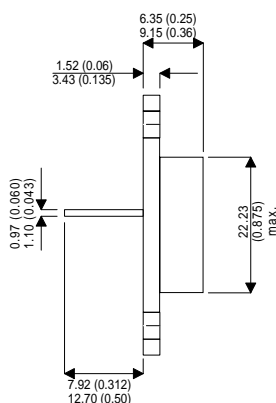
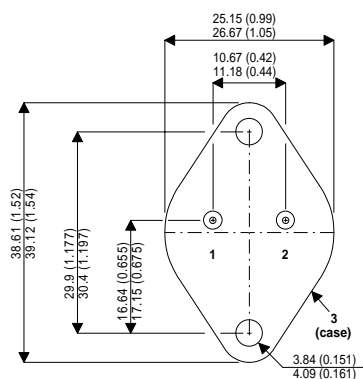


MECHANICAL DATA

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 $175^{\circ}C$
R_{th}	Thermal Resistance (junction-case)	$0.75^{\circ}C/W$

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.

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Issue 1

ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ 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			10	μA
			T _C = 125°C			100	
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			10	μA
			T _C = 125°C			100	
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 f = 10MHz	V _{CE} = 4V		20		MHz
C _{ob}	Output Capacitance	V _{CB} = 20V	f = 10MHz		260		pF

* Pulse test $t_{\text{p}} = 300\mu\text{s}$, $\delta < 2\%$