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Devices

2N5664 2N5665

Devices

2N5666 2N5667
2N5666S 2N5667S

MAXIMUM RATINGS

Ratings		Symbol	2N5664 2N5666, S	2N5665 2N5667, S	Unit
Collector-Emitter Voltage		V_{CEO}	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
			2N5664 2N5665	2N5666, S 2N5667, S	
Total Power Dissipation @ $T_A = +25^{\circ}\text{C}$ @ $T_C = +100^{\circ}\text{C}$		P_T	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 $T_C > +100^{\circ}\text{C}$



TO-66*
2N5664, 2N5665



TO-5*
2N5666, 2N5667

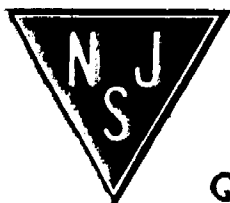


TO-39*
2N5666S, 2N5667S

*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 $I_C = 10 \text{ mAdc}$	$V_{(BR)CER}$	250 400		Vdc
Emitter-Base Breakdown Voltage $I_E = 10 \mu\text{Adc}$	$V_{(BR)EBO}$	6.0		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 200 \text{ Vdc}$ $V_{CE} = 300 \text{ Vdc}$	I_{CES}		0.2 0.2	μAdc



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				
$V_{CB} = 200 \text{ Vdc}$ 2N5664, 2N5666, S	I_{CBO}		0.1	μAde
$V_{CB} = 250 \text{ Vdc}$			1.0	mAde
$V_{CB} = 300 \text{ Vdc}$ 2N5665, 2N5667, S			0.1	μAde
$V_{CB} = 400 \text{ Vdc}$			1.0	mAde

ON CHARACTERISTICS ⁽⁵⁾

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

DYNAMIC CHARACTERISTICS

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

SWITCHING CHARACTERISTICS

Turn-On Time				
$V_{CC} = 100 \text{ Vdc}; I_C = 1.0 \text{ Ade}; I_{B1} = 30 \text{ mAde}$	t_{on}		0.25	μs
Turn-Off Time				
$V_{CC} = 30 \text{ Vdc}; I_C = 1.0 \text{ Ade}; I_{B1} = -I_{B2} = 50 \text{ mAde}$	t_{off}			
2N5664, 2N5666, S			1.5	μs
2N5665, 2N5667, S			2.0	

SAFE OPERATING AREA

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