

SILICON EPITAXIAL NPN TRANSISTOR

2N5886

- Hermetic TO3 Metal Package.
- Designed For General Purpose, Switching and Power Amplifier Applications
- Screening Options Available



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

V_{CBO}	Collector – Base Voltage	80V
V_{CEO}	Collector – Emitter Voltage	80V
V_{EBO}	Emitter – Base Voltage	5V
I_C	Continuous Collector Current	25A
I_B	Base Current	7.5A
P_D	Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate Above 25°C	200W 1.15W/ $^\circ\text{C}$
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	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case			0.875	$^\circ\text{C/W}$

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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	$I_C = 50\text{mA}$ $I_B = 0$	80			V
I_{CEX}	Collector Cut-Off Current	$V_{CE} = 80\text{V}$ $V_{BE} = -1.5\text{V}$			1.0	mA
		$T_C = 150^\circ\text{C}$			10	
I_{CEO}	Collector Cut-Off Current	$V_{CE} = 40\text{V}$ $I_B = 0$			2.0	
I_{CBO}	Collector Cut-Off Current	$V_{CB} = 80\text{V}$ $I_E = 0$			1.0	
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 5\text{V}$ $I_C = 0$			1.0	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 3\text{A}$ $V_{CE} = 4\text{V}$	35			
		$I_C = 10\text{A}$ $V_{CE} = 4\text{V}$	20		100	
		$I_C = 25\text{A}$ $V_{CE} = 4\text{V}$	4			
$V_{BE(on)}^{(1)}$	Base-Emitter On Voltage	$I_C = 10\text{A}$ $V_{CE} = 4\text{V}$			1.5	V
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 25\text{A}$ $I_B = 6.25\text{A}$			2.5	
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 15\text{A}$ $I_B = 1.5\text{A}$			1.0	
		$I_C = 25\text{A}$ $I_B = 6.25\text{A}$			4	

DYNAMIC CHARACTERISTICS

$h_{fe}^{(2)}$	Small-Signal Current Gain	$I_C = 3\text{A}$ $V_{CE} = 4\text{V}$ $f = 1.0\text{KHz}$	20			
C_{obo}	Output Capacitance	$I_E = 0$ $V_{CB} = 10\text{V}$ $f = 1.0\text{MHz}$			500	pF
f_T	Transition Frequency	$I_C = 1.0\text{A}$ $V_{CE} = 10\text{V}$ $f = 1.0\text{MHz}$	4			MHz

SWITCHING CHARACTERISTICS

t_r	Rise Time	$V_{CC} = 30\text{V}$, $I_C = 10\text{A}$ $I_{B1} = I_{B2} = 1.0\text{A}$		0.7		μs
t_s	Storage Time			1.0		μs
t_f	Fall Time			0.8		μs

Notes

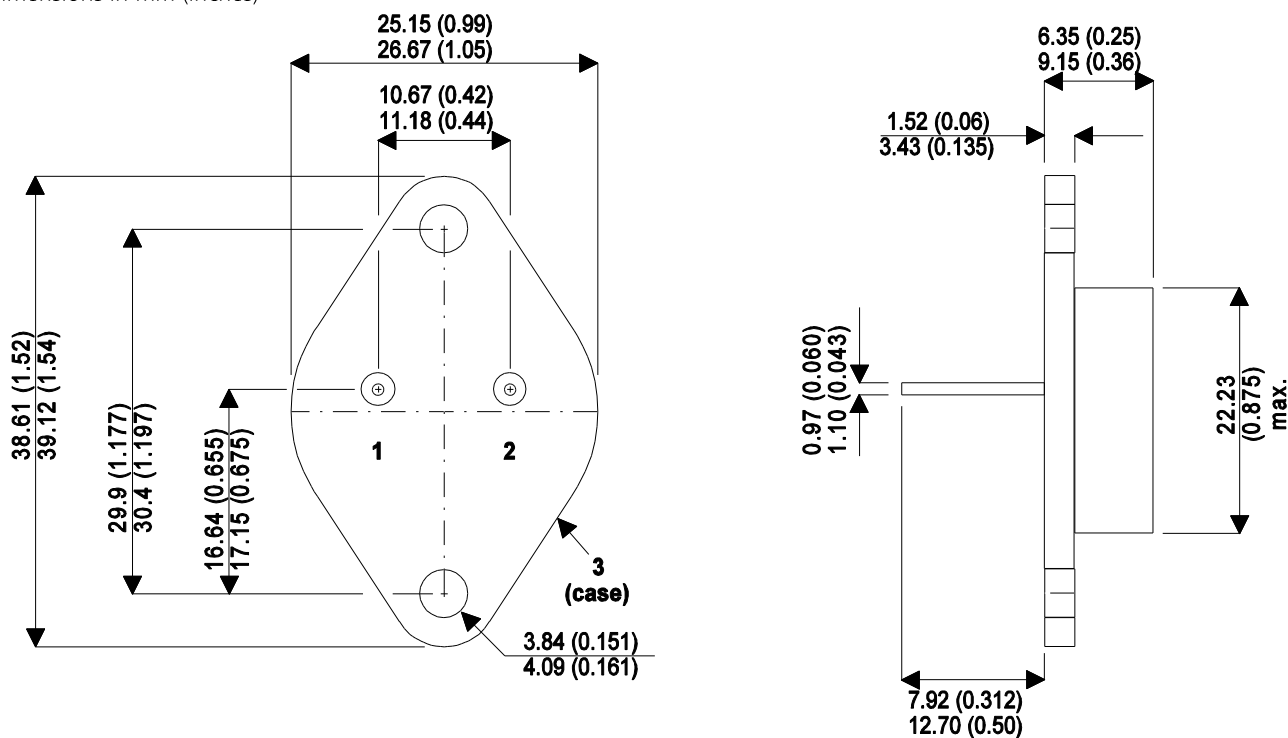
(1) Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$.

(2) Guaranteed by design, not production tested.

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MECHANICAL DATA

Dimensions in mm (inches)



TO3 (TO-204AA) METAL PACKAGE Underside View

Pin 1 - Base

Pin 2 - Emitter

Case - Collector