ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE504 and NTE505
High Voltage Selenium Rectifier for TV Applications

Absolute Maximum Ratings:

Breakdown Voltage ($t_{vj} \le t_{vjmax}$, i_R = 200µA, f_o = 50Hz, $t_p(i_R) \le$ 2.5ms, t ≤ 5s), V_{BR}
- NTE504 . . . . . ≥31kV
- NTE505 . . . . . ≥34kV

Repetitive Peak Reverse Voltage, V_{RRM}
- In Plastic Material or Oil
  - NTE504 . . . . . 27.5kV
  - NTE505 . . . . . 30.0kV
- In Free Air 11.3kV

Direct Reverse Voltage, V_R
- In Plastic Material or Oil
  - NTE504 . . . . . 18kV
  - NTE505 . . . . . 20kV
- In Free Air 5.5kV

RMS Forward Current, I_{FRMSM} 70mA

Average Forward Current (T_A = +45°C), I_{FAVM}
- In Free Air
  - NTE504 . . . . . 6.1mA
  - NTE505 . . . . . 5.7mA
- Plastic Material
  - NTE504 . . . . . 13.8mA
  - NTE505 . . . . . 12.8mA
- Transformer Oil
  - NTE504 . . . . . 15.6mA
  - NTE505 . . . . . 14.5mA
- Inert Liquid Coolant FC 43
  - NTE504 . . . . . 15.6mA
  - NTE505 . . . . . 14.5mA

Repetitive Peak Forward Current, I_{FRM} 500mA

Surge Current, I_{FSM}
- ($t_{vj} \le$ +45°C, t = 10ms) 1.5A
- ($t_{vj} = t_{vjmax}$, t = 10ms) 1.3A

$\int i^2dt$–value, $\int i^2dt$
- ($t_{vj} \le$ +45°C, t = 10ms) . . . . . $0.011A^2s$
- ($t_{vj} = t_{vjmax}$, t = 10ms) . . . . . $0.0085A^2s$

Thermal Resistance, Junction to Ambient, $R_{\Theta JA}$
- In Free Air . . . . . 200°C/W
- Plastic Material . . . . . 80°C/W
- Transformer Oil . . . . . 70°C/W
- Inert Liquid Coolant FC 43 . . . . . 70°C/W

Maximum Junction Temperature, t_{vjmax} . . . . . +110°C

Operating Temperature Range, t_{opr} . . . . . –40° to +110°C

Storage Temperature Range, t_{stg} . . . . . –40° to +130°C

Electrical Characteristics:

Maximum Forward Voltage (t_{vj} = +25°C, i_F = 300mA), v_F
- NTE504 . . . . . 142V
- NTE505 . . . . . 154V

Threshold Voltage ($t_{vj} = t_{vjmax}$), $V_{(TO)}$
- NTE504 . . . . . 41V
- NTE505 . . . . . 51V

Slope Resistance ($t_{vj} = t_{vjmax}$), r_T
- NTE504 . . . . . 246Ω
- NTE505 . . . . . 267Ω

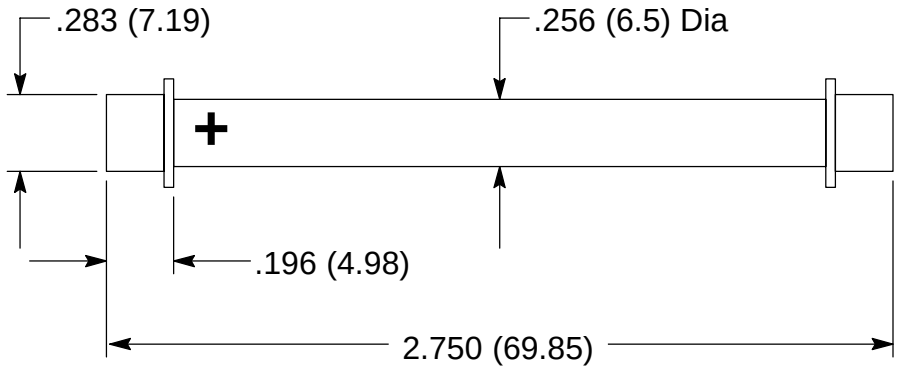
Maximum Reverse Current, i_R
- (t_{vj} = +25°C, $v_R = V_{R)}$ . . . . . 1μA[2]
- ($t_{vj} = t_{vjmax}$, $v_R = V_{R)}$ . . . . . 5μA[2]

Peak Reverse Recovery Current, I_{RRM}
- (L–commutation, t_{vj} = +25°C, i_F = 200mA, $-di_F/dt$ = 0.2A/μs) 20mA

Typical Forward Delay Time, t_{fr} 0.3μs

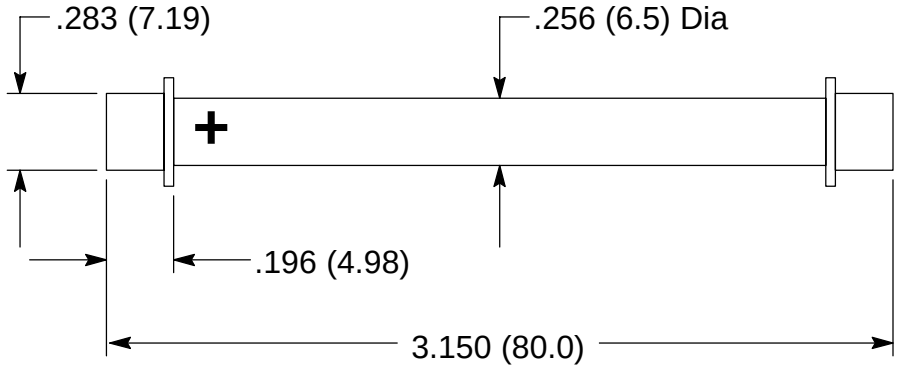
Typical Zero Capactiance (t_{vj} = +25°C. f = 16kHz), C_{null}
- NTE504 . . . . . 0.32pF
- NTE505 . . . . . 0.3pF

NTE504



(+) Denotes Cathode

NTE505



(+) Denotes Cathode