

NPN POWER SILICON SWITCHING TRANSISTOR

Qualified per MIL-PRF-19500/455

DEVICES

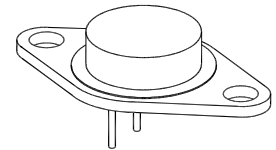
2N5664 2N5666 2N5667
 2N5665 2N5666S 2N5667S
 2N5666U3

LEVELS

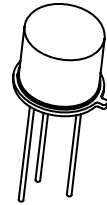
JAN
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ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

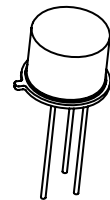
| Parameters / Test Conditions | Symbol | 2N5664 2N5666, S | 2N5665 2N5667, S | Unit | |
|---|----------------|---------------------|------------------------|------------------|---|
| Collector-Emitter Voltage | V_{CEO} | 200 | 300 | Vdc | |
| Collector-Base Voltage | V_{CBO} | 250 | 400 | Vdc | |
| 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 | 2N5666U3 | |
| Total Power Dissipation 1/ @ $T_A = +25^\circ\text{C}$ @ $T_C = +100^\circ\text{C}$ | P_T | 2.5 30 | 1.2 15 | 1.5 35 | W |
| Operating & Storage Junction Temperature Range | T_J, T_{stg} | -65 to +200 | | $^\circ\text{C}$ | |



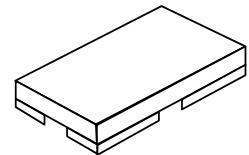
TO-66 (TO-213AA)
2N5664, 2N5665



TO-5
2N5666, 2N5667



TO-39 (TO-205AD)
2N5666S, 2N5667S



U-3
2N5666U3

Note: 1) Consult 19500/455 for thermal derating curves.

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

| Parameters / Test Conditions | Symbol | Min. | Max. | Unit |
|---|---------------|------------|--------------------------|---------------------|
| OFF CHARACTERISTICS | | | | |
| Collector-Emitter Breakdown Voltage $I_C = 10\text{mA}$ | $V_{(BR)CER}$ | 250 400 | | Vdc |
| Emitter-Base Breakdown Voltage $I_E = 10\mu\text{A}$ | $V_{(BR)EBO}$ | 6.0 | | Vdc |
| Collector-Emitter Cutoff Current $V_{CE} = 200\text{Vdc}$ $V_{CE} = 300\text{Vdc}$ | I_{CES} | | 0.2 0.2 | μA |
| Collector-Base Cutoff Current $V_{CB} = 200\text{Vdc}$ $V_{CB} = 250\text{Vdc}$ $V_{CB} = 300\text{Vdc}$ $V_{CB} = 400\text{Vdc}$ | I_{CBO} | | 0.1 1.0 0.1 1.0 | μA mA |

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ELECTRICAL CHARACTERISTICS (con't)

| Parameters / Test Conditions | Symbol | Min. | Max. | Unit |
|--|----------------------------------|----------|-----------|------|
| ON CHARACTERISTICS | | | | |
| Forward-Current Transfer Ratio $I_C = 0.5A_{dc}, V_{CE} = 2.0V_{dc}$ | | 40 25 | | |
| | 2N5664, 2N5666 2N5665, 2N5667 | | | |
| $I_C = 1.0A_{dc}, V_{CE} = 5.0V_{dc}$ | | 40 25 | 120 75 | |
| | 2N5664, 2N5666 2N5665, 2N5667 | | | |
| $I_C = 3.0A_{dc}, V_{CE} = 5.0V_{dc}$ | | 15 10 | | |
| | 2N5664, 2N5666 2N5665, 2N5667 | | | |
| $I_C = 5.0A_{dc}, V_{CE} = 5.0V_{dc}$ | | 5.0 | | |
| | All Types | | | |
| Collector-Emitter Saturation Voltage $I_C = 3.0A_{dc}, I_B = 0.3A_{dc}$ | | | 0.4 | Vdc |
| $I_C = 3.0A_{dc}, I_B = 0.6A_{dc}$ | 2N5664, 2N5666 2N5665, 2N5667 | | 0.4 | |
| $I_C = 5.0A_{dc}, I_B = 1.0A_{dc}$ | All Types | | 1.0 | |
| Base-Emitter Saturation Voltage $I_C = 3.0A_{dc}, I_B = 0.3A_{dc}$ | | | 1.2 | Vdc |
| $I_C = 3.0A_{dc}, I_B = 0.6A_{dc}$ | 2N5664, 2N5666 2N5665, 2N5667 | | 1.2 | |
| $I_C = 5.0A_{dc}, I_B = 1.0A_{dc}$ | All Types | | 1.5 | |

DYNAMIC CHARACTERISTICS

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

SWITCHING CHARACTERISTICS

| Parameters / Test Conditions | Symbol | Min. | Max. | Unit |
|--|----------------------------------|------|------------|---------|
| Turn-On Time $V_{CC} = 100V_{dc}; I_C = 1.0A_{dc}; I_{B1} = 30mA_{dc}$ | t_{on} | | 0.25 | μs |
| Turn-Off Time $V_{CC} = 100V_{dc}; I_C = 1.0A_{dc}; I_{B1} = -I_{B2} = 50mA_{dc}$ | t_{off} | | 1.5 2.0 | μs |
| | 2N5664, 2N5666 2N5665, 2N5667 | | | |

