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Devices

2N5664 2N5665

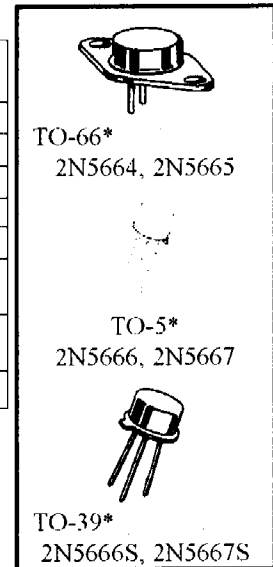
Devices

2N5666 2N5667
2N5666S 2N5667S

MAXIMUM RATINGS

Ratings	Symbol	2N5664	2N5665	Unit
		2N5666, S	2N5667, S	
Collector-Emitter Voltage	V_{CE0}	200	300	Vdc
Collector-Base Voltage	V_{CBO}	250	400	Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Base Current	I_B	1.0		Adc
Collector Current	I_C	5.0		Adc
Total Power Dissipation	P_T @ $T_A = +25^\circ\text{C}$ @ $T_C = +100^\circ\text{C}$	2N5664	2N5666, S	
		2N5665	2N5667, S	
		2.5 ⁽¹⁾	1.2 ⁽²⁾	W
		30 ⁽³⁾	15 ⁽⁴⁾	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^\circ\text{C}$

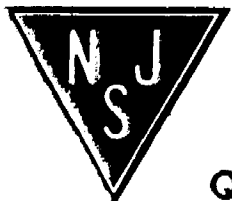
- 1) Derate linearly 14.3 mW/ $^\circ\text{C}$ for $T_A > +25^\circ\text{C}$
- 2) Derate linearly 6.9 mW/ $^\circ\text{C}$ for $T_A > +25^\circ\text{C}$
- 3) Derate linearly 300 mW/ $^\circ\text{C}$ for $T_C > +100^\circ\text{C}$
- 4) Derate linearly 150 mW/ $^\circ\text{C}$ for $T_C > +100^\circ\text{C}$



*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage $I_C = 10 \text{ mAdc}$	$V_{(BR)CER}$	250		Vdc
		400		
Emitter-Base Breakdown Voltage $I_E = 10 \text{ }\mu\text{A dc}$	$V_{(BR)EBO}$	6.0		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 200 \text{ Vdc}$ $V_{CE} = 300 \text{ Vdc}$	I_{CES}		0.2	$\mu\text{A dc}$
			0.2	



NJ Semi-Conductors reserves the right to change test conditions, parameters limits and package dimensions without notice information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
Collector-Base Cutoff Current $V_{CB} = 200$ Vdc $V_{CB} = 250$ Vdc $V_{CB} = 300$ Vdc $V_{CB} = 400$ Vdc	I_{CBO}		0.1 1.0 0.1 1.0	μ Adc mAdc μ Adc mAdc

ON CHARACTERISTICS ⁽⁵⁾

Forward-Current Transfer Ratio $I_C = 0.5$ Adc, $V_{CE} = 2.0$ Vdc $I_C = 1.0$ Adc, $V_{CE} = 5.0$ Vdc $I_C = 3.0$ Adc, $V_{CE} = 5.0$ Vdc $I_C = 5.0$ Adc, $V_{CE} = 5.0$ Vdc	2N5664, 2N5666, S 2N5665, 2N5667, S 2N5664, 2N5666, S 2N5665, 2N5667, S 2N5664, 2N5666, S 2N5665, 2N5667, S All Types	h_{FE}	40 25 40 25 15 10 5.0	120 75	
Collector-Emitter Saturation Voltage $I_C = 3.0$ Adc, $I_B = 0.3$ Adc $I_C = 3.0$ Adc, $I_B = 0.6$ Adc $I_C = 5.0$ Adc, $I_B = 1.0$ Adc	2N5664, 2N5666, S 2N5665, 2N5667, S All Types	$V_{CE(sat)}$		0.4 0.4 1.0	Vdc
Base-Emitter Saturation Voltage $I_C = 3.0$ Adc, $I_B = 0.3$ Adc $I_C = 3.0$ Adc, $I_B = 0.6$ Adc $I_C = 5.0$ Adc, $I_B = 1.0$ Adc	2N5664, 2N5666, S 2N5665, 2N5667, S All Types	$V_{BE(sat)}$		1.2 1.2 1.5	Vdc

DYNAMIC CHARACTERISTICS

Forward Current Transfer Ratio $I_C = 0.5$ Adc, $V_{CE} = 5.0$ Vdc, $f = 10$ MHz	$ h_{fe} $	2.0	7.0	
Output Capacitance $V_{CB} = 10$ Vdc, $I_E = 0$, 100 kHz $\leq f \leq 1.0$ MHz	C_{obo}		120	pF

SWITCHING CHARACTERISTICS

Turn-On Time $V_{CC} = 100$ Vdc; $I_C = 1.0$ Adc; $I_{B1} = 30$ mAdc	t_{on}		0.25	μ s
Turn-Off Time $V_{CC} = 30$ Vdc; $I_C = 1.0$ Adc; $I_{B1} = -I_{B2} = 50$ mAdc 2N5664, 2N5666, S 2N5665, 2N5667, S	t_{off}		1.5 2.0	μ s

SAFE OPERATING AREA

DC Tests (2N5664 and 2N5665 only) $T_C = 100^\circ\text{C}$, 1 Cycle, $t \geq 1.0$ s, $t_r + t_f = 10$ μ s				
Test 1				
$V_{CE} = 6.0$ Vdc, $I_C = 5.0$ Adc	2N5664 and 2N5665			
$V_{CE} = 3.0$ Vdc, $I_C = 5.0$ Adc	2N5666 and 2N5667			
Test 2				
$V_{CE} = 40$ Vdc, $I_C = 0.75$ Adc	2N5664 and 2N5665			
$V_{CE} = 37.5$ Vdc, $I_C = 0.4$ Adc	2N5666 and 2N5667			
Test 3				
$V_{CE} = 200$ Vdc, $I_C = 43$ mAdc	2N5664			
$V_{CE} = 200$ Vdc, $I_C = 27$ mAdc	2N5666			
Test 4				
$V_{CE} = 300$ Vdc, $I_C = 21$ mAdc	2N5665			
$V_{CE} = 300$ Vdc, $I_C = 14$ mAdc	2N5667			