

X00125

2N5006 AND 2N5008

10 AMP

HIGH SPEED NPN TRANSISTOR

100 VOLTS



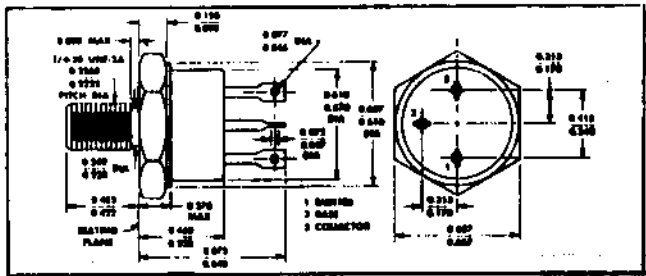
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CASE STYLE T

JEDEC TO-61

ALL TERMINALS ISOLATED FROM CASE

FEATURES



- RADIATION TOLERANT
- FAST SWITCHING, 100 NSEC MAX t_d
- HIGH FREQUENCY, TYPICAL f_T 100 MHZ
- V_{CE0} 80 VOLTS MIN
- HIGH LINEAR GAIN, LOW SATURATION VOLTAGE
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- DESIGNED FOR COMPLEMENTARY USE WITH 2N5007 AND 2N5009

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|-----------------------------------------------------|----------------|-------------|-------|
| Collector - Emitter Voltage | V_{CE0} | 80 | Volts |
| Collector - Base Voltage | V_{CB0} | 100 | Volts |
| Emitter - Base Voltage | V_{EB0} | 6 | Volts |
| Collector Current | I_C | 10 | Amps |
| Base Current | I_B | 3 | Amps |
| Total Device Dissipation @ $T_C = 50^\circ\text{C}$ | P_D | 100 | Watts |
| Derate above 50 °C | | 667 | mW/°C |
| Operating and Storage Temperature | T_j, T_{stg} | -65 to +200 | °C |

THERMAL CHARACTERISTICS

| Characteristics | Symbol | Value | Unit |
|--------------------------------------|-----------------|-------|------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 1.5 | °C/W |

ELECTRICAL CHARACTERISTICS

| Characteristics | Symbol | Min. | Max. | Unit |
|--------------------------------------------------------------------|------------|------|------|------|
| Collector - Emitter Breakdown Voltage* ($I_C = 200$ μ Adc) | BV_{CE0} | 80 | | Vdc |
| Collector - Base Breakdown Voltage ($I_C = 200$ μ Adc) | BV_{CB0} | 100 | | Vdc |
| Emitter - Base Breakdown Voltage ($I_E = 200$ μ Adc) | BV_{EB0} | 6 | | Vdc |

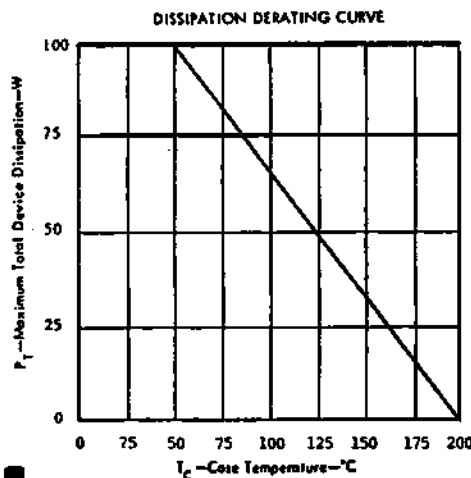
NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

| Characteristics | Symbol | Min. | Max. | Unit |
|-------------------------------------------------------------------------------------------------------------|--------------|----------------------------------|------------|--------------|
| Collector Cutoff Current (VCE = 40 Vdc) (VCE = 60 Vdc) | ICEO ICES | | 50 1.0 | uAdc uAdc |
| Collector Cutoff Current (VCE = 100Vdc) (VCE = 60 Vdc, VBE = 2 Vdc, TC = 150°C) | ICEX ICEX | | 1.0 500 | mAdc uAdc |
| Emitter Cutoff Current (VEB = 4 Vdc) (VEB = 5.5 Vdc) | IEBO | | 1.0 1.0 | uAdc mAdc |
| DC Current Gain* (IC = 100 mAdc, VCE = 5 Vdc) (IC = 5 Adc, VCE = 5 Vdc) (IC = 10 Adc, VCE = 5 Vdc) | hFE* | 20 50 30 70 20 45 | 90 200 | |
| Collector - Emitter Saturation Voltage* (IC = 5 Adc, IB = 500 mAdc) (IC = 10 Adc, IB = 500 mAdc) | VCE (SAT)* | | 0.9 1.5 | Vdc |
| Base - Emitter Saturation Voltage* (IC = 5 Adc, IB = 500 mAdc) (IC = 10 Adc, IB = 1 Adc) | VBE (SAT)* | | 1.8 2.2 | Vdc |
| Current - Gain - Bandwith Product (IC = 500 mAdc, VCE = 5 Vdc, f = 20 MHz) | fT | 35 40 | | MHz |
| Output Capacitance (VCE = 10 Vdc, IE = 0, f = 1 MHz) | Cob | | 275 | pf |
| Base - Emitter Voltage* (VCE = 5 Vdc, IC = 5 Adc) | VBE (ON)* | | 1.8 | Vdc |
| Delay Time (VCC = 40 Vdc) | td | | 100 | ns |
| Rise Time VBE(off) = 3.0 Vdc, | tr | | 100 | ns |
| Storage Time IC = 2 Adc, | ts | | 2.0 | us |
| Fall Time IB1 = IB2 = 200 mAdc) | tf | | 200 | ns |

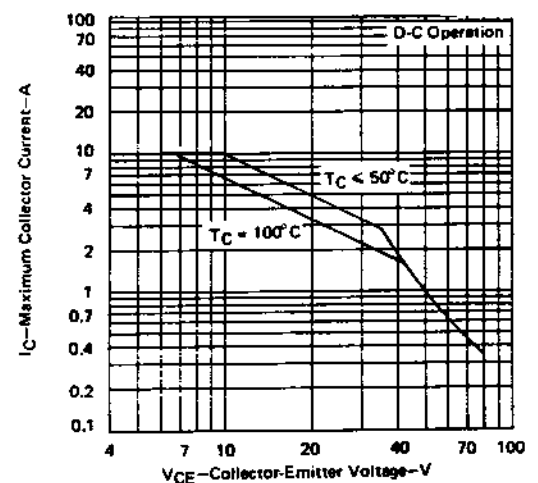
*Pulse Test: Pulse width = 300 us, DutyCycle = 2%

TYPICAL OPERATING CURVES



FORWARD BIAS DC SAFE OPERATION AREA (S.O.A.) CURVE

CURVES APPLY BELOW RATED V_{CEO} T_C = 25°C



SSDI

SOLID STATE DEVICES, INC.