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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°C, Lead Length = 10mm)
- NTE634 . . . . . 2.0A
- NTE635 . . . . . 1.9A
- NTE636 . . . . . 1.6A

(T_A = +60°C, Printed−Circuit Board Mounting)
- NTE634 . . . . . 2.0A
- NTE635 . . . . . 1.9A
- NTE636 . . . . . 1.6A

Repetitive Peak Forward Current, I_{FRM}
(T_{tp} = +85°C)
- NTE634, NTE635 . . . . . 20A
- NTE636 . . . . . 16A

(T_A = +60°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, $T_J = T_J$max prior to surge, $V_R = V_{RRM}$max.

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, $T_J = T_J$max 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 ≥ 40μm.

Electrical Characteristics: (T_J = +25°C, unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Forward Voltage NTE634	V_F	I_F = 2A	$T_J = T_J$max	–	–	0.78	V
				–	–	0.98	V
NTE635			$T_J = T_J$max	–	–	0.82	V
				–	–	1.05	V
NTE636			$T_J = T_J$max	–	–	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°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	$\left\lvert \frac{dI_R}{dt} \right\rvert$	When switched from I_F = 1A to $V_R \geq$ 30V and dI_F/dt = −1A/μs		–	–	4	A/μs