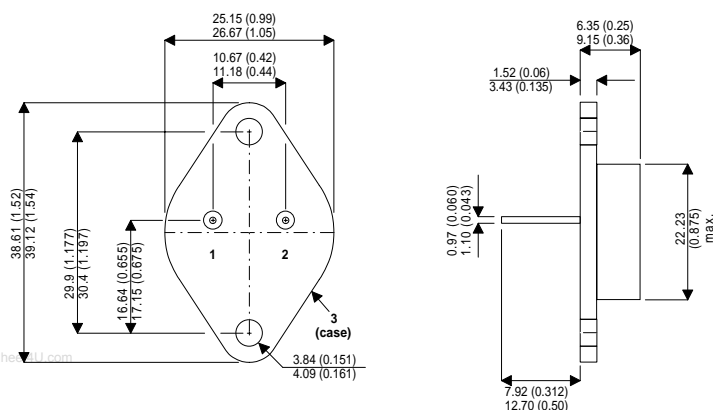


MECHANICAL DATA

Dimensions in mm



TO3 (TO-204AA)

Pin 1 – Base Pin 2 – Emitter Case is Collector

**ADVANCED
DISTRIBUTED BASE DESIGN
HIGH VOLTAGE
HIGH SPEED NPN
SILICON POWER TRANSISTOR**

- SEMEFAB DESIGNED AND DIFFUSED DIE
- HIGH VOLTAGE
- FAST SWITCHING
- HIGH ENERGY RATING
- EFFICIENT POWER SWITCHING
- MILITARY AND HI-REL OPTIONS
- EXCEPTIONAL HIGH TEMPERATURE PERFORMANCE

FEATURES

- Multi-base for efficient energy distribution across the chip resulting in significantly improved switching and energy ratings across full temperature range.
- Ion implant and high accuracy masking for tight control of characteristics from batch to batch.
- Triple Guard Rings for improved control of high voltages.

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

V_{CBO}	Collector – Base Voltage	600V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	300V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)	10V
I_C	Continuous Collector Current	40A
P_{tot}	Total Dissipation at $T_{case} = 25^{\circ}C$	200W
T_{stg}	Operating and Storage Temperature Range	-65 to 175°C
R_{th}	Thermal Resistance (junction-case)	0.75°C/W

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
ELECTRICAL CHARACTERISTICS					
$V_{CEO(sus)}$	Collector – Emitter Sustaining Voltage	$I_C = 100mA$ $I_B = 0$	300		V
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	$I_C = 1mA$ $I_E = 0$	600		
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	$I_E = 1mA$ $I_C = 0$	10		
I_{CBO}	Collector – Base Cut-Off Current	$V_{CB} = 600V$ $I_E = 0$ $T_C = 125^{\circ}C$		10 100	μA
I_{CEO}	Collector – Emitter Cut-Off Current	$I_B = 0$ $V_{CE} = 300V$		100	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 5V$ $I_C = 0$ $T_C = 125^{\circ}C$		10 100	μA
h_{FE}^*	DC Current Gain	$I_C = 1A$ $V_{CE} = 4V$	15		—
		$I_C = 10A$ $V_{CE} = 4V$	20		
		$I_C = 25A$ $V_{CE} = 4V$	25		
$V_{CE(sat)}^*$	Collector – Emitter Saturation Voltage	$I_C = 30A$ $I_B = 6A$		0.7	V
$V_{BE(sat)}^*$	Base – Emitter Saturation Voltage	$I_C = 10A$ $I_B = 1A$		1.1	
DYNAMIC CHARACTERISTICS					
f_t	Transition Frequency	$I_C = 100$ $V_{CE} = 4V$ $f = 10MHz$		20	MHz
C_{ob}	Output Capacitance	$V_{CB} = 20V$ $f = 10MHz$		260	pF

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