


X06141

2N5094 AND 2N5096

1 AMP

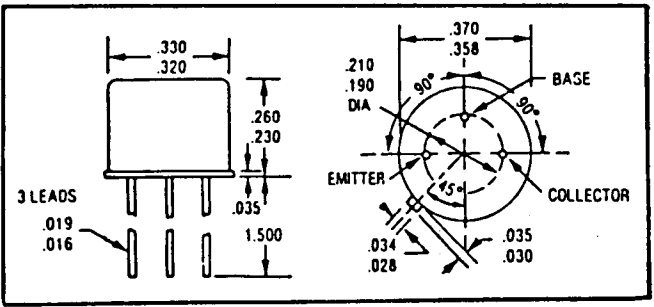
HIGH VOLTAGE PNP TRANSISTOR

450-500 VOLTS



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CASE STYLE W
JEDEC TO-5



FEATURES

- BVCBO TO 500 VOLTS
- LOW SATURATION VOLTAGE
- LOW LEAKAGE AT HIGH TEMPERATURE
- 200°C OPERATING, GOLD EUTECTIC DIE ATTACH
- DESIGNED FOR COMPLEMENTARY USE WITH 2N5095 THRU 2N5097
- 2N5091 AND 2N5093 ALSO AVAILABLE

MAXIMUM RATINGS

| Rating | Symbol | 2N5094 | 2N5096 | Unit |
|--|----------------|-------------|--------|-------|
| Collector - Emitter Voltage | V_{CE0} | 400 | 450 | Volts |
| $R_{BE} = 1 \text{ K Ohms}$ | V_{CER} | 450 | 500 | Volts |
| Collector - Base Voltage | V_{CBO} | 450 | 500 | Volts |
| Emitter - Base Voltage | V_{EBO} | 6.0 | | Volts |
| Collector Current | I_C | 1.0 | | Amps |
| Base Current | I_B | 0.5 | | Amps |
| Total Device Dissipation @ $T_C = 100^\circ\text{C}$ | P_D | 2 | | Watts |
| Derate above 100 °C | | 20 | | 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 | $R_{\theta JC}$ | 50 | °C/W |

ELECTRICAL CHARACTERISTICS

| Characteristics | Symbol | Min. | Max. | Unit |
|--|--------------|------------|------|------|
| Collector - Emitter Breakdown Voltage* ($I_C = 50 \text{ mA dc}$) | BV_{CE0}^* | 400 450 | | Vdc |
| ($I_C = 100 \text{ uA dc}, R_{BE} = 1 \text{ K Ohms}$) | BV_{CER}^* | 450 500 | | Vdc |
| Collector - Base Breakdown Voltage ($I_C = 100 \text{ uA dc}$) | BV_{CBO} | 450 500 | | Vdc |
| Emitter - Base Breakdown Voltage ($I_E = 20 \text{ uA dc}$) | BV_{EBO} | 6 | | Vdc |

NOTE: All specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

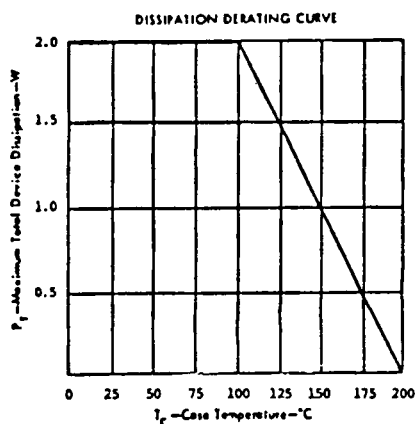
| Characteristics | Symbol | Min. | Max. | Unit |
|--|---------------|----------------|-------------------|-------|
| Collector Cutoff Current 2N5094 VCB= 450 Vdc 2N5096 VCB= 500 Vdc | I_{CBO} | | 500 | nA dc |
| Emitter Cutoff Current ($V_{EB} = 4$ Vdc) | I_{EBO} | | 250 | nA dc |
| DC Current Gain* ($I_C = 1$ mA dc, $V_{CE} = 10$ Vdc) ($I_C = 25$ mA dc, $V_{CE} = 10$ Vdc) ($I_C = 100$ mA dc, $V_{CE} = 15$ Vdc) | h_{FE} | 20 40 20 | 200 250 200 | |
| Collector - Emitter Saturation Voltage* ($I_C = 25$ mA dc, $I_B = 2.5$ mA dc) | $V_{CE(SAT)}$ | | 3.0 | Vdc |
| Base - Emitter Saturation Voltage* ($I_C = 25$ mA dc, $I_B = 2.5$ mA dc) | $V_{BE(SAT)}$ | | 1.0 | Vdc |
| Current - Gain - Bandwidth Product ($I_C = 10$ mA dc, $V_{CE} = 20$ Vdc, $f = 5$ MHz) | f_T | 20 | | MHz |
| Output Capacitance ($V_{CB} = 15$ Vdc, $I_E = 0.1 = 2$ MHz) | C_{ob} | | 20 | pf |

SWITCHING TIMES

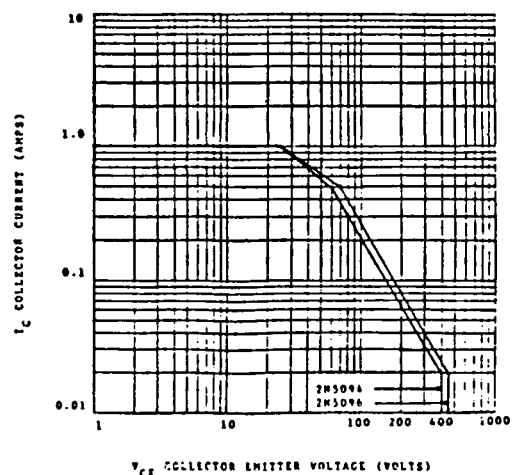
| | | | | |
|--------------|---|-------|------|----|
| Delay Time | $(V_{CC} = 150$ Vdc, $I_C = 100$ mA dc, $I_{B1} = I_{B2} = 10$ mA dc) | t_d | 700 | ns |
| Rise Time | | t_r | 1500 | ns |
| Storage Time | | t_s | 3 | us |
| Fall Time | | t_f | 200 | ns |

*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} $T_C = 25^\circ\text{C}$



SSDI

SOLID STATE DEVICES, INC.