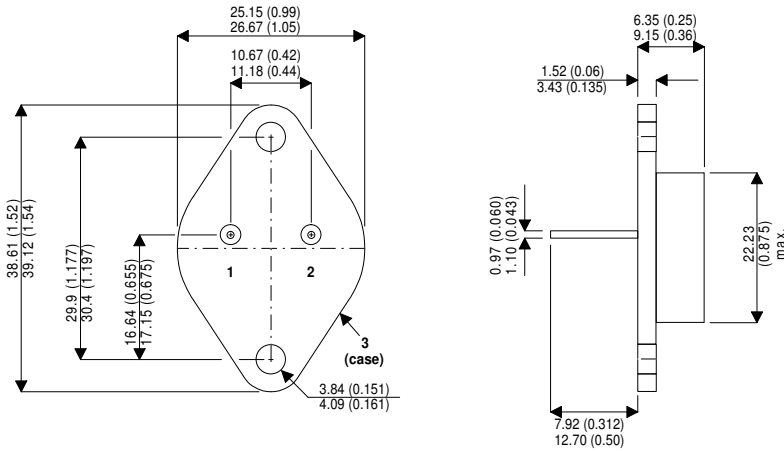


MECHANICAL DATA

Dimensions in mm (inches)



Bipolar NPN Device in a Hermetically Sealed TO3 Metal Package

APPLICATIONS

Intended for High Current Switching Applications.

TO3 (TO204AA)

Pin 1 = Base Pin 2 = Emitter Case = Collector

ABSOLUTE MAXIMUM RATINGS

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

V_{CBO}	Collector - Base Voltage	150V
V_{CEX}	Collector - Emitter Voltage ($V_{BE} = -1.5V$ $R_{BE} = 100\Omega$)	150V
V_{CEO}	Collector - Emitter Voltage	90V
V_{EBO}	Emitter - Base Voltage	7V
I_C	Continuous Collector Current	20A
I_B	Base Current	5A
P_{tot}	Total Power Dissipation at $T_{case} = 25^{\circ}C$ Derate above $25^{\circ}C$	140W 0.8W/ $^{\circ}C$
T_{stg}	Storage Temperature	-65 to $200^{\circ}C$

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.

THERMAL CHARACTERISTICS
Max.
Unit

$R_{th\ j-case}$	Thermal resistance to case	1.25	°C/W
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ELECTRICAL CHARACTERISTICS ($T_{case}=25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
h_{FE}^*	Forward-current transfer ratio $I_C = 2A$ $I_C = 12A$	$V_{CE} = 5.0V$		50	250	
				20	100	
$V_{CE(sat)}^*$	Collector to Emitter Saturation Voltage $I_C = 12A$ $I_C = 20A$	$I_B = 1.2A$ $I_B = 5A$			1.0	V
					2.5	
$V_{BE(sat)}^*$	Base to Emitter Saturated Voltage $I_C = 20A$	$I_B = 5A$			3.3	
$V_{(BR)CEO}^*$	Collector to Emitter Breakdown Voltage $I_C = 0.2A$		90			
$V_{(BR)CEX}^*$	Collector to Emitter Breakdown Voltage $I_C = 0.2A$ $V_{BE} = -1.5V$	$R_{BE} = 100\Omega$	150			
I_{CEV}	Collector Cut-Off Current $V_{CE} = 140V$ $V_{CE} = 100V$ $T_{Case} = 150^{\circ}C$	$V_{BE} = -1.5V$ $V_{BE} = -1.5V$			50	mA
					10	
I_{CEO}	Collector Cut-Off Current $V_{CE} = 70V$	$I_B = 0$			20	
I_{EBO}	Emitter Cut-Off Current $V_{EB} = 7V$ $V_{EB} = 5V$	$I_C = 0$			50	
					5	
V_{BE}^*	Base-Emitter Voltage $V_{CE} = 5.0V$	$I_C = 12A$			1.8	V

DYNAMIC CHARACTERISTICS

t_r	Rise Time	$V_{CC} = 30V$	$I_C = 12A$			0.5	μs
t_s	Storage Time					1.5	
t_f	Fall Time		$I_{B1} = -I_{B2} = 1.2A$			0.5	
C_{ob}	Output Capacitance	$I_E = 0$ $f = 1.0MHz$	$V_{CB} = 10V$			500	pF
$ h_{fe} $	Small Signal Current Gain	$I_C = 2A$ $f = 5MHz$	$V_{CE} = 10V$	12			

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

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