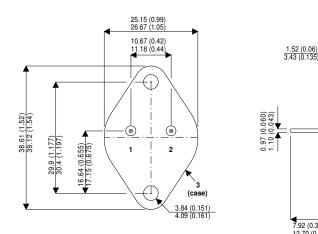


2N5038

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

7.92 (0.312) 12.70 (0.50)

3.35 (0.25

22.23 0.875

ABSOLUTE MAXIMUM RATINGS

$T_{CASE} = 2$	5℃ unless otherwise state	ed	
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	$T_{case} = 25 ^{\circ}C$	140W
		Derate above 25℃	0.8W/°C
T _{stg}	Storage Temperature		-65 to 200 <i>°</i> C

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THERM	AL CHARACTERISTICS	ACTERISTICS 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	$I_{\rm C} = 2A$	- V _{CE} = 5.0V	50		250	
		I _C = 12A	$v_{CE} = 5.0v$	20		100	
V _{CE(sat)} *	Collector to Emitter Saturation Voltage	I _C = 12A	I _B = 1.2A			1.0	
		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	$I_{\rm C} = 0.2 {\rm A}$	$R_{BE} = 100\Omega$	150			
		$V_{BE} = -1.5V$		150			
I _{CEV}	Collector Cut-Off Current	$V_{CE} = 140V$	$V_{BE} = -1.5V$			50	
		$V_{CE} = 100V$	$V_{BE} = -1.5V$		10		
		T _{Case} = 150 ℃				10	- mA
I _{CEO}	Collector Cut-Off Current	$V_{CE} = 70V$	$I_{\rm B} = 0$			20	
I _{EBO}	Emitter Cut-Off Current	$V_{EB} = 7V$				50	
		$V_{EB} = 5V$	$-I_{\rm C}=0$			5	
V_{BE}^{*}	Base-Emitter Voltage	$V_{CE} = 5.0V$	I _C = 12A			1.8	V

DYNAMIC CHARACTERISTICS

tr	Rise Time	$V_{CC} = 30V$	$I_{C}=12A$			0.5	
ts	Storage Time					1.5	μs
t _f	Fall Time	$I_{B1} = I_{B2} = I.2A$	I _{B1} =-I _{B2} =1.2A			0.5	
C _{ob}	Output Capacitance	$I_E = 0$	$V_{CB} = 10V$		500	۳Ē	
		f = 1.0MHz				500	pF
h _{fe}	Small Signal Current Cain	$I_{\rm C} = 2A$	$V_{CE} = 10V$	12			
	Small Signal Current Gain	f = 5MHz		12			

* Pulse test t_p = 300µs, δ < 2%

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