

MECHANICAL DATA

Dimensions in mm

**NPN MULTI-EPITAXIAL
VERY FAST SWITCHING
HIGH POWER TRANSISTOR**

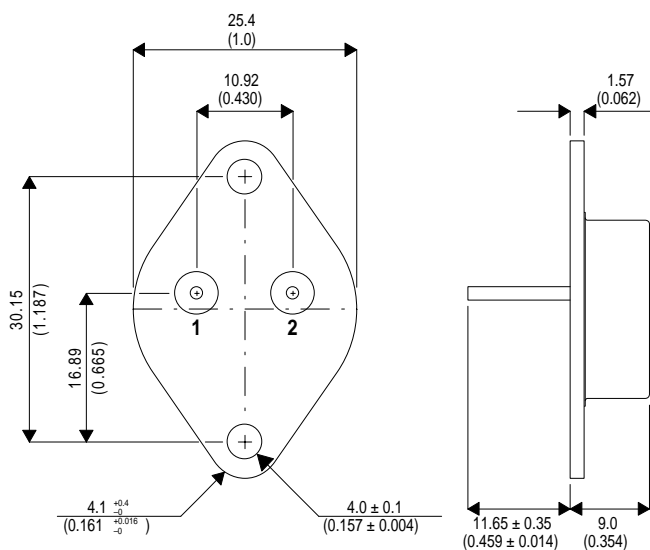
FEATURES

- DIFFUSED BY SEMEFAB
- VERY LOW $V_{CE(sat)}$
- VERY FAST SWITCHING
- HIGH SWITCHING CURRENTS
- HIGH RELIABILITY
- MILITARY OPTIONS AVAILABLE

APPLICATIONS

- SWITCHING REGULATORS
- MOTOR CONTROLS
- HIGH POWER CONVERTORS

The BUP50A is a very fast switching, very low saturation, high power transistor using wafer diffused by Semefab. It is particularly suited to applications requiring robust, fast switching devices.



Tolerance \pm 0.127 (0.005) unless otherwise stated

TO3B

Pin 1 – Base

Pin 2 – Emitter

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

V_{CEX}	Collector – Emitter Voltage ($V_{BE} = -1.5V$)	200V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	120V
V_{EBO}	Emitter – Base Voltage	10V
I_C	Collector Current	100A
$I_{C(PK)}$	Peak Collector Current	150A
P_{tot}	Total Dissipation at $T_{case} = 25^{\circ}C$	300W
T_{stg}	Storage Temperature	-55 to 175°C
T_J	Maximum Operating Junction Temperature	200°C
R_{th}	Thermal Resistance (junction-case)	0.58°C/W

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEX} Collector Cut-Off Current	$V_{BE} = -1.5V$ $V_{CEX} = 154$ $T_C = 150^{\circ}C$			0.1 5	mA
I_{EBO} Emitter Cut-Off Current	$V_{EB} = 8V$			0.1	mA
$V_{CE(sat)^*}$ Collector – Emitter Saturation Voltage	$I_C = 25A$ $I_B = 2A$		0.4	0.35	V
	$I_C = 40A$ $I_B = 3A$		0.5	0.5	
	$I_C = 100A$ $I_B = 10A$		0.7	1	
$V_{BE(sat)}$ Base – Emitter Saturation Voltage	$I_C = 25A$ $I_B = 2A$		0.9	1	V
	$I_C = 40A$ $I_B = 3A$		1.0	1.2	
	$I_C = 100A$ $I_B = 10A$		1.3	1.5	
h_{FE} DC Current Gain	$I_C = 25A$ $V_{CE} = 4V$	25	55		—
	$I_C = 40A$ $V_{CE} = 4V$	20	30		
	$I_C = 100A$ $V_{CE} = 4V$	10	157		

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

t_{on} On Time	$I_C = 80A$ $V_{CC} = 80V$ $I_{B1} = -I_{B2} = 8A$		0.4	0.8	μS
t_s Storage Time			0.3	0.5	
t_f Fall Time			0.1	0.2	

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