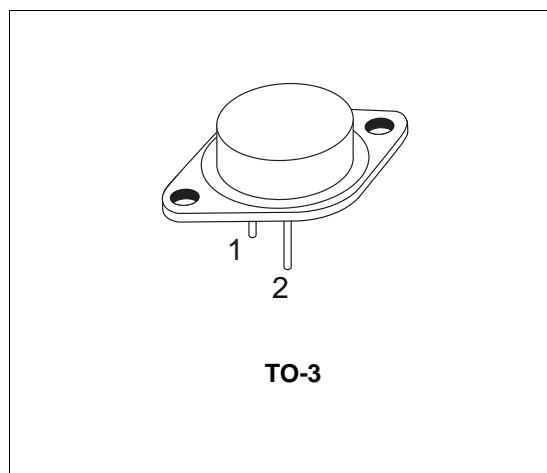


HIGH POWER NPN SILICON TRANSISTOR

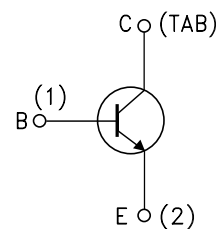
- STMicroelectronics PREFERRED SALESTYPES

DESCRIPTION

The 2N3771, 2N3772 are silicon epitaxial-base NPN transistors mounted in Jedec TO-3 metal case. They are intended for linear amplifiers and inductive switching applications.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		2N3771	2N3772	
V_{CEO}	Collector-Emitter Voltage ($I_E = 0$)	40	60	V
V_{CEV}	Collector-Emitter Voltage ($V_{BE} = -1.5V$)	50	80	V
V_{CBO}	Collector-Base Voltage ($I_B = 0$)	50	100	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	5	7	V
I_C	Collector Current	30	20	A
I_{CM}	Collector Peak Current	30	30	A
I_B	Base Current	7.5	5	A
I_{BM}	Base Peak Current	15	15	A
P_{tot}	Total Dissipation at $T_c \leq 25^\circ C$	150		W
T_{stg}	Storage Temperature	-65 to 200		$^\circ C$

2N3771/2N3772

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.17	°C/W
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5V$)	for 2N3771 $V_{CB} = 50\text{ V}$ for 2N3772 $V_{CB} = 100\text{ V}$ for all $V_{CB} = 30\text{ V}$ $T_j = 150\text{ °C}$			2 5 10	mA mA mA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	for 2N3771 $V_{CB} = 30\text{ V}$ for 2N3772 $V_{CB} = 50\text{ V}$			10 10	mA mA
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	for 2N3771 $V_{CB} = 50\text{ V}$ for 2N3772 $V_{CB} = 100\text{ V}$			4 5	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	for 2N3771 $V_{CB} = 5\text{ V}$ for 2N3772 $V_{CB} = 7\text{ V}$			5 5	mA mA
$V_{CE(sus)*}$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 0.2\text{ A}$ for 2N3771 for 2N3772	40 60			V V
$V_{CEV(sus)*}$	Collector-Emitter Sustaining Voltage ($V_{EB} = -1.5V$)	$I_C = 0.2\text{ A}$ $R_{BE} = 100\text{ }\Omega$ for 2N3771 for 2N3772	50 80			V V
$V_{CE(sus)*}$	Collector-Emitter Sustaining Voltage ($R_{BE} = 100\text{ }\Omega$)	$I_C = 0.2\text{ A}$ for 2N3771 for 2N3772	45 70			V V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	for 2N3771 $I_C = 15\text{ A}$ $I_B = 1.5\text{ A}$ $I_C = 30\text{ A}$ $I_B = 6\text{ A}$ for 2N3772 $I_C = 10\text{ A}$ $I_B = 1\text{ A}$ $I_C = 20\text{ A}$ $I_B = 4\text{ A}$			2 4 1.4 4	V V V V
V_{BE*}	Base-Emitter Voltage	for 2N3771 $I_C = 15\text{ A}$ $V_{CE} = 4\text{ V}$ for 2N3772 $I_C = 10\text{ A}$ $V_{CE} = 4\text{ A}$			2.7 2.7	V V
h_{FE*}	DC Current Gain	for 2N3771 $I_C = 15\text{ A}$ $V_{CE} = 4\text{ V}$ $I_C = 30\text{ A}$ $V_{CE} = 4\text{ V}$ for 2N3772 $I_C = 10\text{ A}$ $V_{CE} = 4\text{ V}$ $I_C = 20\text{ A}$ $V_{CE} = 4\text{ V}$	15 5 15 5		60 60	
h_{FE}	Small Signal Current Gain	$I_C = 1\text{ A}$ $V_{CE} = 4\text{ V}$ $f = 1\text{ KHz}$	40			
f_T	Transition frequency	$I_C = 1\text{ A}$ $V_{CE} = 4\text{ V}$ $f = 50\text{ KHz}$	0.2			MHz
$I_{s/b}$	Second Breakdown Collector Current	$V_{CE} = 25\text{ V}$ $t = 1\text{ s}$ (non repetitive)	6			A

* Pulsed: Pulse duration = 300 μs , duty cycle $\leq 2\%$

TO-3 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193

