SGS-THOMSON MICROELECTRONICS

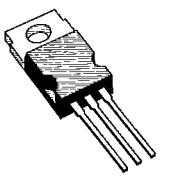
BUW22/22P BUW22A/22AP

HIGH VOLTAGE POWER SWITCH

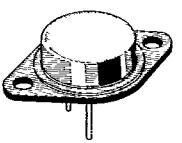
DESCRIPTION

The BUW22, BUW22A are silicon multiepitaxial mesa PNP transistor in Jedec TO-3 metal case, particulary intended for switching applications.

The BUW22P, BUW22AP are mounted in TO-220 plastic package.

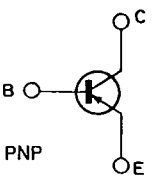


TO-220



TO-3

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BUW22/P	BUW22A/AP	
V_{CES}	Collector-emitter Voltage (V_{BE} = 0)	– 400	– 450	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	– 350	– 400	V
V_{EBO}	Emitter-base Voltage (I_C = 0)	– 5	– 7	V
I_C	Collector Current	– 6		A
I_{CM}	Collector Peak Current ($t_p \leq 10$ ms)	– 8		A
I_B	Base Current	– 2		A
I_{BM}	Base Peak Current ($t_p \leq 10$ ms)	– 4		A
		TO-3	TO-220	
P_{tot}	Total Power Dissipation at $T_{case} \leq 25$ °C	75	60	W
T_{stg}	Storage Temperature	– 65 to 175	– 65 to 150	°C
T_j	Junction Temperature	175	150	°C

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	max	2	°C/W

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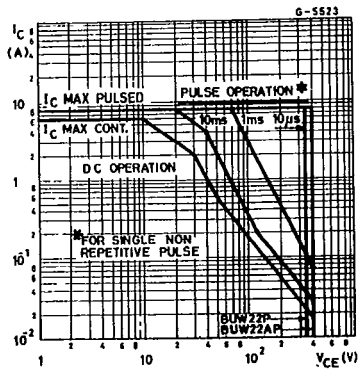
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

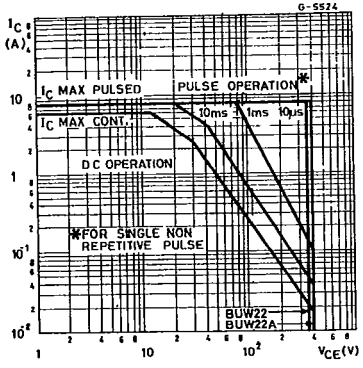
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cutoff Current (V_{BE} = 0)	V_{CE} = Rated V_{CES} T_{case} = 125 °C V_{CE} = Rated V_{CES}			– 1 – 5	mA mA
I_{EBO}	Collector Cutoff Current (I_C = 0)	V_{EB} = Rated V_{EBO}			– 1	mA
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = – 100 mA for **BUW22/P** for **BUW22A/AP**	 – 350 – 400			 V V
$V_{CE(sat)}$*	Base-emitter Saturation Voltage	I_C = – 2.5 A I_B = – 1 A			– 1.5	V
$V_{BE(sat)}$*	Base-emitter Saturation Voltage	I_C = – 2.5 A I_B = – 1 A			– 1.6	V
h_{FE}*	DC Current Gain	I_C = – 0.5 A V_{CE} = – 5 V	12			
$I_{s/b}$	Second Breakdown Collector Current	V_{CE} = – 30 V for **BUW22/A** for **BUW22P/AP**	 – 2.5 – 2			 A A
t_{on}	Turn-on Time	Resistive Load V_{CC} = – 250 V I_C = – 2.5 A I_{B1} = – I_{B2} = – 0.5 A		0.4	0.8	µs
t_s	Storage Time			0.6	1.5	µs
t_f	Fall Time			0.3	0.7	µs

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

Safe Operating Areas.
(BUW22AP - BUW22P).



Safe Operating Areas.
(BUW22 - BUW22A).



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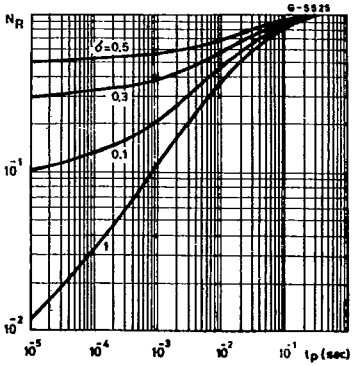
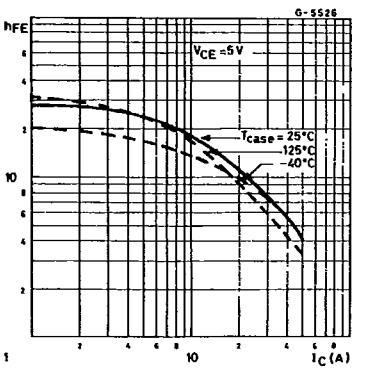
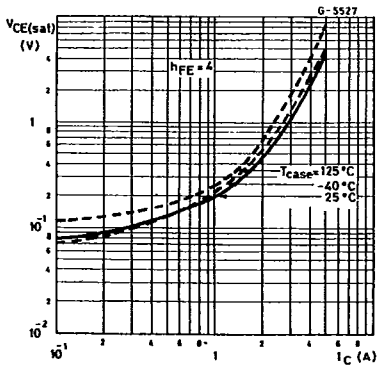
Transient Thermal Response.



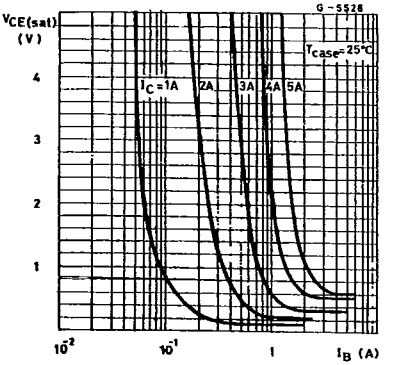
DC Current Gain.



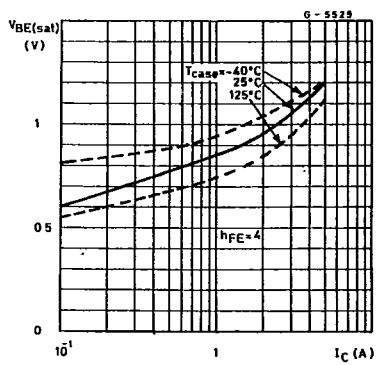
Collector-emitter Saturation Voltage.



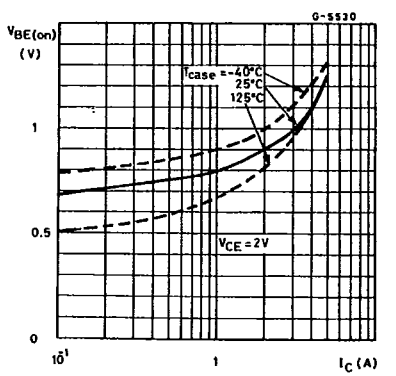
Collector-emitter Saturation Voltage.



Base-emitter Saturation Voltage.



Base-emitter On Voltage.



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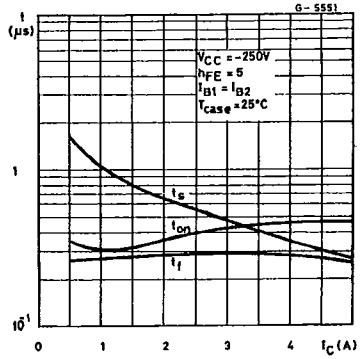
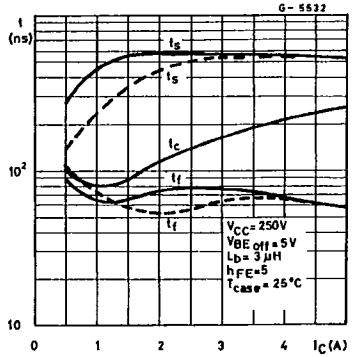
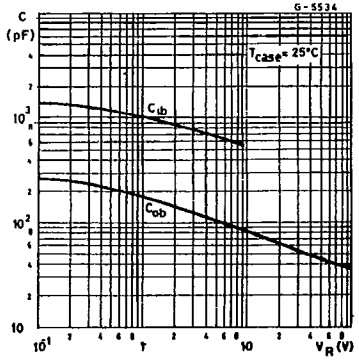
Switching Times Resistive Load (test circuit fig. 1).



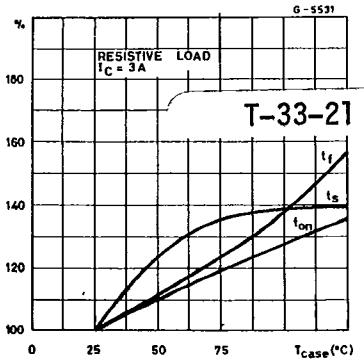
Turn-off Switching Times Inductive Load (test circuit fig. 2).



Capacitance.



Switching Time Percentage Variation vs. T_{case}.



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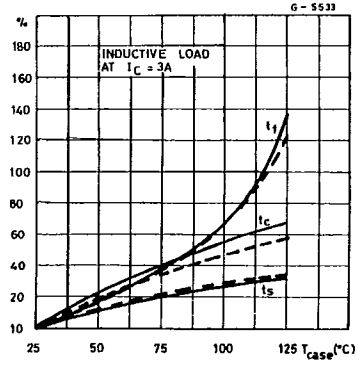
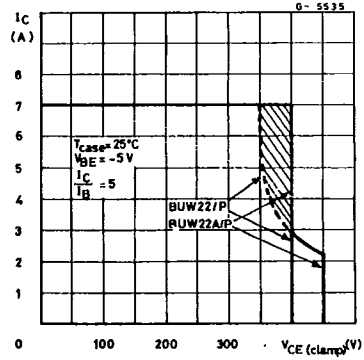


Reserve Biased Safe Operating Area.



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TEST CIRCUITS. S G S-THOMSON 30E D

Figure 1.

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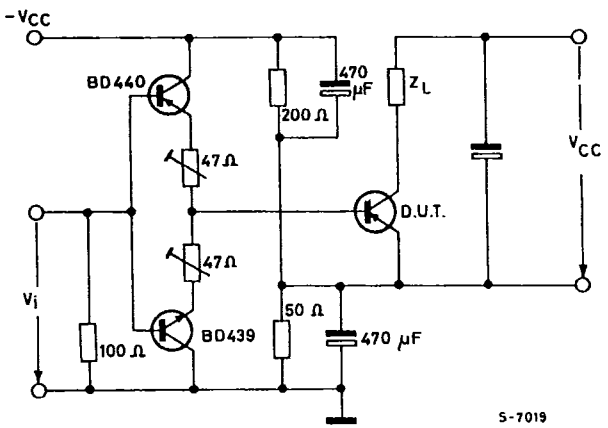

Figure 2.