



ELECTRONICS, INC.
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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 ² s
($t_{vj} = t_{vjmax}$, $t = 10ms$)	0.0085A ² 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

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 Ω
NTE505	267 Ω
Maximum Reverse Current, i_R	
($t_{vj} = +25^{\circ}\text{C}$, $v_R = V_R$)	1 μA^2
($t_{vj} = t_{vjmax}$, $v_R = V_R$)	5 μA^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 μs	
Typical Zero Capacitance ($t_{vj} = +25^{\circ}\text{C}$, $f = 16\text{kHz}$), C_{null}	
NTE504	0.32pF
NTE505	0.3pF

