

JUL 06 1988

SMLB

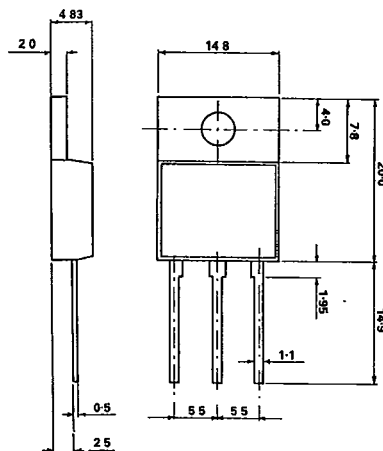
SEMELAB**BUT 72**

NPN MULTI-EPITAXIAL POWER TRANSISTOR

Suitable for high efficiency
switching applications

MECHANICAL DATA

Dimensions in mm



FEATURES

- VERY LOW $V_{CE(SAT)}$
- HIGH CURRENT
- FAST SWITCHING

APPLICATIONS

- HIGH EFFICIENCY CONVERTERS
- MOTOR CONTROLS
- POWER SWITCHING

SOT93

(ALSO AVAILABLE IN CHIP FORM)

ABSOLUTE MAXIMUM RATINGS ($T_{CASE} = 25^{\circ}\text{C}$ unless otherwise stated)

V_{CEX}	Collector-emitter voltage ($V_{BE} = -1.5\text{V}$)	400V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	300V
V_{EBO}	Emitter-base voltage	7V
I_E	Emitter current	40A
$I_{E(PK)}$	Peak emitter current	60A
I_B	Base current	8A
$I_{B(PK)}$	Peak base current	12A
P_{tot}	Total dissipation at $T_{CASE} = 25^{\circ}\text{C}$	200W
T_{stg}	Storage temperature	-55 to 200°C
T_j	Maximum operating junction temperature	200°C
R_{th}	Thermal resistance (junction-case)	Max. 0.63°C/W

SEMELAB LTD., TELEPHON 8001-8497

Editor _____

TENTATIVE 3/88

BUT 72

SEMELAB

T-33-15.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{CEO(Sus)}$ Collector-emitter sustaining voltage	$I_B = 0, I_C = 0.2A$ $L = 25mH$	300			V
$V_{(BR)EBO}$ Emitter base breakdown voltage	$I_C = 0$ $I_E = 50mA$	7			V
I_{CEX} Collector cut-off current	$V_{BE} = -1.5V$ $V_{CE} = V_{CEX}$ $T_J = 100^{\circ}C$			1.0 4.0	mA mA
I_{CER} Collector cut-off current	$R_{BE} = 5\Omega$ $V_{CE} = V_{CEX}$ $T_J = 100^{\circ}C$			1.0 5.0	mA mA
I_{EBO} Emitter cut-off current	$I_C = 0$ $V_{BE} = -5V$			1.0	mA
$V_{CE(sat)*}$ Collector-emitter saturation voltage	$I_C = 30A$ $I_B = 3A$ $T_J = 100^{\circ}C$			0.9 1.9	V V
$V_{BE(sat)*}$ Emitter-base saturation voltage	$I_C = 30A$ $I_B = 3A$ $T_J = 100^{\circ}C$			1.3 1.3	V V

SWITCHING CHARACTERISTICS ($T_{CASE} = 25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
TURN-ON SWITCHING CHARACTERISTICS					
di/dt On state collector current rate of rise	$R_C = 0$ $V_{CC} = 250V$ $I_{B1} = 4.5A$ $t_p = 3\mu s$ $T_J = 100^{\circ}C$		125		A/ μs
TURN-OFF SWITCHING CHARACTERISTICS - INDUCTIVE LOAD, WITH NEGATIVE BIAS					
t_{si} Carrier storage time	$I_C = 30A$ $V_{clamp} = 300V$			3.0	μs
t_{ri} Fall time	$I_{B1} = 3A$ $L_C = 0.4mH$ $V_{CC} = 250V$ $R_{BB} = 0.83\Omega$			0.4	μs
t_c V_{CE}/I_C Crossover time	$V_{BB} = -5V$ $T_J = 100^{\circ}C$			0.7	μs

* Pulse test $t_p = 300\mu s$ $\delta \leq 2\%$



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