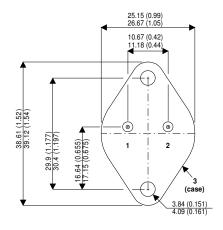
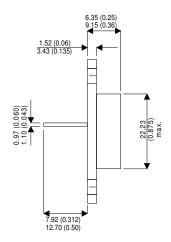




MECHANICAL DATA

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

$T_{CASE} = 25$	5 $^{\circ}$ C unless otherwise state	ed	
V_{CBO}	Collector - Base Voltage	150V	
V_{CEX}	Collector - Emitter Voltage (150V	
$V_{\sf CEO}$	Collector - Emitter Voltage	90V	
V_{EBO}	Emitter – Base Voltage		7V
Ic	Continuous Collector Current		20A
I_{B}	Base Current		5A
P_{tot}	Total Power Dissipation at	$T_{case} = 25 ^{\circ}\text{C}$	140W
		Derate above 25℃	0.8W/°C
T _{stg}	Storage Temperature		-65 to 200 ℃

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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2N5038

THERM	AL CHARACTERISTICS	Max.	Unit
R _{th} j-case	Thermal resistance to case	1.25	°C/W

ELECTRICAL CHARACTERISTICS (T_{case}=25 °C unless otherwise stated)

	Parameter	Test Conditions		Min.	Тур.	Max.	Unit
h _{FE} *	Forward-current transfer ratio	I _C = 2A	V _{CE} = 5.0V	50		250	
		I _C = 12A		20		100	
\/ *	Collector to Emitter Saturation Voltage	I _C = 12A	$I_B = 1.2A$			1.0	
V _{CE(sat)} *		I _C = 20A	$I_B = 5A$			2.5	
V _{BE(sat)} *	Base to Emitter Saturated Voltage	I _C = 20A	I _B = 5A			3.3	V
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	$R_{BE}=100\Omega$	150			
▼ (BR)CEX		$V_{BE} = -1.5V$		130			
	Collector Cut-Off Current	V _{CE} = 140V	$V_{BE} = -1.5V$			50	m 1
I _{CEV}		V _{CE} = 100V	$V_{BE} = -1.5V$			10	
		T _{Case} = 150 ℃					
I _{CEO}	Collector Cut-Off Current	V _{CE} = 70V	$I_B = 0$		20	mA	
	Emitter Cut-Off Current	$V_{EB} = 7V$	I _C = 0			50	
I _{EBO}		V _{EB} = 5V			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	
ts	Storage Time	1 1 1 2 4				1.5	μs
t _f	Fall Time	$ I_{B1}=-I_{B2}=1.2A$				0.5	
C _{ob}	Output Capacitance	I _E = 0	V _{CB} = 10V		500	pF	
		f = 1.0MHz				300	ρι
h _{fe}	Small Signal Current Gain	I _C = 2A	$V_{CE} = 10V$	12			
		f = 5MHz		12			

^{*} Pulse test t_p = 300 μ s, δ < 2%

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