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## NTE634 thru NTE636 2 Amp Ultra Fast Recovery Controlled Avalanche Rectifiers

**Description:**

The NTE634, NTE635, and NTE636 are 2A Controlled Avalanche Rectifiers encased in a rugged glass SOD57 axial lead package, using a high temperature alloyed construction. These packages are hermetically sealed and fatigue free as coefficients of expansion of all used parts are matched.

**Features:**

- Glass Passivated
- High Maximum Operating Temperature
- Low Leakage Current
- Guaranteed Avalanche Energy Absorption Capability

**Absolute Maximum Ratings:**

Repetitive Peak Reverse Voltage, $V_{RRM}$	
NTE634 .....	200V
NTE635 .....	400V
NTE636 .....	600V
Continuous Reverse Voltage, $V_R$	
NTE634 .....	200V
NTE635 .....	400V
NTE636 .....	600V
Average Forward Current (Note 1), $I_{F(AV)}$ ( $T_{tp} = +85^{\circ}C$ , Lead Length = 10mm)	
NTE634 .....	2.0A
NTE635 .....	1.9A
NTE636 .....	1.6A
( $T_A = +60^{\circ}C$ , Printed-Circuit Board Mounting)	
NTE634 .....	2.0A
NTE635 .....	1.9A
NTE636 .....	1.6A
Repetitive Peak Forward Current, $I_{FRM}$ ( $T_{tp} = +85^{\circ}C$ )	
NTE634, NTE635 .....	20A
NTE636 .....	16A
( $T_A = +60^{\circ}C$ )	
NTE634 .....	14A
NTE635 .....	13A
NTE636 .....	11A
Non-Repetitive Peak Forward Current (Note 2), $I_{FSM}$	
NTE634, NTE635 .....	50A
NTE636 .....	40A

Note 1. Averaged over any 20ms period.

Note 2.  $t = 10ms$  half sine wave,  $T_J = T_{Jmax}$  prior to surge,  $V_R = V_{RRMmax}$ .

**Absolute Maximum Ratings (Cont'd):**

Non-Repetitive Peak Reverse Avalanche Energy (Note 3),  $E_{RSM}$  ..... 20mJ  
 Storage Temperature Range,  $T_{stg}$  ..... -65° to +175°C  
 Junction Temperature,  $T_J$  ..... -65° to +175°C  
 Thermal Resistance, Junction-to-Tie-Point (Lead Length 10mm),  $R_{th-j-tp}$  ..... 46K/W  
 Thermal Resistance, Junction-to-Ambient (Note 4),  $R_{th-j-a}$  ..... 100K/W

Note 3.  $L = 120mH$ ,  $T_J = T_{Jmax}$  prior to surge, Inductive load switched off.

Note 4. Device mounted on an epoxy-glass printed-circuit board, 1.5mm thick; thickness of Cu-layer  $\geq 40\mu m$ .

**Electrical Characteristics:** ( $T_J = +25^\circ C$ , unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Forward Voltage NTE634	$V_F$	$I_F = 2A$	$T_J = T_{Jmax}$	-	-	0.78	V
				-	-	0.98	V
NTE635			$T_J = T_{Jmax}$	-	-	0.82	V
				-	-	1.05	V
NTE636			$T_J = T_{Jmax}$	-	-	1.0	V
				-	-	1.25	V
Reverse Avalanche Breakdown Voltage NTE634	$V_{(BR)R}$	$I_R = 0.1mA$	220	-	-	V	
NTE635			440	-	-	V	
NTE636			675	-	-	V	
Reverse Current	$I_R$	$V_R = V_{RRMmax}$	-	-	5	$\mu A$	
		$V_R = V_{RRMmax}, T_J = +165^\circ C$	-	-	150	$\mu A$	
Reverse Recovery Time NTE634	$t_{rr}$	When switched from $I_F = 0.5A$ to $I_R = 1A$ , measured at $I_R = 0.25A$	-	-	25	ns	
NTE635, NTE636			-	-	50	ns	
Diode Capacitance NTE634	$C_d$	$f = 1MHz, V_R = 0$	-	100	-	pF	
NTE635			-	80	-	pF	
NTE636			-	65	-	pF	
Maximum Slope of Reverse Recovery	$\left  \frac{dI_R}{dt} \right $	When switched from $I_F = 1A$ to $V_R \geq 30V$ and $dI_F/dt = -1A/\mu s$	-	-	4	$A/\mu s$	

