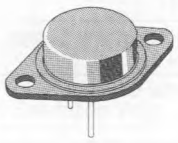
SGS-THOMSON MICROELECTRONICS

2N3771
2N3772

HIGH POWER TRANSISTORS

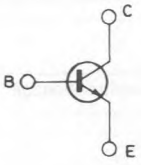
DESCRIPTION

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.



TO-3

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	2N3771	2N3772	Unit
V_{CEO}	Collector-emitter Voltage (I_B = 0)	40	60	V
V_{CEV}	Collector-emitter Voltage (V_{BE} = – 1.5V)	50	80	V
V_{CBO}	Collector-base Voltage (I_E = 0)	50	100	V
V_{EBO}	Emitter-base Voltage (I_C = 0)	5	7	V
I_C	Collector Current	15	10	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 Power Dissipation at $T_{case} \leq 25°C$	150		W
T_{stg}	Storage Temperature	– 65 to 200		°C
T_j	Junction Temperature	200		°C

THERMAL DATA

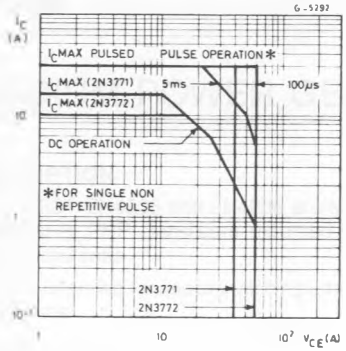
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	1.17	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

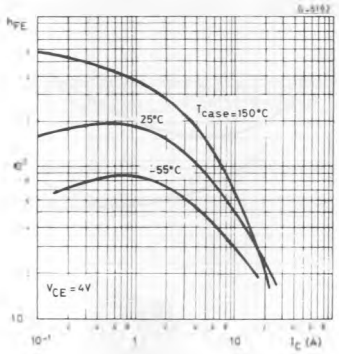
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cutoff Current (I_B = 0)	for **2N3771** V_{CE} = 30V for **2N3772** V_{CE} = 50V			10 10	mA mA
I_{CEV}	Collector Cutoff Current (V_{BE} = – 1.5V)	for **2N3771** V_{CE} = 50V for **2N3772** V_{CE} = 100V for all V_{CE} = 30V T_{case}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

* Pulsed : pulse duration = 300µs, duty cycle < 2%.

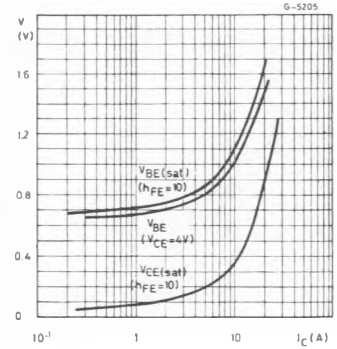
Safe Operating Areas



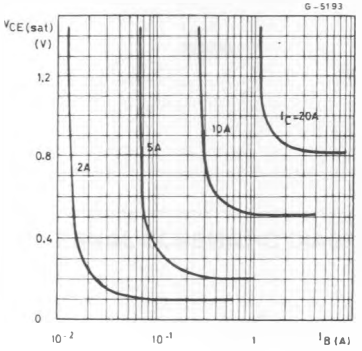
DC Current Gain.



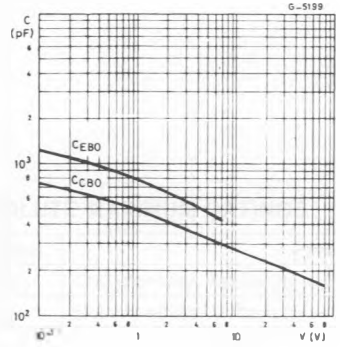
Saturation Voltage.



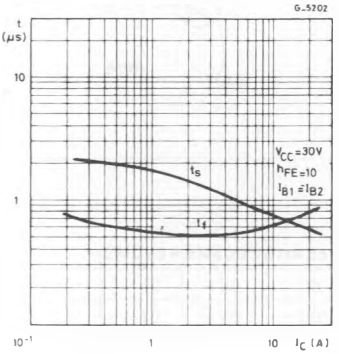
Collector-emitter Saturation Vol-



Capacitances.



Turn-off Time.



Turn-on Time.