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NTE593 Silicon Diode, High Speed Switch

Description:

The NTE593 is a silicon epitaxial high-speed diode in an SOT-23 type surface mount package. This device is intended for high-speed switching in hybrid thick-film circuits.

Absolute Maximum Ratings:

Continuous Reverse Voltage, V_R	75V
Repetitive Peak Reverse Voltage, V_{RRM}	85V
Non-Repetitive Peak Forward Current ($t = 1s$), I_{FSM}	500mA
Average Rectified Forward Current (Average over any 20ms period, Note 1), $I_{F(AV)}$	250mA
DC Forward Current ($T_A \leq +25^\circ C$, Note 2), I_F	250mA
Repetitive Peak Forward Current, I_{FRM}	250mA
Total Power Dissipation ($T_A \leq +25^\circ C$), P_{tot}	200mW
Operating Junction Temperature, T_J	+150°C
Storage Temperature Range, T_{stg}	-65° to +150°C
Thermal Resistance, Junction-to-Ambient (Note 2), R_{thJA}	430K/W

Note 1. Measured under pulse conditions: $t_p \leq 0.5ms$, $I_{F(AV)} = 150mA$, $t_{(av)} \leq 1ms$, for sinusoidal operation.

Note 2. Mounted on a ceramic substrate of .314 (8mm) x .393 (10mm) x .027 (0.7mm).

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F = 1mA$	-	-	715	mV
		$I_F = 10mA$	-	-	855	mV
		$I_F = 50mA$	-	-	1000	mV
		$I_F = 150mA$	-	-	1250	mV
Reverse Current	I_R	$V_R = 75V$	-	-	1	μA
		$V_R = 75V, T_J = +150^\circ C$	-	-	50	μA
Diode Capacitance	C_d	$V_R = 0, f = 1MHz$	-	-	2	pF
Reverse Recovery Time (When switched from $I_F = 30mA$ to $I_R = 30mA$)	t_{rr}	measured at $I_R = 1mA$, $R_L = 100\Omega$	-	-	6	ns
Recovery Charge (When switched from $I_F = 10mA$ to $V_R = 5V$)	Q_s	$R_L = 100\Omega$	-	-	45	pC

