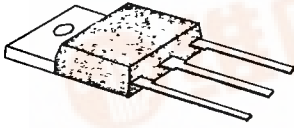


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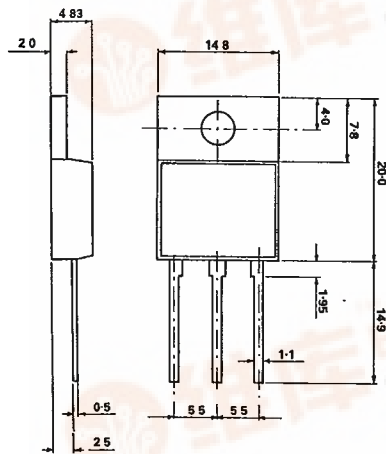
**SEMELAB**

**BUT 72**

**NPN MULTI-EPITAXIAL  
POWER TRANSISTOR**

**MECHANICAL DATA**

Dimensions in mm



Suitable for high efficiency  
switching applications

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

$V_{CEX}$	Collector-emitter voltage ( $V_{BE} = -1.5V$ )	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 $T_{CASE} = 25^{\circ}C$	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

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BUT 72

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

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

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

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

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