

B & D Enterprises
 Main & Liberty St.
 Russell, PA 16345
 1 - 800 - 458 - 6053
 fax (814) - 757 - 5400

2N3771*
2N3772*

*Motorola preferred device

HIGH POWER NPN SILICON POWER TRANSISTORS

... designed for linear amplifiers, series pass regulators, and inductive switching applications.

- Forward Biased Second Breakdown Current Capability

$$I_{S/b} = 3.75 \text{ Adc} @ V_{CE} = 40 \text{ Vdc} - 2N3771$$

$$= 2.5 \text{ Adc} @ V_{CE} = 60 \text{ Vdc} - 2N3772$$

20 and 30 AMPERE

POWER TRANSISTORS
NPN SILICON

40 and 60 VOLTS
 150 WATTS



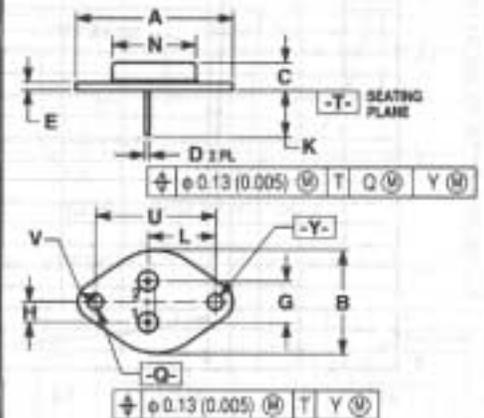
***MAXIMUM RATINGS**

Rating	Symbol	2N3771	2N3772	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	Vdc
Collector-Emitter Voltage	V_{CEX}	50	80	Vdc
Collector-Base Voltage	V_{CB}	50	100	Vdc
Emitter-Base Voltage	V_{EB}	5.0	7.0	Vdc
Collector Current — Continuous	I_C	30	20	A dc
Peak		30	30	
Base Current — Continuous	I_B	7.5	5.0	A dc
Peak		15	15	
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	150 0.855		Watts W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	2N3771, 2N3772	Unit
Thermal Resistance, Junction to Case	θ_{JC}	1.17	°C/W

* Indicates JEDEC Registered Data



NOTES:

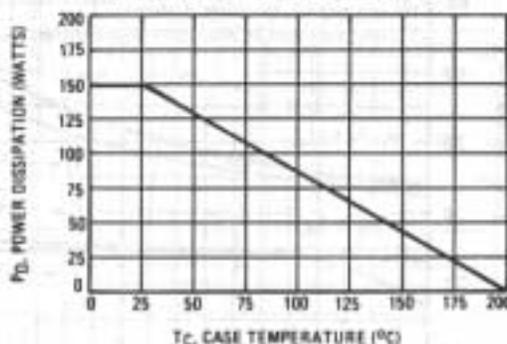
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1987.
2. CONTROLLING DIMENSION: INCH.
3. ALL RULES AND NOTES ASSOCIATED WITH REFERENCED TO-204AA OUTLINE SHALL APPLY.
4. 801-05 AND -06 OBSOLETE, NEW STANDARD 801-07.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	38.17 REF	—	1.500 REF	—
B	—	26.67	—	1.050
C	6.35	8.91	0.250	0.350
D	0.97	1.09	0.038	0.043
E	1.48	1.77	0.058	0.070
G	13.92 BSC	—	0.430 BSC	—
H	3.46 BSC	—	0.136 BSC	—
K	11.18	12.19	0.440	0.480
L	14.89 BSC	—	0.586 BSC	—
N	—	21.09	—	0.830
O	3.94	4.19	0.155	0.165
U	30.15 BSC	—	1.187 BSC	—
V	3.32	4.77	0.131	0.188

STYLE 1:
 PIN 1: BASE
 2: EMITTER
 CASE: COLLECTOR

CASE 1-07
TO-204AA
(TO-3)

FIGURE 1 — POWER DERATING



2N3771, 2N3772

B & D Enterprises
Main & Liberty St.
Russell, PA 16345
1 - 800 - 458 - 6053
fax (814) - 757 - 5400

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
*Collector-Emitter Sustaining Voltage (1) ($I_C = 0.2 \text{ Adc}$, $I_B = 0$)	2N3771 2N3772	$V_{CE0(sus)}$	40 60	— —	Vdc
Collector-Emitter Sustaining Voltage ($I_C = 0.2 \text{ Adc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$, $R_{BE} = 100 \text{ Ohms}$)	2N3771 2N3772	$V_{CEX(sus)}$	50 80	— —	Vdc
Collector-Emitter Sustaining Voltage ($I_C = 0.2 \text{ Adc}$, $R_{BE} = 100 \text{ Ohms}$)	2N3771 2N3772	$V_{CER(sus)}$	45 70	— —	Vdc
*Collector Cutoff Current ($V_{CE} = 30 \text{ Vdc}$, $I_B = 0$) ($V_{CE} = 50 \text{ Vdc}$, $I_B = 0$) ($V_{CE} = 25 \text{ Vdc}$, $I_B = 0$)	2N3771 2N3772	I_{CEO}	— —	10 10	mAdc
*Collector Cutoff Current ($V_{CE} = 50 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$) ($V_{CE} = 100 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$) ($V_{CE} = 45 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$) ($V_{CE} = 30 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$, $T_C = 150^{\circ}\text{C}$) ($V_{CE} = 45 \text{ Vdc}$, $V_{EB(off)} = 1.5 \text{ Vdc}$, $T_C = 150^{\circ}\text{C}$)	2N3771 2N3772 2N8257 2N3771 2N3772	I_{CEV}	— — — — —	2.0 5.0 4.0 10 10	mAdc
*Collector Cutoff Current ($V_{CB} = 50 \text{ Vdc}$, $I_E = 0$) ($V_{CB} = 100 \text{ Vdc}$, $I_E = 0$)	2N3771 2N3772	I_{CBO}	— —	2.0 5.0	mAdc
*Emitter Cutoff Current ($V_{BE} = 5.0 \text{ Vdc}$, $I_C = 0$) ($V_{BE} = 7.0 \text{ Vdc}$, $I_C = 0$)	2N3771 2N3772	I_{EBO}	— —	5.0 5.0	mAdc
*ON CHARACTERISTICS					
DC Current Gain (1) ($I_C = 15 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$) ($I_C = 10 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$) ($I_C = 8.0 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$) ($I_C = 30 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$) ($I_C = 20 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$)	2N3771 2N3772 2N3771 2N3772	h_{FE}	15 15	60 60	—
Collector-Emitter Saturation Voltage ($I_C = 15 \text{ Adc}$, $I_B = 1.5 \text{ Adc}$) ($I_C = 10 \text{ Adc}$, $I_B = 1.0 \text{ Adc}$) ($I_C = 30 \text{ Adc}$, $I_B = 6.0 \text{ Adc}$) ($I_C = 20 \text{ Adc}$, $I_B = 4.0 \text{ Adc}$)	2N3771 2N3772 2N3771 2N3772	$V_{CE(sat)}$	— —	2.0 1.4 4.0 4.0	Vdc
Base-Emitter On Voltage ($I_C = 15 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$) ($I_C = 10 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$) ($I_C = 8.0 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$)	2N3771 2N3772	$V_{BE(on)}$	— —	2.7 2.2	Vdc
*DYNAMIC CHARACTERISTICS					
Current-Gain—Bandwidth Product ($I_C = 1.0 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$, $f_{test} = 50 \text{ kHz}$)		f_T	0.2	—	MHz
Small-Signal Current Gain ($I_C = 1.0 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)		h_{fe}	40	—	—
SECOND BREAKDOWN					
Second Breakdown Energy with Base Forward Biased, $t = 1.0 \text{ s}$ (non-repetitive) ($V_{CE} = 40 \text{ Vdc}$) ($V_{CE} = 60 \text{ Vdc}$)	2N3771 2N3772	$I_{S/b}$	3.75 2.5	— —	Adc

*Indicates JEDEC Registered Data
 (1) Pulse Test: 300 μs , Rep. Rate 60 cps.