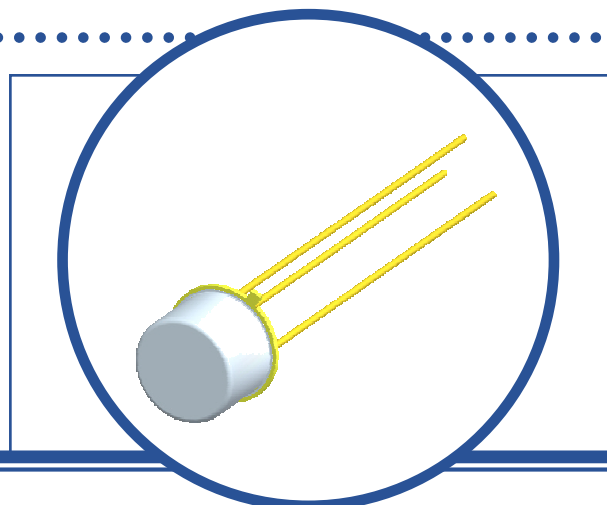


SILICON POWER NPN TRANSISTOR

2N5663

- Fast Switching Transistor
- Hermetic TO-5 Metal Package
- Applications include High Speed Switching Circuits and Power Amplifiers
- Screening Options Available



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

V_{CBO}	Collector – Base Voltage	400V
V_{CER}	Collector – Emitter Voltage	400V
V_{CEO}	Collector – Emitter Voltage	300V
V_{EBO}	Emitter – Base Voltage	6V
I_B	Base Current	0.5A
I_C	Continuous Collector Current	2A
P_D	Total Power Dissipation at $T_C = 25^\circ\text{C}$	17.5W
	Derate above 25°C	100mW/ $^\circ\text{C}$
P_D	Total Power Dissipation at $T_A = 25^\circ\text{C}$	1.0W
	Derate above 25°C	5.7mW/ $^\circ\text{C}$
T_J	Operating 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	10.0	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	175.0	$^\circ\text{C/W}$

Semelab Limited 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.

SILICON POWER NPN TRANSISTOR 2N5663

** This datasheet supersedes document 5384

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

Symbols	Parameters	Test Conditions	Min	Typ	Max	Units
I_{CBO}	Collector-Base Cut-Off Current	$V_{CB} = 300\text{V}$			0.1	μA
		$V_{CB} = 400\text{V}$			1.0	mA
I_{CES}	Collector-Emitter Cut- off current	$I_B = 0$ $V_{CE} = 300\text{V}$			0.2	μA
		$T_A = 150^\circ\text{C}$			9	
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$	300			V
$V_{(BR)CER}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$ $R_{BE} = 100\Omega$	400			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}$	6			
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 1.0\text{A}$ $I_B = 0.1\text{A}$			0.4	
		$I_C = 2\text{A}$ $I_B = 0.4\text{A}$			0.8	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 1.0\text{A}$ $I_B = 0.1\text{A}$			1.2	
		$I_C = 2\text{A}$ $I_B = 0.4\text{A}$			1.5	
$h_{FE}^{(1)}$	DC Current Gain	$I_C = 50\text{mA}$ $V_{CE} = 2\text{V}$	25			
		$I_C = 0.5\text{A}$ $V_{CE} = 5\text{V}$	25		75	
		$T_A = -55^\circ\text{C}$	10			
		$I_C = 1.0\text{A}$ $V_{CE} = 5\text{V}$	15			
		$I_C = 2\text{A}$ $V_{CE} = 5\text{V}$	5			

DYNAMIC CHARACTERISTICS

$ h_{fe} $	Small signal forward-current transfer ratio	$I_C = 0.1\text{A}$ $V_{CE} = 5\text{V}$ $f = 10\text{MHz}$	1.4		7	
C_{obo}	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			45	pF
t_{on}	Turn-On Time	$I_C = 0.5\text{A}$ $V_{CC} = 100\text{V}$ $I_{B1} = -I_{B2} = 25\text{mA}$			0.48	μs
t_{off}	Turn-Off Time				1.5	

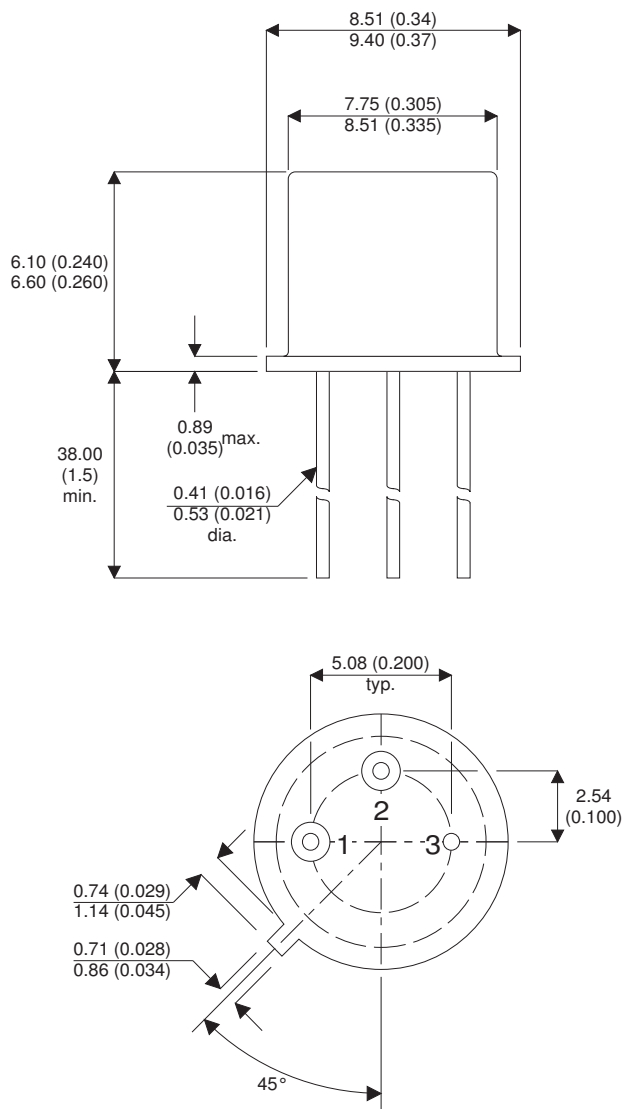
Notes

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

SILICON POWER NPN TRANSISTOR 2N5663

MECHANICAL DATA

Dimensions in mm (inches)



TO-5 (TO-205AA)

Pin 1 - Emitter

Pin 2 - Base

Pin 3 - Collector