# SGS-THOMSON
MICROELECTRONICS

MJ802
MJ4502

COMPLEMENTARY HIGH POWER TRANSISTORS

DESCRIPTION

The MJ802 (NPN) and MJ4502 (PNP) are silicon epitaxial-base complementary power transistors in Jedec TO-3 metal case, intended for general purpose power amplifier and switching applications.

TO-3

INTERNAL SCHEMATIC DIAGRAMS

PNP
S-6896

NPN
S-6897
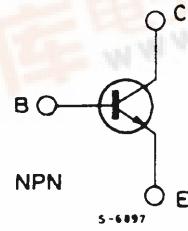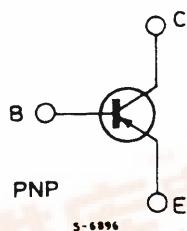
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	90	V
V_{CBO}	Collector-base Voltage ($I_E = 0$)	100	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	4	V
I_C	Collector Current	30	A
I_B	Base Current	7.5	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25°C$	200	W
T_{stg}	Storage Temperature	− 65 to 200	°C
T_j	Junction Temperature	200	°C

THERMAL DATA

R$_{th}$ $_{case}$	Thermal Resistance Junction-case	Max	0.875	°C/W

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

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = 200 mA		90			V
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = 100V T_{case} = 150°C				1 5	mA mA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 4V				1	mA
	Collector-emitter Sustaining Voltage (R_{BE} = 100Ω)	I_C = 200mA		100			V
h_{FE} *	DC Current Gain	I_C = 7.5A	V_{CE} = 2V	25		100	
$V_{CE(sat)}$ *	Collector-emitter Saturation Voltage	I_C = 7.5A	I_B = 0.75A			0.8	V
$V_{BE(sat)}$ *	Base-emitter Saturation Voltage	I_C = 7.5A	I_B = 0.75A			1.3	V
V_{BE} *	Base-emitter Voltage	I_C = 7.5A	V_{CE} = 2V			1.3	V
f_T	Transition Frequency	I_C = 1A f = 1MHz	V_{CE} = 10V	2			MHz

* Pulsed pulse duration = 300 μs duty cycle ≤ 2 %.
For PNP type voltage and current values are negative.

Safe Operating Areas.
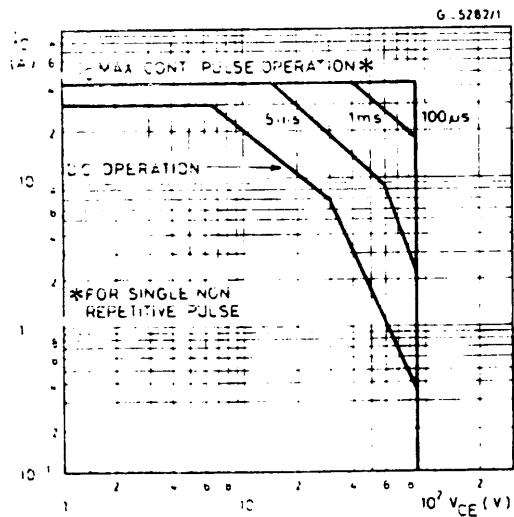
DC Current Gain (NPN type).

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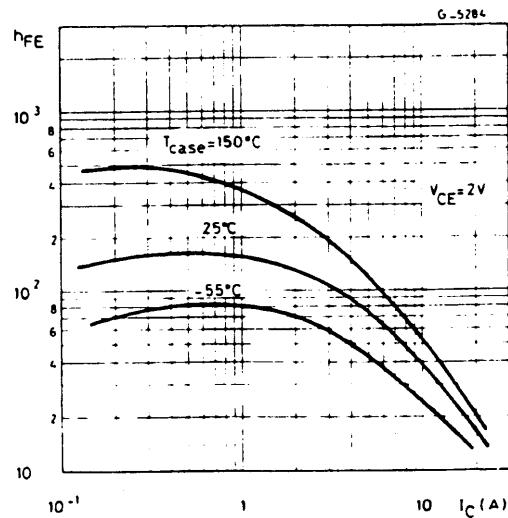
DC Current Gain (PNP type).
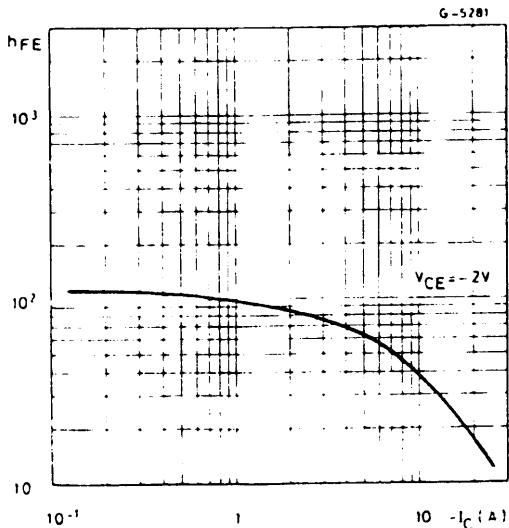

Base-emitter Voltage (PNP type)
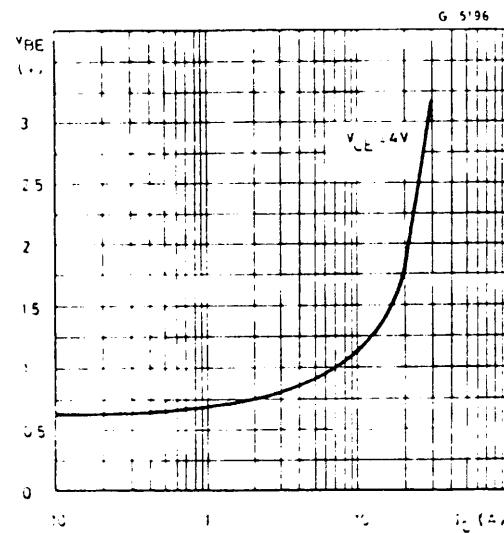
Saturation Voltage (NPN type).
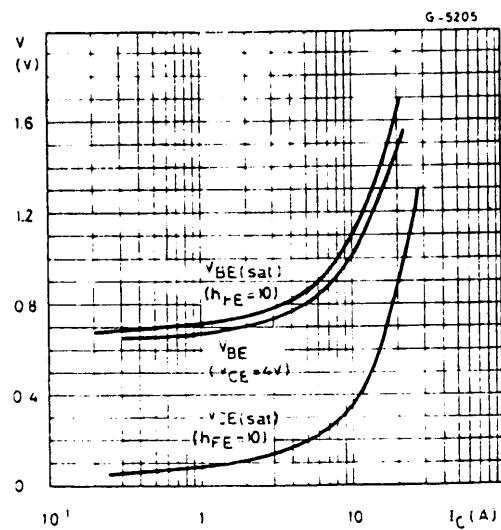

Base emitter Saturation Voltage (PNP type).
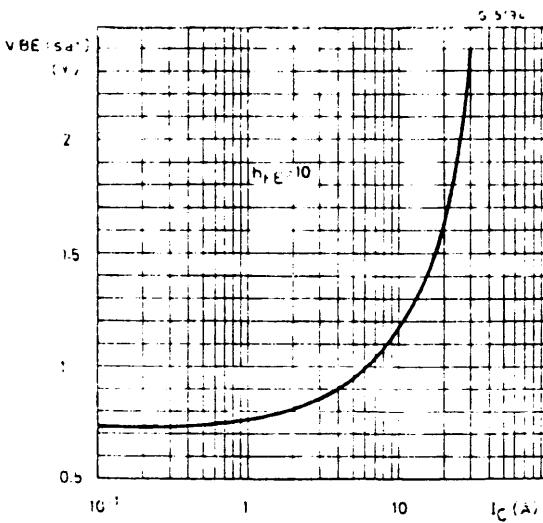

Collector-emitter Saturation Voltage (NPN type).
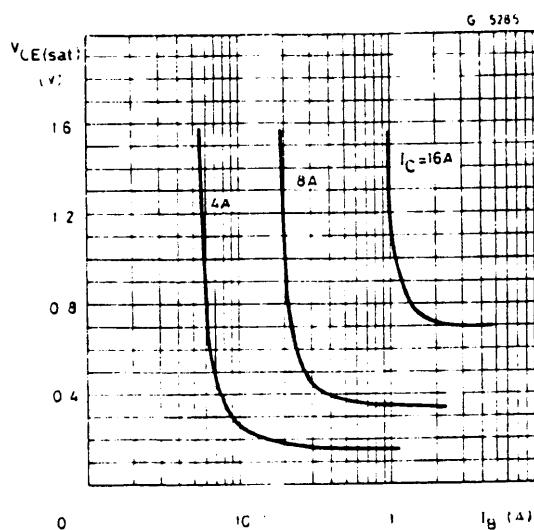
Collector-emitter Saturation Voltage (PNP type).


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Collector-emitter Saturation Voltage (PNP type).

G-5195
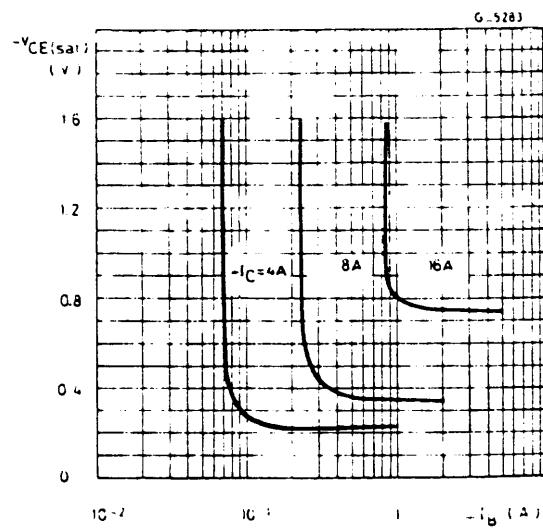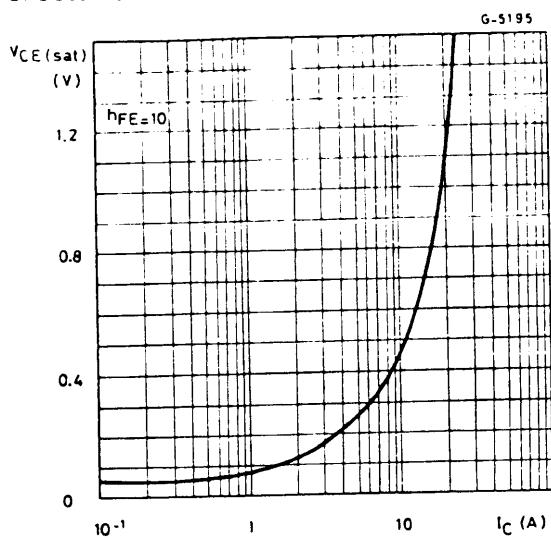
Capacitances (NPN type)

G-5199
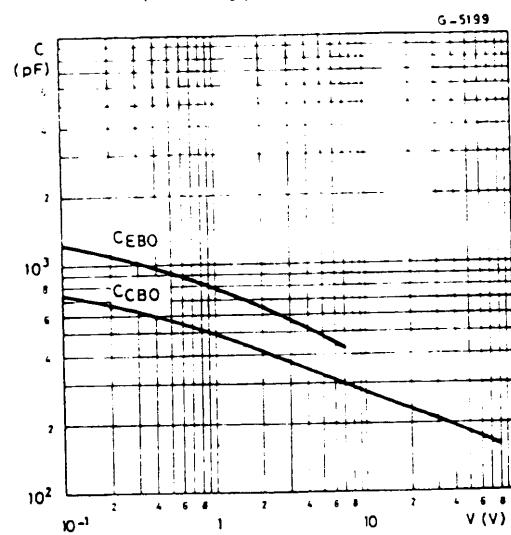
Capacitances (PNP type).

G-5198
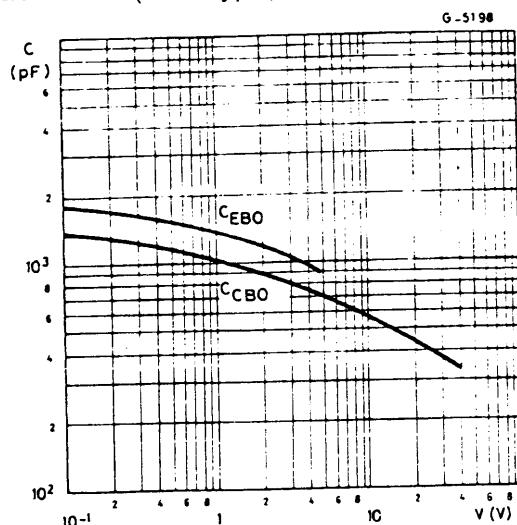
Turn-on Time (NPN type).

G-5203

Turn-off Time (NPN type).

G-5202

Turn-on Time (PNP type).

G-5200

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Turn-off Time (PNP type).

G – 5201

$V_{CC} = 30V$
$h_{FE} = 10$
$I_{B1} = -I_{B2}$