_{CB0}	100	Volts
Emitter - Base Voltage	V_{EB0}	5.5	Volts
Collector Current	I_C	5	Amps
Base Current	I_B	2.5	Amps
Total Device Dissipation @ $T_C = 50^\circ C$	P_D	10	Watts
Derate above 50 °C		66.6	mW/°C
Operating and Storage Temperature	T_j, T_{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	15	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* ($I_C = 100$ mAdc)	BV_{CE0}^*	80		Vdc
Collector - Base Breakdown Voltage ($I_C = 200$ uAdc)	BV_{CB0}	100		Vdc
Emitter - Base Breakdown Voltage ($I_E = 200$ uAdc)	BV_{EB0}	5.5		Vdc

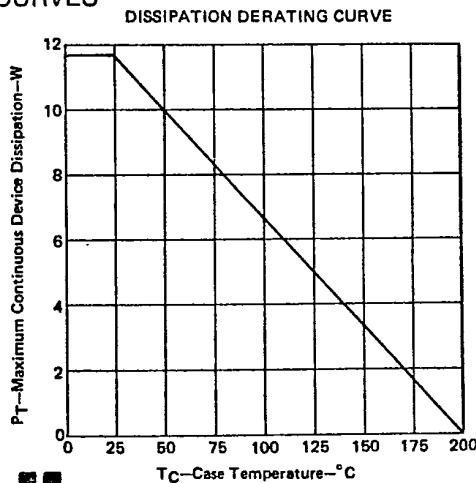
NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current (VCE = 40 Vdc) (VCE = 60 Vdc, VBE = 2 Vdc, TC = 150°C)	ICEO ICEV		50 500	uAdc uAdc
Collector Cutoff Current (VCE = 60 Vdc) (VCE = 100 Vdc)	ICES		1.0 1.0	uAdc mAdc
Emitter Cutoff Current (VEB = 4 Vdc) (VEB = 5.5 Vdc)	IEBO		1.0 1.0	uAdc mAdc
DC Current Gain* (IC = 50 mAdc, VCE = 5 Vdc) (IC = 2.5 Adc, VCE = 5 Vdc) (IC = 5 Adc, VCE = 5 Vdc)	hFE	20 50 30 70 20 40	90 200	
Collector - Emitter Saturation Voltage* (IC = 2.5 Adc, IB = 250 mAdc) (IC = 5 Adc, IB = 500 mAdc)	VCE (SAT)*		0.75 1.5	Vdc
Base - Emitter Saturation Voltage* (IC = 2.5 Adc, IB = 250 mAdc) (IC = 5 Adc, IB = 500 mAdc)	VBE (SAT)*		1.45 2.2	Vdc
Current - Gain - Bandwidth Product (IC = 500 mAdc, VCE = 5 Vdc, f = 20 MHz)	fT	60 70		MHz
Output Capacitance (VCB = 10 Vdc, IE = 0, f = 1 MHz)	Cob		250	pf
Base - Emitter Voltage* (VCE = 5 Vdc, IC = 2.5 Adc)	VBE(ON)*		1.45	Vdc
Delay Time (VCC = 30 Vdc, IC = 5 Adc)	td			
Rise Time	tr +		500	ns
Storage Time (VEB (off) = 3.7 Vdc, IB1 = IB2 = 500 mAdc, RL = 6 Ohms)	ts +			
Fall Time	tf +		1.3	us

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

TYPICAL OPERATING CURVES



FORWARD BIAS DC SAFE OPERATION AREA (S.O.A. CURVE)
CURVES APPLY BELOW RATED VCE0 TC = 25°C

