

2N5330
30 AMP
HIGH SPEED NPN TRANSISTOR
150 VOLTS

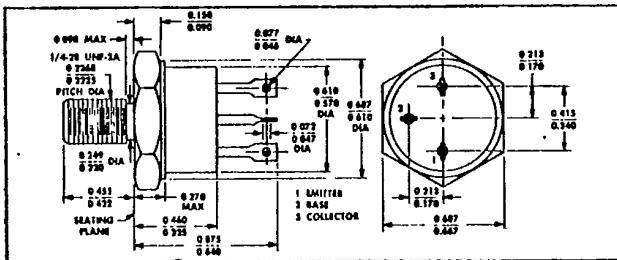


14830 Valley View Avenue
La Mirada, California 90638
(213) 921-9660
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CASE STYLE T

JEDEC TO-61

ALL TERMINALS ISOLATED FROM CASE



FEATURES

- RADIATION TOLERANT
- FAST SWITCHING, 350 NSEC MAX t_{on}
- HIGH FREQUENCY, TYPICAL f_T 100 MHZ
- BVCEO 90 VOLTS MIN, TYPICALLY 150 VOLTS
- HIGH LINEAR GAIN, LOW SATURATION VOLTAGE
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- DESIGNED FOR COMPLEMENTARY USE WITH SPT5330

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V_{CEO}	90	Volts
Collector - Base Voltage	V_{CBO}	150	Volts
Emitter - Base Voltage	V_{EBO}	8	Volts
Collector Current	I_C	30	Amps
Base Current	I_B	5	Amps
Total Device Dissipation @ $T_C = 100^\circ\text{C}$	P_D	80	Watts
Derate above 100°C		800	mW/ $^\circ\text{C}$
Operating and Storage Temperature	T_j, T_{stg}	-65 to $+200$	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Value	Unit
Thermal Resistance, Junction to Case	R _{θJC}	1.25	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* ($I_C = 100 \text{ mA}$)	BV_{CEO}	90		Vdc
Collector - Base Breakdown Voltage ($I_C = 200 \text{ uA}$)	BV_{CBO}	150		Vdc
Emitter - Base Breakdown Voltage ($I_E = 200 \text{ uA}$)	BV_{EBO}	8		Vdc

ELECTRICAL CHARACTERISTICS

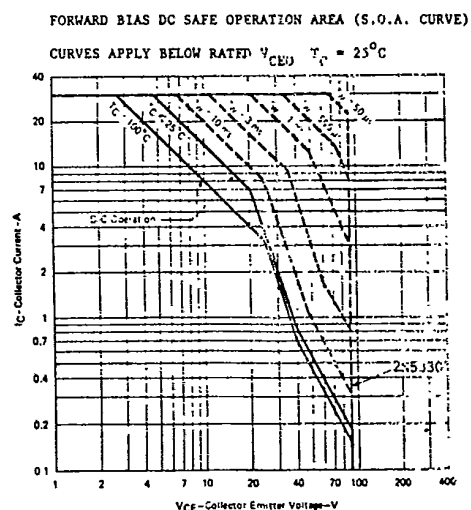
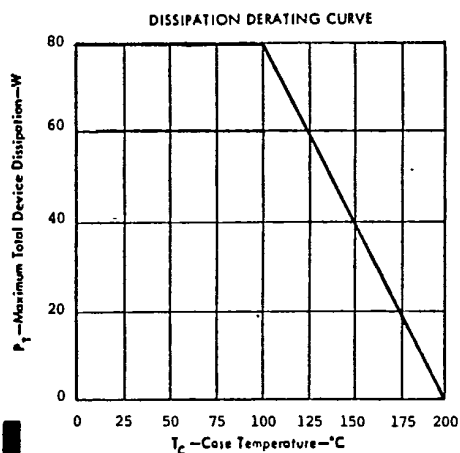
Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current ($V_{CE} = 150 \text{ Vdc}$, $V_{BE} = 500 \text{ mVdc}$)	I_{CEV}		10**	mAdc
Collector Cutoff Current ($V_{CE} = 150 \text{ Vdc}$, $V_{BE} = 500 \text{ mVdc}$, $TC = 150^\circ\text{C}$)	I_{CEV}		50***	mAdc
Emitter Cutoff Current ($V_{EB} = 8 \text{ Vdc}$)	I_{EBO}		5	mAdc
DC Current Gain* ($I_C = 10 \text{ Adc}$, $V_{CE} = 2 \text{ Vdc}$) ($I_C = 30 \text{ Adc}$, $V_{CE} = 3 \text{ Vdc}$)	h_{FE}	40 10	120 50	
Collector - Emitter Saturation Voltage* ($I_C = 10 \text{ Adc}$, $I_B = 500 \text{ mAdc}$) ($I_C = 30 \text{ Adc}$, $I_B = 3 \text{ Adc}$)	$V_{CE (SAT)}$		0.6 1.8	vdc
Base - Emitter Saturation Voltage* ($I_C = 10 \text{ Adc}$, $I_B = 300 \text{ mAdc}$) ($I_C = 30 \text{ Adc}$, $I_B = 3 \text{ Adc}$)	$V_{BE (SAT)}$		1.3 1.8	Vdc
Current - Gain - Bandwidth Product ($I_C = 3 \text{ Adc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 10 \text{ MHz}$)	f_T	80		MHz
Output Capacitance ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 1 \text{ MHz}$)	C_{ob}		500	pf
Input Capacitance ($V_{BE} = 1.0 \text{ Vdc}$, $I_C = 0$, $f = 1 \text{ MHz}$)	C_{ib}		1250	pf
Delay Time ($V_{CC} = 21 \text{ Vdc}$)	t_d			
Rise Time	t_r		350	ns
Storage Time	t_s			
Fall Time	t_f		1.25	us
(t _{on})				
(t _{off})				

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

**Typically 1 uAdc

***Typically 50 uAdc

TYPICAL OPERATING CURVES



SOLID STATE DEVICES, INC.

2N6322 AND 2N6324

30 AMP NPN

HIGH VOLTAGE/HIGH ENERGY

200 VOLTS

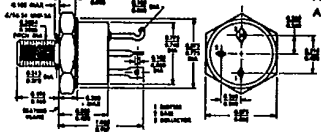


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T-33-15

2N6324

THE COLLECTOR IS IN ELECTRICAL CONTACT WITH THE CASE
ALL JEDEC TO-43 DIMENSIONS
AND NOTES ARE APPLICABLE

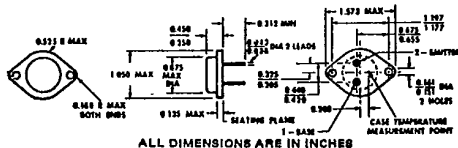


CASE TEMPERATURE MEASUREMENT POINT IS UNDERSIDE OF FLAT SURFACE WITHIN 0.125" FROM STUD

ALL DIMENSIONS ARE IN INCHES

2N6322

THE COLLECTOR IS IN ELECTRICAL CONTACT WITH THE CASE
ALL JEDEC TO-3 DIMENSIONS AND NOTES ARE APPLICABLE



ALL DIMENSIONS ARE IN INCHES

FEATURES

- MINIMUM BVCEO 200V
- MINIMUM UNCLAMPED ES/B 100mJ
- 200 WATTS AT 100°C CASE TEMPERATURE
- 30 AMP CONTINUOUS COLLECTOR CURRENT
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V_{CE0}	200	Volts
Collector - Base Voltage	V_{CB0}	300	Volts
Emitter - Base Voltage	V_{EB0}	5	Volts
Collector Current	I_C	30	Amps
Base Current	I_B	10	Amps
Total Device Dissipation @ $T_C = 100^\circ\text{C}$	P_D	200	Watts
Derate above 100°C			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	$R_{\theta JC}$	0.5	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* ($I_C = 30 \text{ mA dc}$)	BV_{CE0}	200		Vdc
Collector - Base Breakdown Voltage ($I_C = 20 \text{ uA dc}$)	BV_{CB0}	300		Vdc
Emitter - Base Breakdown Voltage ($I_E = 20 \text{ uA dc}$)	BV_{EB0}	5		Vdc

7/86 D2274/B3574

NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

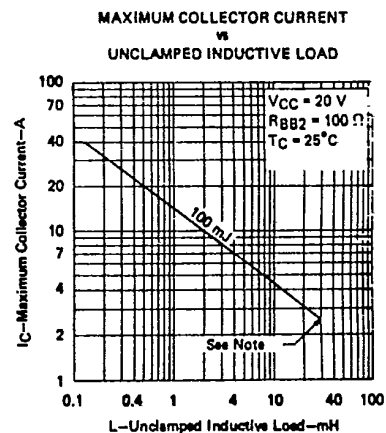
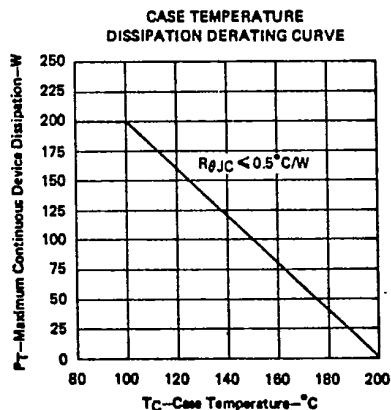
Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current $V_{CE} = 300V$ $V_{BE} = 0V$	I_{CES}		2	mAdc
Collector Cutoff Current ($V_{CE} = 100V$)	I_{CEO}		5	mAdc
Emitter Cutoff Current ($V_{EB} = 5V$)	I_{EBO}		5	mAdc
DC Current Gain* $(I_C = 5 \text{ Adc. } V_{CE} = 5 \text{ Vdc})$ $(I_C = 20 \text{ Adc. } V_{CE} = 5 \text{ Vdc})$ $(I_C = 30 \text{ Adc. } V_{CE} = 5 \text{ Vdc})$	h_{FE}	40 12 6	150	
Collector - Emitter Saturation Voltage* $(I_C = 20 \text{ Adc. } I_B = 2 \text{ Adc})$ $(I_C = 30 \text{ Adc. } I_B = 6 \text{ Adc})$	$V_{CE(SAT)}$		1.5 3.0	Vdc
Base - Emitter Voltage* $(I_C = 30 \text{ Adc. } V_{CE} = 5 \text{ V})$	$V_{BE(ON)}^*$		2.5	Vdc
Current - Gain - Bandwidth Product $(I_C = 1 \text{ Adc. } V_{CE} = 10 \text{ Vdc. } f = 5 \text{ MHz})$	f_T	10		MHz

SWITCHING TIMES

Delay Time	$(V_{CC} = 40 \text{ Vdc. } V_{EB(Off)} = 3 \text{ Vdc.})$	t_d		
Rise Time	$I_C = 20 \text{ Adc. } t(on)$	$t_r +$	800	ns
Storage Time		$t_s +$		
Fall Time	$I_{B1} = I_{B2} = 2 \text{ Adc. } t(off)$	$t_f +$	3.0	us

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

TYPICAL OPERATING CURVES



SSDI

SOLID STATE DEVICES, INC.

SOLID STATE DEVICES INC

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SFT5671 AND SFT5672**30 AMP****HIGH POWER NPN TRANSISTORS****200 AND 250 VOLTS**

14830 Valley View Avenue
La Mirada, California 90638
(213) 921-9660
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CASE STYLE R**TO-3 WITH .060 PINS****FEATURES**

- BVCBO TO 250 VOLTS
- HIGH POWER 150 WATTS
- 200 °C OPERATING TEMPERATURE
- GOLD EUTECTIC DIE ATTACH
- SUPERIOR PERFORMANCE TO 2N5671 AND 2N5672

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage SFT5671	V_{CE0}	120	Volts
SFT5672		140	
Collector - Base Voltage SFT5671 : SFT5672	V_{CBO}	200 : 250	Volts
Emitter - Base Voltage	V_{EBO}	8	Volts
Collector Current	I_C	30	Amps
Base Current	I_B	10	Amps
Total Device Dissipation @ TC = 25 °C	P_D	150	Watts
Derate above 25 °C		1.0	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	$R_{\theta JC}$	1.0	°C/W

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
Collector - Emitter Breakdown Voltage* ($I_C = 200$ mA dc)	BV_{CE0}	120		Vdc
($I_C = 200$ mA dc, $R_{BE} = 1000$ ohms)	BV_{CER}	140		
SFT5671		200		
SFT5672		250		
Collector - Base Breakdown Voltage ($I_C = 200$ mA dc)	BV_{CBO}	200		Vdc
SFT5671		250		
SFT5672				
Emitter - Base Breakdown Voltage ($I_E = 100$ mA dc)	BV_{EBO}	8		Vdc

ELECTRICAL CHARACTERISTICS

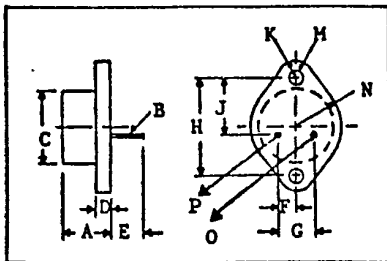
Characteristics	Symbol	Min.	Max.	Unit
Collector Cutoff Current $V_{CE} = 80 \text{ Vdc}$	I_{CEO}		50	$\mu\text{A dc}$
Collector Cutoff Current ($V_{CB} = 150 \text{ Vdc}$, SFT5671) ($V_{CB} = 200 \text{ Vdc}$, SFT5672)	I_{CBO}		10	$\mu\text{A dc}$
Emitter Cutoff Current ($V_{EB} = 7 \text{ Vdc}$)	I_{EBO}		5	$\mu\text{A dc}$
DC Current Gain* ($I_C = 15 \text{ A dc}$, $V_{CE} = 2 \text{ Vdc}$) ($I_C = 20 \text{ A dc}$, $V_{CE} = 5 \text{ Vdc}$) ($I_C = 30 \text{ A dc}$, $V_{CE} = 5 \text{ Vdc}$)	h_{FE}	30 25 20	100	
Collector - Emitter Saturation Voltage* ($I_C = 15 \text{ A dc}$, $I_B = 1.2 \text{ A dc}$) ($I_C = 30 \text{ A dc}$, $I_B = 6 \text{ A dc}$)	$V_{CE(SAT)}$		0.75 5.0	Vdc
Base - Emitter Saturation Voltage* ($I_C = 15 \text{ A dc}$, $I_B = 1.2 \text{ A dc}$)	$V_{BE(SAT)}$		1.5	Vdc
Small Signal Common-Emitter Forward Current Transfer Ratio ($I_C = 2 \text{ A dc}$, $V_{CE} = 10 \text{ Vdc}$ f = 5 MHz)	$ h_{fe} $	30		
Output Capacitance ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$ f = 1 MHz)	C_{ob}		500	pf

SWITCHING TIME

Turn on time	($V_{CC} = 30 \text{ Vdc}$, $I_C = 15 \text{ A dc}$, $I_{B1} = 1.2 \text{ A dc}$)	t_{on}	500	ns
Turn off time	($V_{CC} = 30 \text{ Vdc}$, $I_C = 15 \text{ A dc}$, $I_{B1} = I_{B2} = 1.2 \text{ A dc}$)	t_{off}	1.5	μs

*Pulse Test: Pulse width = 300 μs , 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


SOLID STATE DEVICES, INC.