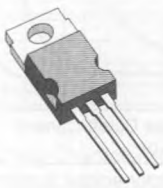
SGS-THOMSON MICROELECTRONICS

2N6497
2N6498-2N6499

HIGH VOLTAGE POWER SWITCH

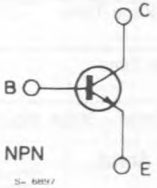
DESCRIPTION

The 2N6497/98/99 are silicon multiepitaxial mesa NPN transistors in Jedec TO-220 plastic package particularly intended for switch-mode applications.



TO-220

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	2N6497	2N6498	2N6499	Unit
V_{CBO}	Collector-base Voltage (I_E = 0)	350	400	450	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	250	300	350	V
V_{EBO}	Emitter-base Voltage (I_C = 0)	6			V
I_C	Collector Current	5			A
I_{CM}	Collector Peak Current	10			A
I_B	Base Current	2			A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25°C$	80			W
T_{stg}	Storage Temperature	– 65 to 150			°C
T_j	Junction Temperature	150			°C

THERMAL DATA

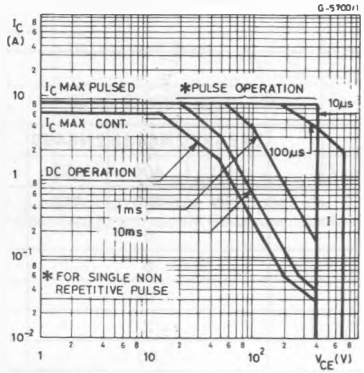
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	1.56	°C/W

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

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CEV}	Collector-cutoff Curent (V_{BE} = − 1.5V)	for **2N6497**					
		V_{CE} = 350V				1	mA
		V_{CE} = 175V	T_{case} = 100°C			10	mA
		for **2N6498**					
		V_{CE} = 400V				1	mA
		V_{CE} = 200V	T_{case} = 100°C			10	mA
		for **2N6499**					
		V_{CE} = 450V				1	mA
		V_{CE} = 225V	T_{case} = 100°C			10	mA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 6V				1	mA
$V_{CEO(sus)}$	Collector-emitter Sustaining Volage (I_B = 0)	I_C = 25mA	for **2N6497**	250			V
			for **2N6498**	300			V
			for **2N6499**	350			V
h_{FE}*	DC Current Gain	I_C = 2.5A	V_{CE} = 10V	10		75	
		I_C = 5A	V_{CE} = 10V	3			
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 2.5A	I_B = 0.5A for **2N6497**			1	V
			I_B = 0.5A for **2N6498**			1.25	V
			I_B = 0.5A for **2N6499**			1.5	V
		I_C = 5A	I_B = 2A all types			5	V
t_{on}	Turn-on Time	I_C = 2.5A	I_{B1} = 0.5A			0.8	µs
		I_{B2} = − 1A	V_{CC} = 125V				
t_s	Storage Time	I_C = 2.5A	I_{B1} = 0.5A			1.8	µs
		I_{B2} = − 1A	V_{CC} = 125V				
t_f	Fall Time	I_C = 2.5A	I_{B1} = 0.5A			0.8	µs
		I_{B2} = − 1A	V_{CC} = 125V				

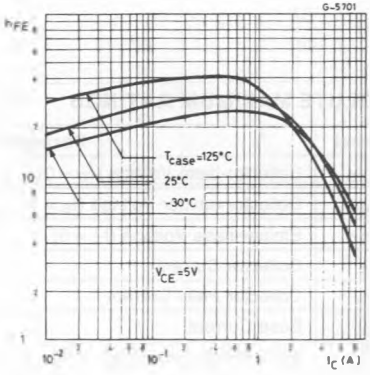
* Pulsed : pulse duration = 300µs, duty cycle = 1.5%.

Safe Operating Areas.

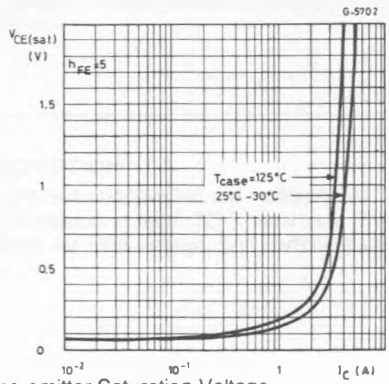


I-Area of permissible operation during turn-on provided $R_{BE} \leq 100\Omega$ and $t_p \leq 0.25\mu s$.

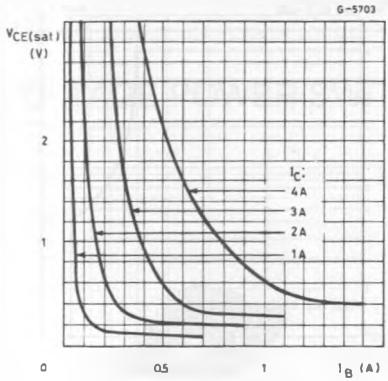
DC Current Gain.



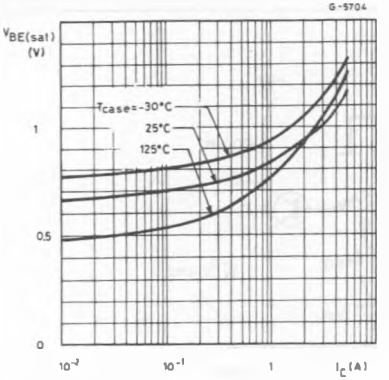
Collector-emitter Saturation Voltage



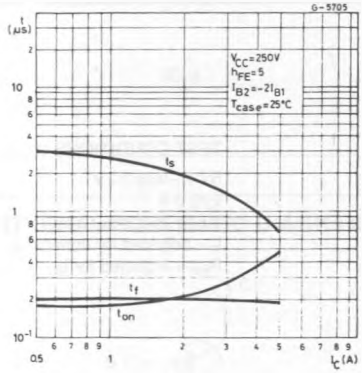
Collector-emitter Saturation Voltage.



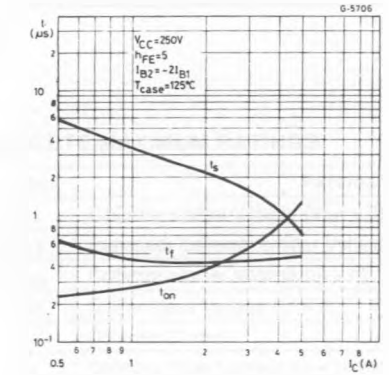
Base-emitter Saturation Voltage.



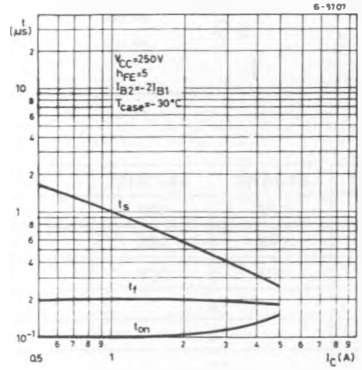
Saturated Switching Characteristics.



Saturated Switching Characteristics.



Saturated Swit-



Clamped Reverse bias Safe Operating Areas.

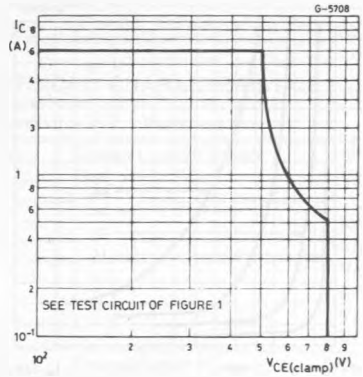


Figure 1 : Clamped Es/b Test Circuit.

TEST CONDITIONS :

$5V \geq |-V_{BB}| \geq 2V$
$I_C/I_B \geq 4$
$2I_{B1} \geq |-I_{B2}| \geq I_{B1}$
t_p = adjusted for nominal I_C
R_{BB} = Adjusted for I_{B2}