

8961726 TEXAS INSTR (OPTO)

62C 36577 D

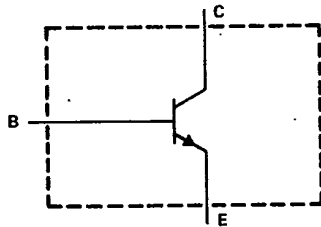
2N3771, 2N3772  
N-P-N SILICON POWER TRANSISTORS

DECEMBER 1971 - REVISED OCTOBER 1984

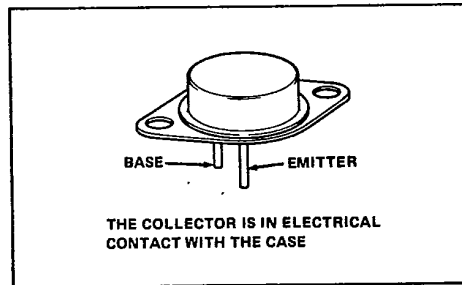
T-33-13

- 150 W at 25°C Case Temperature
- 30 A Continuous Collector Current (2N3771)
- 20 A Continuous Collector Current (2N3772)
- 30 A Peak Collector Current
- Designed for Untuned Power-Amplifier Applications

device schematic



TO-3 PACKAGE



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2N Devices

absolute maximum ratings at 25°C case temperature (unless otherwise noted)

	2N3771	2N3772
*Collector-base voltage	50 V	100 V
*Collector-emitter voltage ( $V_{BE} = -1.5 V$ )	50 V	80 V†
*Collector-emitter voltage ( $I_B = 0$ )	40 V	60 V
*Emitter-base voltage	5 V	7 V
*Continuous collector current	30 A	20 A
*Continuous base current	7.5 A	5 A
*Peak collector current (see Note 1)	30 A	
*Peak base current	15 A	
*Safe operating region	See Figure 1	
*Continuous device dissipation at (or below) 25°C case temperature (see Note 2)	150 W	
*Operating junction and storage temperature range	- 65°C to 200°C	
*Lead temperature 1,6 mm (0.0625 inch) from case for 10 seconds	235°C	

† Texas Instruments guarantees a 100 V value for this parameter in addition to the JEDEC registered value shown.  
 NOTES: 1. This value applies for a nonrepetitive pulse of any duration for the 2N3771, or of 500 ms maximum duration for the 2N3772.  
 2. Derate linearly to 200°C case temperature at the rate of 0.855 W/°C as shown in Figure 2.

\*JEDEC registered data.

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electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	2N3771			2N3772			UNIT
		MIN	TYP	MAX	MIN	TYP	MAX	
V <sub>(BR)CEO</sub>	I <sub>C</sub> = 0.2 A, I <sub>B</sub> = 0, See Note 3	40			60			V
I <sub>CBO</sub>	V <sub>CB</sub> = 50 V, I <sub>E</sub> = 0			2				mA
	V <sub>CB</sub> = 100 V, I <sub>E</sub> = 0					5		
I <sub>CEO</sub>	V <sub>CE</sub> = 30 V, I <sub>B</sub> = 0			10				mA
	V <sub>CE</sub> = 50 V, I <sub>B</sub> = 0					10		
I <sub>CEV</sub>	V <sub>CE</sub> = 50 V, V <sub>BE</sub> = -1.5 V			2				mA
	V <sub>CE</sub> = 100 V, V <sub>BE</sub> = -1.5 V					5		
	V <sub>CE</sub> = 30 V, V <sub>BE</sub> = -1.5 V, T <sub>C</sub> = 150°C			10		10		
I <sub>EBO</sub>	V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0			5				mA
	V <sub>EB</sub> = 7 V, I <sub>C</sub> = 0					5		
h <sub>FE</sub>	V <sub>CE</sub> = 4 V, I <sub>C</sub> = 10 A, See Notes 3 and 4				15	60		
	V <sub>CE</sub> = 4 V, I <sub>C</sub> = 15 A, See Notes 3 and 4							
	V <sub>CE</sub> = 4 V, I <sub>C</sub> = 20 A, See Notes 3 and 4					5		
	V <sub>CE</sub> = 4 V, I <sub>C</sub> = 30 A, See Notes 3 and 4			5				
V <sub>BE</sub>	V <sub>CE</sub> = 4 V, I <sub>C</sub> = 10 A, See Notes 3 and 4						2.2	V
	V <sub>CE</sub> = 4 V, I <sub>C</sub> = 15 A, See Notes 3 and 4				2.7			
V <sub>CE(sat)</sub>	I <sub>B</sub> = 1 A, I <sub>C</sub> = 10 A, See Notes 3 and 4						1.4	V
	I <sub>B</sub> = 1.5 A, I <sub>C</sub> = 15 A, See Notes 3 and 4				2			
	I <sub>B</sub> = 4 A, I <sub>C</sub> = 20 A, See Notes 3 and 4						4	
	I <sub>B</sub> = 6 A, I <sub>C</sub> = 30 A, See Notes 3 and 4			4				
h <sub>fe</sub>	V <sub>CE</sub> = 4 V, I <sub>C</sub> = 1 A, f = 1 kHz	40			40			
h <sub>fe</sub> l	V <sub>CE</sub> = 4 V, I <sub>C</sub> = 1 A, f = 50 kHz	4			4			

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2N Devices

NOTES: 3. These parameters must be measured using pulse techniques, t<sub>w</sub> = 300 μs, duty cycle ≤ 2%.  
4. These parameters are measured with voltage-sensing contacts separate from the current-carrying contacts.

\*JEDEC registered data.

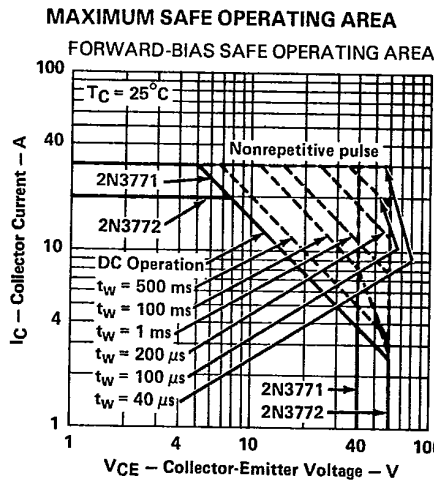


FIGURE 1

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THERMAL INFORMATION  
DISSIPATION DERATING CURVE

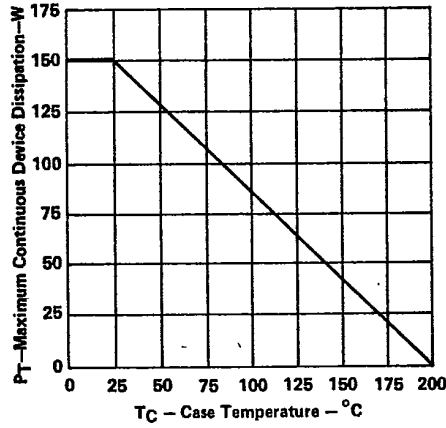


FIGURE 2



2N Devices