NTE308
Integrated Thyristor/Rectifier (ITR)
TV Horizontal Deflection & Commutating Switch

Absolute Maximum Ratings:

Repetitive Peak Forward Off–State and Reverse Voltage, V_{DRM}, V_{RRM} 800V

RMS On–State Current, I_{TRMSM}, I_{FRMSM} 8A

Mean On–State Current (T_C = +80°C), I_{TAVM}, I_{FAVM}

    Thyristor 3.4A

    Diode 3.45A

Repetitive Peak On–State Current, I_{TRM}, I_{FRM} 50A

Surge Current (t = 10ms, t_{vi} = +100°C), I_{TSM}, I_{FSM}

    Thyristor 80A

    Diode 60A

Non–Repetitive Rate of Rise of On–State Current, di/dt$_{crit}$ 500A/μs

Repetitive Rate of Rise of On–State Current (I_{TM} = 20A, t_{vi} = +100°C, V_{DM} = 640V), di/dt$_{crit}$

    (Pulse Generator Data: v_L = 8V, i_K = 0.25A, di$_G$/dt ≥ 0.25A/μs)

    f_o = 50Hz 300A/μs

    f_o = 16kHz 100A/μs

Rate of Rise of Off–State Voltage (t_{vi} = +100°C, V_D = 536V), dv/dt$_{crit}$ 400V/μs

Rate of Rise of Voltage Subsequent to Prior On–State Current, dv/dt$_{crit}$

    t_{vi} = +100°C, V_D = 536V 1000V/μs

Peak Gate Power Losses (t_g ≤ 10μs), P_{GM} 10W

Total Mean Gate Power Loss for One Cycle, P_G 2W

Operating Temperature Range, T_{opr} . . . . −40° to +100°C

Storage Temperature Range, T_{stg} . . . . −40° to +130°C

Thermal Resistance, Junction–to–Case, R_{thJC} . . . . 2.3°C/W

Thermal Resistance, Junction–to–Ambient, R_{thJA}

    Without Heatsink . . . . 35°C/W

    On Vertical Cooling Fin 60mm x 60mm x 1.5mm, Al or Cu, Roughened Surface . . 10°C/W

Electrical Characteristics:

Maximum On–State Voltage (t_{vi} = +25°C, i_T = i_F = 10A), V_T, V_F

    Thyristor 2.16V

    Diode 2.2V

Threshold Voltage, $V_{(TO)}$

    Thyristor 1.6V

    Diode 1.4V

Forward Slope Resistance, r_T, r_F

    Thyristor 53Ω

    Diode 70Ω

Electrical Characteristics (Cont'd):

Maximum Gate Trigger Voltage (t_{vi} = +25°C, V_D = 6V, R_A = 20Ω), V_{GT} 2.0V

Minimum Gate Trigger Voltage (t_{vi} = +100°C, V_D = 6V, R_A = 20Ω), V_{GT} 0.1V

Maximum Gate Trigger Current (t_{vi} = +25°C, V_D = 6V, R_A = 20Ω), I_{GT} 50mA

Maximum Holding Current (t_{vi} = +25°C, V_D = 6V, R_A = 20Ω), I_H 100mA

Maximum Latching Current (t_{vi} = +25°C, V_D = 6V, $R_{GK} \geq$ 20Ω), I_L 210mA
        (Pulse Generator Data: i_G = 0.25A, di_G/dt = 0.25A/μs, t_g = 4μs)

Typical Capacitance, Anode–Cathode at Zero Voltage (t_{vi} = +25°C, f_o = 16kHz), C_{zero} 250pF

Maximum Lag Charge (t_{vi} = +100°C, i_{FM} = 10A, $-di_F/dt$ = 10A/μs), Q_S 0.96μAs

Maximum Forward Off–State and Reverse Current (t_{vi} = +100°C, v_D = 800V), i_D, i_R 1.5mA

Maximum Gate Controlled Delay Time (t_{vi} = +25°C, V_D = 536V, i_{TM} = 5A), t_{gd} 0.8μs
        (Pulse Generator Data: i_G = 0.25A, di_G/dt = 0.5A/μs)

Maximum Pulse Turn–Off Time (t_{vi} = +100°C), t_{qp} 5.1μs

Typical Pulse Turn–Off Time (t_{vi} = +80°C, f_o = 16kHz), t_{qp} 3.8μs

Maximum Reverse Recovery Time (t_{vi} = +25°C, i_{FM} = 10A, $-di_F/dt$ = 10A/μs), t_{rr} 0.7μs
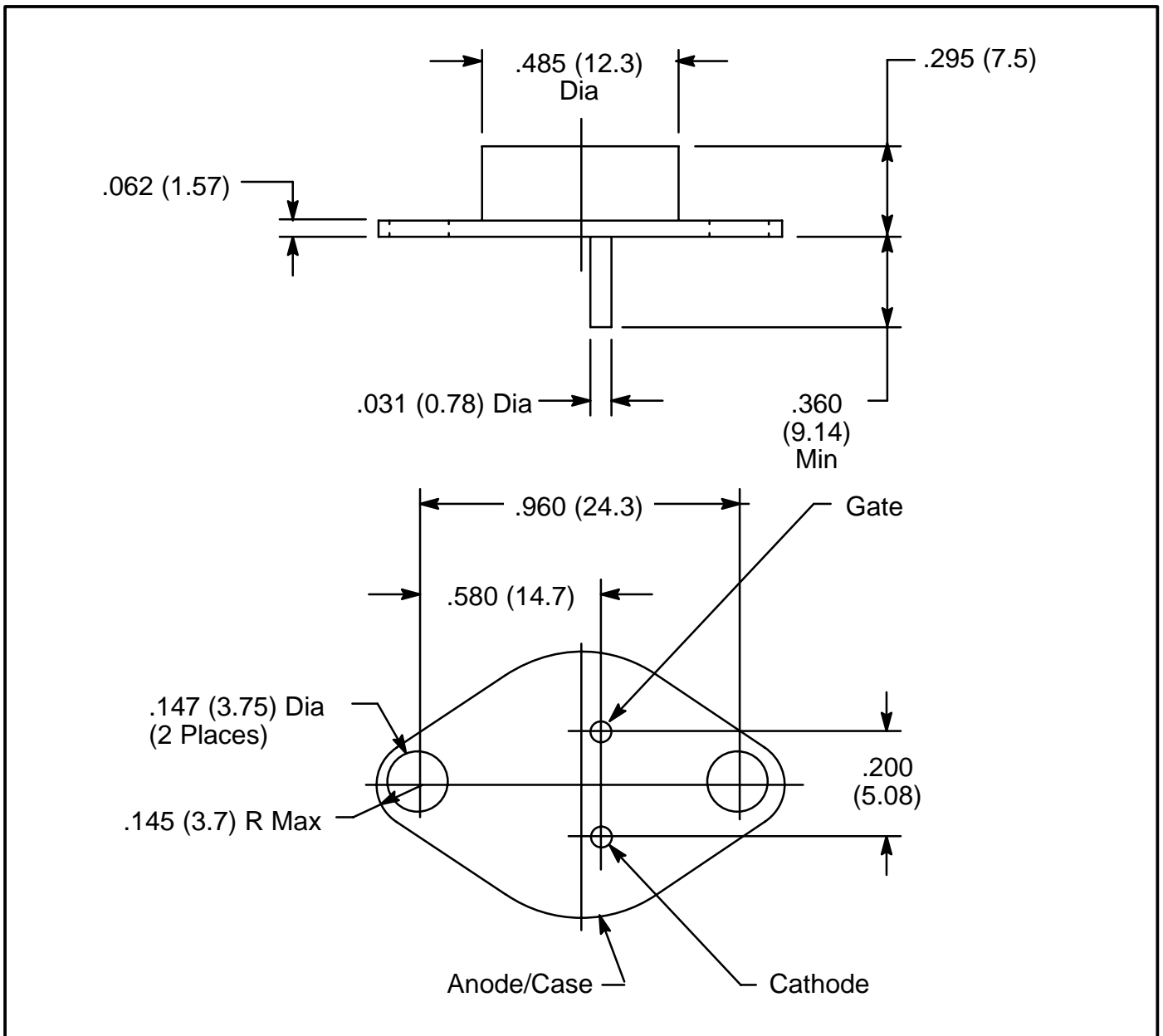
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