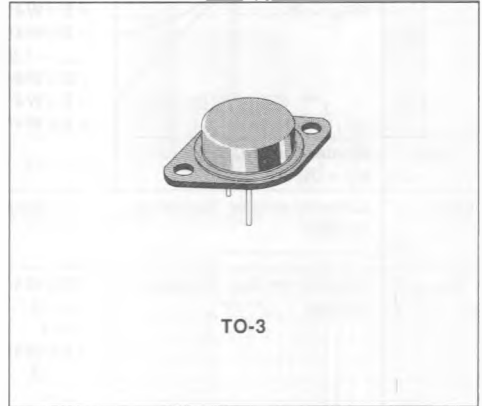




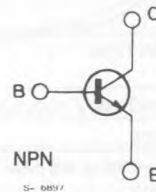
HIGH VOLTAGE, HIGH CURRENT POWER SWITCH

DESCRIPTION

The BUW44, BUW45 and BUW46 are multi-epitaxial mesa NPN transistors in Jedec TO-3 metal case intended in fast switching applications for high output powers.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		BUW44	BUW45	BUW46	
V_{CES}	Collector-emitter Voltage ($V_{BE} = 0$)	500	800	900	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	400	400	450	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	7			V
I_C	Collector Current	15			A
I_{CM}	Collector Peak Current	30			A
I_B	Base Current	10			A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$	175			W
T_{stg}	Storage Temperature	- 65 to 200			$^\circ C$
T_J	Junction Temperature	200			$^\circ C$

THERMAL DATA

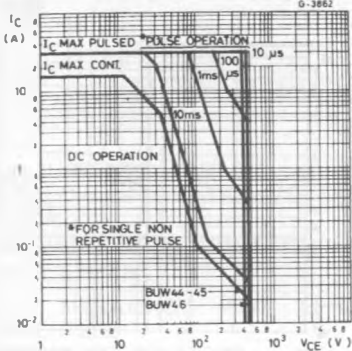
$R_{th(j-case)}$	Thermal Resistance Junction-case	max	1	$^{\circ}C/W$
------------------	----------------------------------	-----	---	---------------

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

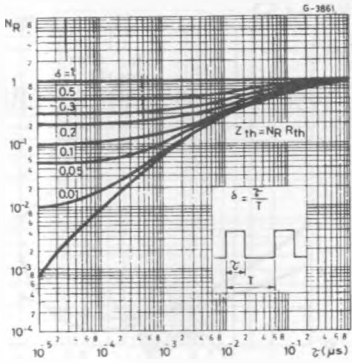
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cutoff Current ($V_{BE} = 0$)	for BUW44 $V_{CE} = 500V$ for BUW45 $V_{CE} = 800V$ for BUW46 $V_{CE} = 900V$ $T_{case} = 125^{\circ}C$ for BUW44 $V_{CE} = 500V$ for BUW45 $V_{CE} = 800V$ for BUW46 $V_{CE} = 900V$			500 500 500 3 3 3	μA μA μA mA mA mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 7V$			1	mA
$V_{CEO(sus)^*}$	Collector-emitter Sustaining Voltage	$I_C = 100mA$ for BUW44 for BUW45 for BUW46	400 400 450			V V V
$V_{CE(sat)^*}$	Collector-emitter Saturation Voltage	for BUW44 $I_C = 10A$ $I_B = 2A$ $I_C = 6A$ $I_B = 1A$ for BUW45 and BUW46 $I_C = 10A$ $I_S = 2A$ $I_C = 7A$ $I_B = 1A$			3 1.5 1.5 1.5	V V V V
$V_{BE(sat)^*}$	Base-emitter Saturation Voltage	for BUW44 $I_C = 10A$ $I_B = 2A$ $I_C = 6A$ $I_B = 1A$ for BUW45 and BUW46 $I_C = 10A$ $I_B = 2A$ $I_C = 7A$ $I_B = 1A$			1.8 1.4 1.8 1.4	V V V V
t_{on}	Turn-on Time	$I_C = 10A$ $I_{B1} = 2A$ $V_{CC} = 250V$			0.75	μs
t_s	Storage Time	$I_C = 10A$ $I_{B1} = 2A$			3	μs
t_f	Fall Time	$I_{B2} = -2A$ $V_{CC} = 250V$			0.8	μs

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

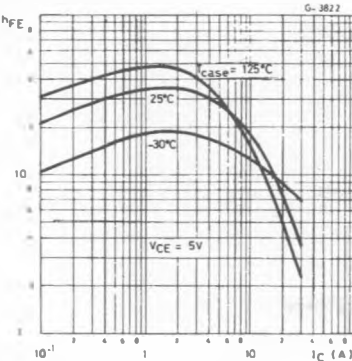
Safe Operating Areas.



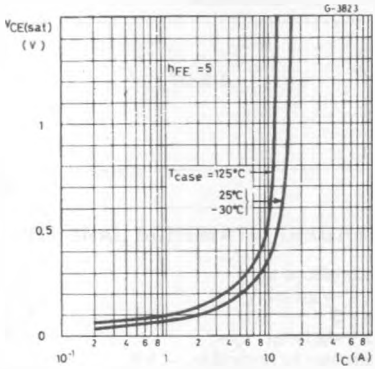
Thermal Transient Response.



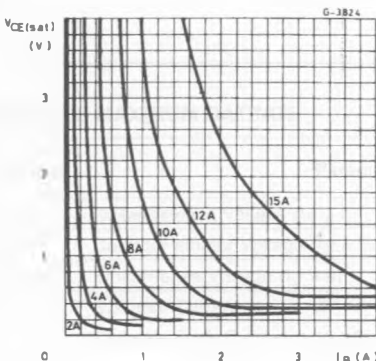
DC Current Gain.



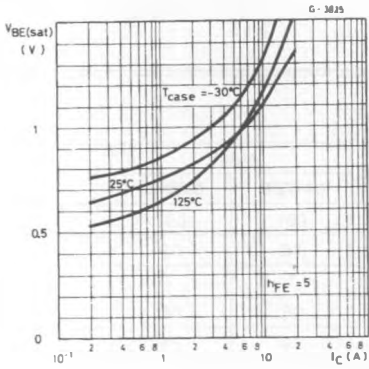
Collector-emitter Saturation Voltage.



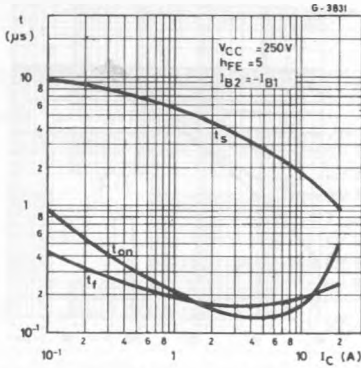
Collector-emitter Saturation Voltage.



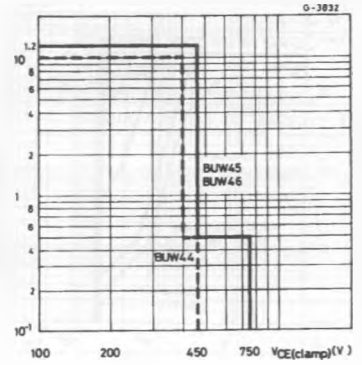
Base-emitter Saturation Voltage.



Saturated Switching Characteristics.



Clamped Reverse Bias Safe Operating Areas.



Clamped $E_{S/b}$ Test Circuit.

Test conditions :
 $5\text{ V} \geq | -V_{BB} | \geq 2\text{ V}$
 $I_C / I_B = 5$
 $2I_{B1} > | -I_{B2} | > I_{B1}$
 $t_0 = \text{adjusted for nominal } I_C$
 $R_{BB} = \text{adjusted for } I_{B2}$

