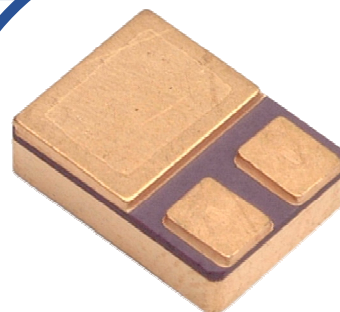


NPN POWER SILICON SWITCHING TRANSISTOR

2N5665N1

- Hermetic SMD0.5 Ceramic Surface Mount.
- Ideally Suited for Power Amplifier and Switching Applications.
- Screening Options Available



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

V_{CBO}	Collector – Base Voltage	400V
V_{CEO}	Collector – Emitter Voltage	300V
V_{EBO}	Emitter – Base Voltage	6V
I_C	Continuous Collector Current	5A
I_B	Base Current	1.0A
P_D	Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate Above 25°C	76W 0.43W/ $^\circ\text{C}$
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 - $T_C = 25^\circ\text{C}$	2.3	$^\circ\text{C}/\text{W}$

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.

NPN POWER SILICON SWITCHING TRANSISTOR 2N5665N1

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

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CER}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 1.0\text{mA}$ $R_{BE} = 100\Omega$	400			V
$V_{(BR)EBO}^{(1)}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}$ $I_C = 0\text{A}$	6			
I_{CES}	Collector-Emitter Cut-Off Current	$V_{CE} = 300\text{V}$			0.2	μA
		$T_A = 150^\circ\text{C}$			100	
I_{CBO}	Collector-Base Cut-Off Current	$V_{CB} = 300\text{V}$			0.1	mA
		$V_{CB} = 400\text{V}$			1.0	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 0.5\text{A}$ $V_{CE} = 2\text{V}$	25			-
		$I_C = 1.0\text{A}$ $V_{CE} = 5\text{V}$	25		75	
		$T_A = -55^\circ\text{C}$	10			
		$I_C = 3\text{A}$ $V_{CE} = 5\text{V}$	10			
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 3\text{A}$ $I_B = 0.6\text{A}$			0.4	V
		$I_C = 5\text{A}$ $I_B = 1.0\text{A}$			1.0	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 3\text{A}$ $I_B = 0.6\text{A}$			1.2	
		$I_C = 5\text{A}$ $I_B = 1.0\text{A}$			1.5	

DYNAMIC CHARACTERISTICS

$ h_{fe} $	Magnitude of Common-Emitter Small-Signal Short-Circuit forward Current, Transfer Ratio	$I_C = 0.5\text{A}$ $V_{CE} = 5\text{V}$ $f = 10\text{MHz}$	2		7	-
C_{obo}	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			120	pF
t_{on}	Turn-On Time	$I_C = 1.0\text{A}$ $V_{CC} = 100\text{V}$ $I_{B1} = -I_{B2} = 50\text{mA}$			0.4	μs
t_{off}	Turn-Off Time				2.5	

Notes

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

Dimensions in mm (inches)



Pad 1 – Emitter Pad 2 – Collector Pad 3 - Base