

SILICON PLANAR EPITAXIAL NPN TRANSISTOR

2N3879

- High Power
- Hermetic TO-66 Metal Package
- Ideally suited for High Current, High Speed Switching Applications
- Screening Options Available



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

V_{CBO}	Collector – Base Voltage	120V
V_{CEO}	Collector – Emitter Voltage	75V
V_{EBO}	Emitter – Base Voltage	7V
I_C	Continuous Collector Current	7A
I_B	Base Current	5A
P_D	Total Power Dissipation at $T_C = 25^\circ\text{C}$	30W
	Derate Above 25°C	0.17W/ $^\circ\text{C}$
T_J	Junction Temperature Range	-65 to $+200^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65 to $+200^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	5.83	$^\circ\text{C/W}$

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

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 20\text{mA}$ $I_B = 0$	75			V
I_{CEO}	Collector Cut-Off Current	$V_{CE} = 50\text{V}$ $I_B = 0$			5	mA
I_{CEX}	Collector Cut-Off Current	$V_{CE} = 100\text{V}$ $V_{BE} = -1.5\text{V}$			4	
I_{CBO}	Collector Cut-Off Current	$V_{CB} = 120\text{V}$ $I_E = 0$			25	
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 7\text{V}$ $I_C = 0$			10	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 0.5\text{A}$ $V_{CE} = 5\text{V}$	40			
		$I_C = 4\text{A}$ $V_{CE} = 5\text{V}$	20		80	
		$I_C = 4\text{A}$ $V_{CE} = 2\text{V}$	12		100	
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 4\text{A}$ $I_B = 0.4\text{A}$			1.2	V
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 4\text{A}$ $I_B = 0.4\text{A}$			2	
$V_{BE(on)}^{(1)}$	Base-Emitter On Voltage	$I_C = 4\text{A}$ $V_{CE} = 2\text{V}$			1.8	

DYNAMIC CHARACTERISTICS

$ h_{fe} $	Small signal forward-current transfer ratio	$I_C = 0.5\text{A}$ $V_{CE} = 10\text{V}$ $f = 10\text{MHz}$	2	2.2		
C_{obo}	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$		47	175	pF
t_{on}	Turn-On Time	$I_C = 4\text{A}$ $V_{CC} = 30\text{V}$ $I_{B1} = 0.4\text{A}$		0.16	0.44	μs
t_{off}	Turn-Off Time	$I_C = 4\text{A}$ $V_{CC} = 30\text{V}$ $I_{B1} = -I_{B2} = 0.4\text{A}$		0.6	1.22	

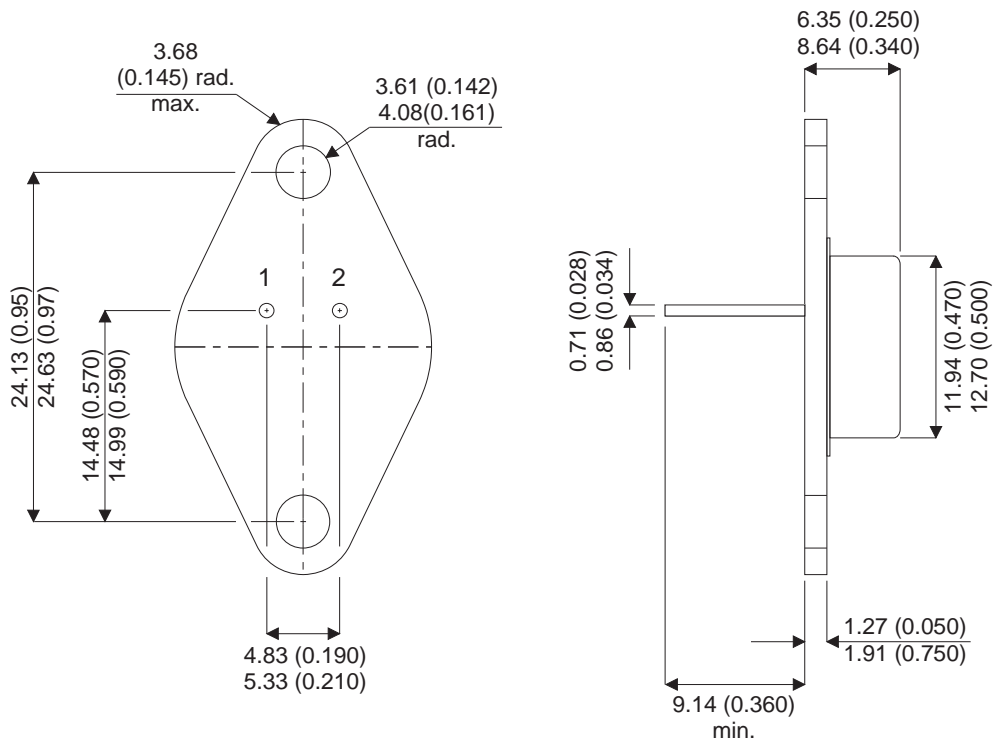
Notes

(1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$

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MECHANICAL DATA

Dimensions in mm (inches)



TO66 (TO-213AA)

Pin 1 - Base

Pin 2 - Emitter

Case - Collector