

2N5664 JAN, JTX, JTXV
2N5665 JAN, JTX, JTXV
2N5666, S JAN, JTX, JTXV, JANS
2N5667, S JAN, JTX, JTXV, JANS



Processed per MIL-PRF-19500/455

NPN SILICON POWER SWITCHING TRANSISTOR

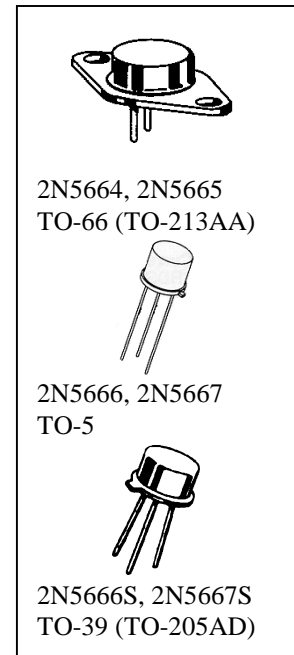
MAXIMUM RATINGS

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 $T_C > +100^{\circ}\text{C}$

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

Characteristics	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage $I_C = 10 \text{ mAdc}$	2N5664, 2N5666, S 2N5665, 2N5667, S	$V_{(BR)CER}$	250 400	Vdc
Emitter-Base Breakdown Voltage $I_E = 10 \mu\text{Adc}$		$V_{(BR)EBO}$	6.0	Vdc
Collector-Emitter Cutoff Current $V_{CE} = 200 \text{ Vdc}$ $V_{CE} = 300 \text{ Vdc}$	2N5664, 2N5666, S 2N5665, 2N5667, S	I_{CES}		0.2 0.2 μAdc



2N5664, 2N5665, 2N5666, 2N5666S, 2N5667, 2N5667S JAN SERIES

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ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
Collector-Base Cutoff Current	I_{CBO}			
$V_{CB} = 200$ Vdc 2N5664, 2N5666, S				
$V_{CB} = 250$ Vdc 2N5665, 2N5667, S				
$V_{CB} = 300$ Vdc 2N5665, 2N5667, S				
$V_{CB} = 400$ Vdc All Types				

ON CHARACTERISTICS ⁽⁵⁾

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

DYNAMIC CHARACTERISTICS

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

SWITCHING CHARACTERISTICS

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

SAFE OPERATING AREA

DC Tests (2N5664 and 2N5665 only)				
$T_C = 100^{\circ}$ 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			

(5) Pulse Test: Pulse Width = 300 μ s, Duty Cycle $\leq 2.0\%$.