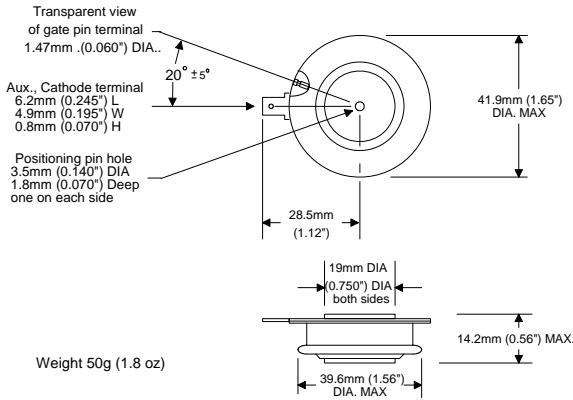


D package

JEDEC: TO-200AB



Part number scheme

D T 04 N 12 KNX
1 2 3 4 5 6

- 1) Package designation
- 2) Thyristor designation (i.e. SCR)
- 3) Series number
- 4) Designates standard recovery time
- 5) Voltage Multiplier (example: 12 x 100 = 1200)
- 6) Proprietary suffix

Features:

- ✓ All diffused silicone.
- ✓ Center amplifying gate.
- ✓ Standard recovery time for phase control applications.
- ✓ Disk press package (nick named, Hockey Puck)
- ✓ Metal and ceramic package construction.
- ✓ Double side cooling.

Voltage

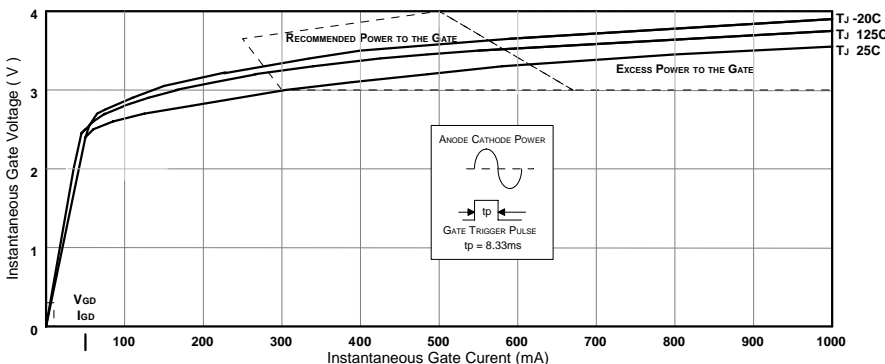
| Parameter | Symbol | Rating | Units |
|--|--|---------------------------------------|-------|
| Maximum Repetitive Off-State Voltage <small>Notes: 1, 3, 4, 5, 6, 7</small> | V _{DRM} | 1200 ~ 1600 | Volts |
| Maximum Repetitive Reverse Voltage <small>Notes: 1, 3, 4, 5, 6</small> | V _{RRM} | 1200 ~ 1600 | Volts |
| Maximum non repetitive Surge of Reverse Voltage <small>Notes: 2, 3, 4, 5, 6</small> | V _{RSM} | V _{RRM} + 100 | Volts |
| Critical rate of rising off-state Voltage, Linear to 80% of V _{DRM} <small>Note: 2</small> | dv/dt | 500 | V/μs |
| <small>Note 1: T_J 25°C. Note 2: T_J 125°C. Note 3: Measured at the peak of the sine wave, Note 4: Below 0°C derate V_{DRM} and V_{RRM} 10%. Note 5: V_{DRM} and V_{RRM} have I_{DRM}, I_{RRM} of up to 35mA. Note 6: V_{DR} and V_{RR} have typical I_{DR}, I_{RR} of 2-7mA. Note 7: For DC applications derate V_{DRM} 45%.</small> | | | |
| Specifying voltage: | 1400V, DT04N14 1200V, DT04N12 1600V, DT04N16 | Above 1600V inquire for availability. | |

Gate

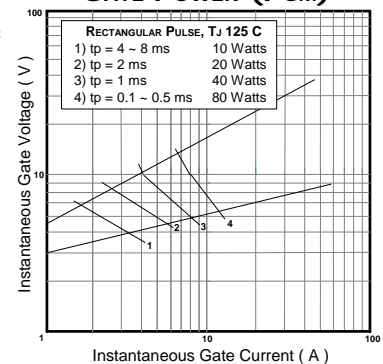
| Parameter | Symbol | Rating | | | Units |
|--|----------------------|------------------------|-------------------------------------|------|---------|
| | | Temp. | Typ. | Max. | |
| Gate Trigger Voltage <small>Note 3</small> | V _{GT} | -20°C 25°C 125°C | 2.3 ~ 2.8 2.0 ~ 2.4 1.9 ~ 2.3 | 3 | Volts |
| Maximum Gate Trigger Current <small>Notes 1, 3</small> | I _{GT} | | 150 | | mA |
| Minimum Forward Current to Latch on-state <small>Notes 1, 5</small> | I _L | | 150 | | mA |
| Maximum permissible Gate Voltage not to Trigger <small>Notes 1, 3</small> | V _{GDM} | | 250 | | mV |
| Maximum permissible Gate Current not to Trigger <small>Notes 1, 3</small> | I _{GDM} | | 10 | | mA |
| Maximum peak non repetitive Gate Voltage <small>Notes 2, 3</small> | V _{GM} | | 8.4 | | Volts |
| Maximum Negative Gate Voltage <small>Notes 2, 4</small> | -V _{GM} | | 5 | | Volts |
| Maximum non repetitive Gate Current <small>Notes 2, 3</small> | I _{GM} | | 3.7 | | Amperes |
| Maximum Repetitive Gate Current <small>Notes 2, 3</small> | I _{G(RM)} | | 1 | | Amperes |
| Average Gate Power (recommended) <small>Note 2, 3</small> | P _{GI(AVE)} | | 0.9 ~ 2 | | Watts |
| <small>Note 1: T_J 25°C. Note 2: T_J 125°C. Note 3: Rectangular pulse, t_p ≤ 8.3 ms. Note 4: Rectangular -V_{DC} pulse, t_p ≤ 8.3 ms. Note 5: Test conditions: I_{DC} R_L = 12Ω.</small> | | | | | |

These graphs depict a typical device, each device has unique characteristics

Gate Characteristics



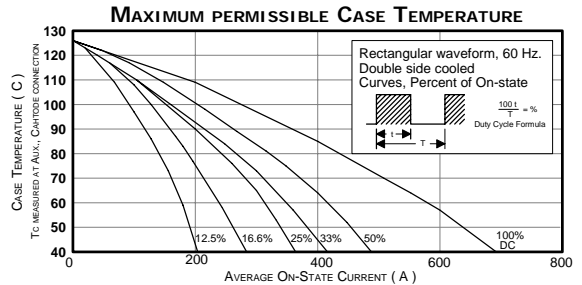
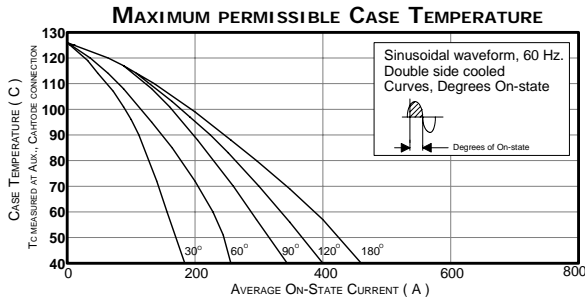
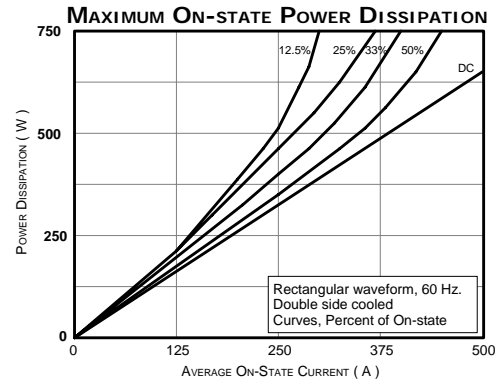
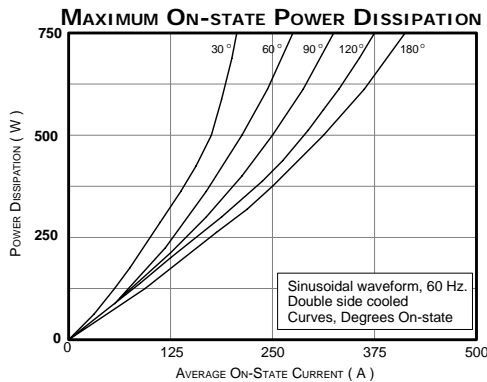
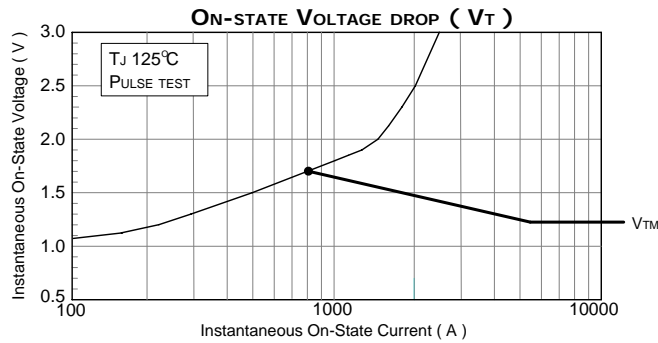
Maximum non repetitive GATE POWER (PGM)



Amperage

| Parameter | Symbol | Rating | Units |
|---|----------------------------|-----------------|------------|
| Maximum, Average, On state, Current <small>Notes: 3, 4</small> | $I_{T(AVE)}$ | 410 | Amperes |
| Maximum, RMS, On state, Current <small>Notes: 3, 5</small> | $I_{T(RMS)}$ | 630 | Amperes |
| Maximum non repetitive, Surge, On state, Current, with no reverse voltage reapplied. <small>Notes: 2, 4</small> | $I_{TSM} 0\%V_{RRM}$ | 4.7 | kA |
| Maximum non repetitive, Surge, On state, Current, with maximum reverse voltage reapplied. <small>Notes: 2, 4</small> | $I_{TSM} 100\%V_{RRM}$ | 4 | kA |
| Critical rate of rising On-state Current, non repetitive <small>Note: 6, 7</small> | di/dt | 300 | A/ μ s |
| Holding Current <small>Notes: 1, 5</small> | I_H | 200 | mA |
| I_{DR} = Repetitive, Off-State, leakage Current (typical) <small>Note: 1</small> I_{RR} = Repetitive, Reverse, leakage Current. (typical) <small>Note: 1</small> | I_{DR} & I_{RR} | 2 ~ 5 | mA |
| I_{DRM} = Maximum (threshold), Repetitive, Off-State, Current. <small>Note: 1</small> I_{RRM} = Maximum (threshold), Repetitive, Reverse, Current. <small>Note: 1</small> | I_{DRM} & I_{RRM} | 25 | mA |
| Fuse's absolute maximum $I^2 t$ with no reverse voltage reapplied <small>Note: 2, 4</small> | $I^2 t, 0\% V_{RR}$ | 50 | kA |
| Fuse's absolute maximum $I^2 t$ with up to 80% of V_{RRM} reapplied <small>Note: 2, 4</small> | $I^2 t, \leq 80\% V_{RRM}$ | 35 | kA |
| Reverse Recovery Charge (C_s = Stored Charge) | Q_{RR} | Consult factory | μ Cs |
| <small>Note 1: T_J 25°C. Note 2: T_J 125°C. Note 3: T_{Case} 55°C, double side air cooled. Note 4: 180° conduction, 60Hz sine wave. Note 5: Test conditions: I_{DC} $R_L = 12\Omega$. Note 6: Switching from $V_{DRM} \leq 1000V$ Note 7: In addition to 0.2μF and 20Ω snubber circuit</small> | | | |

These graphs depict a typical device, each device has unique characteristics



Thermal & Mechanical

| Parameter | Symbol | Rating | Units |
|---|---------------|------------------------|-----------|
| Operating Temperature Range | T_J | -40° ~ 125° | °Celsius |
| Maximum Thermal resistance, Junction to Case <small>Notes:1, 3, 5</small> | R_{th-J-C} | 0.09 | °C/W |
| Maximum Thermal resistance, Case to Heat Sink <small>Notes: 1, 2, 3, 4, 5</small> | $R_{th-C-HS}$ | 0.03 | °C/W |
| Mounting Pressure | | 320 ~ 400 700 ~ 900 | kg lb. |
| <small>Note 1: Recommended mounting pressure applied Note 2: Mounting surfaces flat and greased Note 3: Double side cooled Note 4: Case Temperature measured at aux., cathode Note 5: 180° on-state</small> | | | |