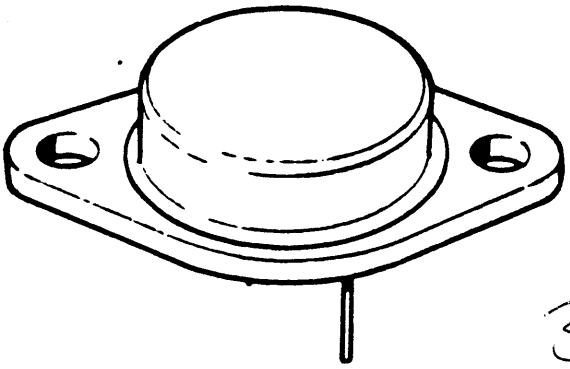


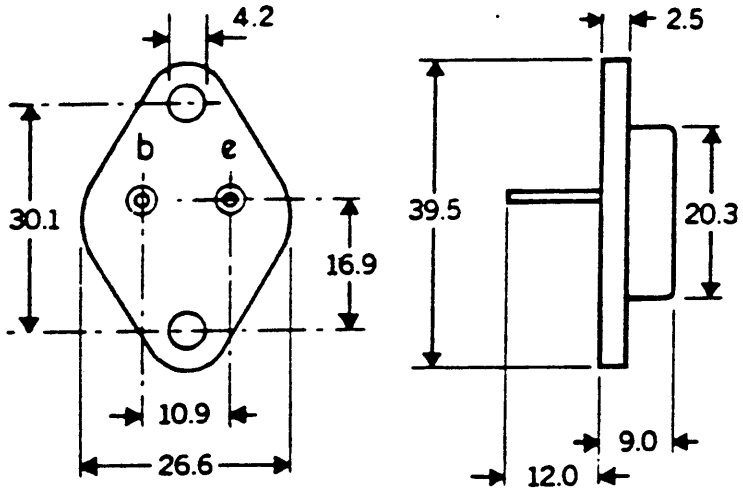
SEMELAB

BUX88

359-919

MECHANICAL DATA

SILICON DIFFUSED POWER TRANSISTOR



TO-3 Thick

High-voltage, high-speed, glass-passivated n-p-n switching transistor in a TO-3 envelope, intended for use in three-phase a.c. motor control systems.

ABSOLUTE MAXIMUM RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)			
Collector-emitter voltage (peak value; V_{BE} = 0)	V_{CESM}	max.	1200 V
Collector-emitter voltage (open base)	V_{CEO}	max.	800 V
Collector current (d.c.)	I_C	max.	12 A
Collector current (peak value); $t_p < 2$ ms	I_{CM}	max.	20 A
Base current (d.c.)	I_B	max.	8 A
Base current (peak value); $t_p < 2$ ms	I_{BM}	max.	12 A
Total power dissipation up to T_{mb} = 25 °C	P_{tot}	max.	160 W
Storage temperature	T_{stg}	−65 to +	150 °C
Junction temperature	T_j	max.	150 °C

THERMAL RESISTANCE

From junction to mounting base	$R_{th\ j\text{-}mb}$	=	0,78 K/W

CHARACTERISTICS

T_j = 25 °C unless otherwise specified

Collector cut-off current*			
$V_{CE} = V_{CESMmax}$; V_{BE} = 0	I_{CES}	<	1 mA
$V_{CE} = V_{CESMmax}$; V_{BE} = 0; T_j = 125 °C	I_{CES}	<	4 mA
Emitter cut-off current			
I_C = 0; V_{EB} = 5 V	I_{EBO}	<	10 mA
Saturation voltages			
I_C = 9 A; I_B = 4 A	V_{CEsat}	<	1 V
	V_{BEsat}	<	1,5 V
I_C = 12 V; I_B = 6 A	V_{CEsat}	<	3 V
Collector-emitter sustaining voltage			
I_C = 200 mA; I_B = 0; L = 25 mH	$V_{CEOsust}$	>	800 V
Second breakdown collector current			
V_{CE} = 100 V; t_p = 1 s	$I_{(SB)C}$	>	0,4 A
Transition frequency at f = 5 MHz			
I_C = 0,1 A; V_{CE} = 5 V	f_T	typ.	7 MHz
Collector capacitance at f = 1 MHz			
$I_E = I_e$ = 0; V_{CB} = 10 V	C_C	typ.	200 pF

* Measured with a half sine-wave voltage (curve tracer).

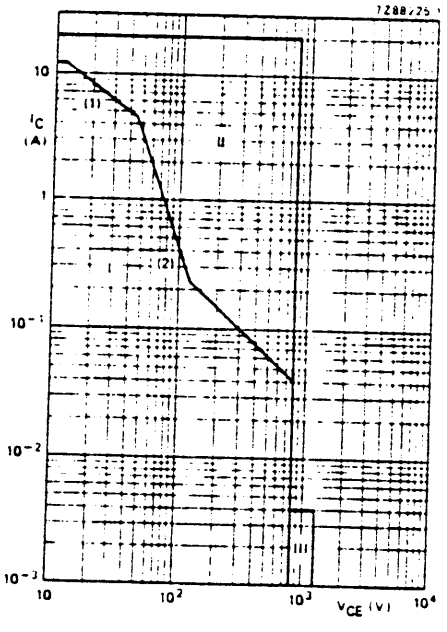


Fig. 4 Safe Operating AREa at $T_{mb} \leq 25$ °C.

(1) $P_{tot\ max}$ line.
(2) Second-breakdown limits (independent of temperature).

I Region of permissible d.c. operation.
II Permissible extension for repetitive pulse operation.
III Repetitive pulse operation in this region is permissible, provided $V_{BE} \leq 0$ and $t_p \leq 5$ ms.

Switching times resistive load (Figs 2 and 3)

I_{Con} = 9 A; I_{Bon} = $-I_{Boff}$ = 4 A

Turn-on time	t_{on}	typ.	1,5	μs
Turn-off: Storage time	t_s	typ.	4,5	μs
Fall time	t_f	typ.	0,5	μs

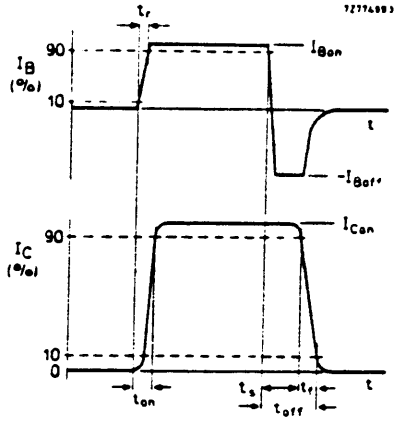


Fig. 2 Switching times waveforms with resistive load.

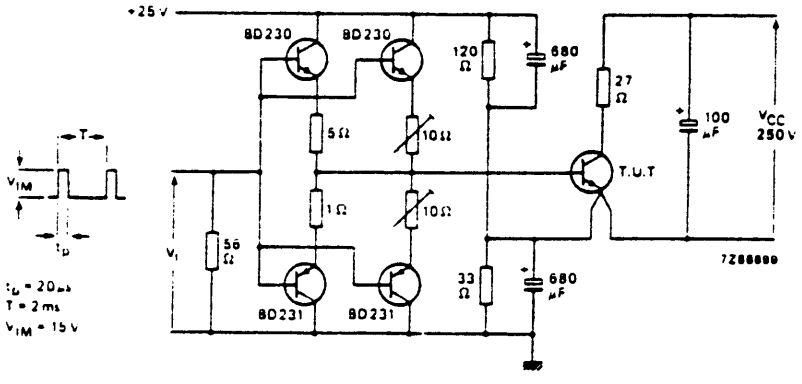


Fig. 3 Test circuit resistive load.