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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	
				$T_J = T_{Jmax}$	-	-	0.82	V
					-	-	1.05	V
		NTE635		$T_J = T_{Jmax}$	-	-	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	μA		
		$V_R = V_{RRMmax}, T_J = +165^\circ C$	-	-	150	μA		
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	$A/\mu s$		

