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## NTE504 and NTE505 High Voltage Selenium Rectifier for TV Applications

### Absolute Maximum Ratings:

Breakdown Voltage ( $t_{vj} \leq t_{vjmax}$ , $i_R = 200\mu A$ , $f_o = 50Hz$ , $t_p(i_R) \leq 2.5ms$ , $t \leq 5s$ ), $V_{BR}$	
NTE504 .....	$\geq 31kV$
NTE505 .....	$\geq 34kV$
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 ( $T_A = +45^\circ C$ ), $I_{FAVM}$	
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, $I_{FSM}$	
( $t_{vj} \leq +45^\circ C$ , $t = 10ms$ ) .....	1.5A
( $t_{vj} = t_{vjmax}$ , $t = 10ms$ ) .....	1.3A
$\int i^2 dt$ -value, $\int i^2 dt$	
( $t_{vj} \leq +45^\circ C$ , $t = 10ms$ ) .....	0.011A <sup>2</sup> s
( $t_{vj} = t_{vjmax}$ , $t = 10ms$ ) .....	0.0085A <sup>2</sup> s
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

Note 1. **NTE505** is a **discontinued** device and **no longer available**.

**Electrical Characteristics:**

Maximum Forward Voltage ( $t_{vj} = +25^{\circ}\text{C}$ , $i_F = 300\text{mA}$ ), $v_F$	
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 .....	246 $\Omega$
NTE505 .....	267 $\Omega$
Maximum Reverse Current, $i_R$	
( $t_{vj} = +25^{\circ}\text{C}$ , $v_R = V_R$ ) .....	1 $\mu\text{A}^2$
( $t_{vj} = t_{vjmax}$ , $v_R = V_R$ ) .....	5 $\mu\text{A}^2$
Peak Reverse Recovery Current, $I_{RRM}$	
(L-commutation, $t_{vj} = +25^{\circ}\text{C}$ , $i_F = 200\text{mA}$ , $-di_F/dt = 0.2\text{A}/\mu\text{s}$ ) .....	20mA
Typical Forward Delay Time, $t_{fr}$ .....	
0.3 $\mu\text{s}$	
Typical Zero Capacitance ( $t_{vj} = +25^{\circ}\text{C}$ , $f = 16\text{kHz}$ ), $C_{null}$	
NTE504 .....	0.32pF
NTE505 .....	0.3pF

