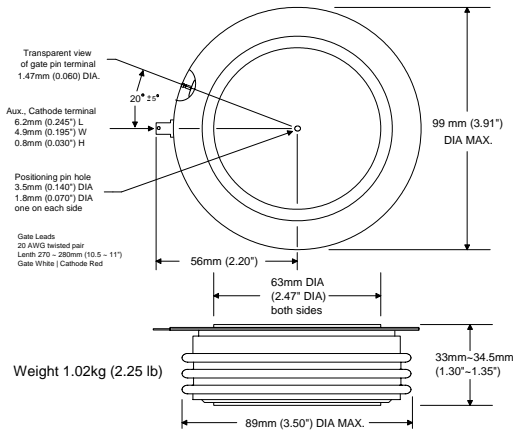


**Y package**



Part number scheme

**Y T 21 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>	$V_{DRM}$	800 ~ 1600	Volts
Maximum Repetitive Reverse Voltage <small>Notes: 1, 3, 4, 5, 6</small>	$V_{RRM}$	800 ~ 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	$V/\mu s$

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 50mA. Note 6:  $V_{DR}$  and  $V_{RR}$  have typical  $I_{DR}$ ,  $I_{RR}$  of 3~7mA. Note 7: For DC applications derate  $V_{DRM}$  45%.

**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 1.9 ~ 2.4 1.4 ~ 1.6	3	Volts
Maximum Gate Trigger Current <small>Notes 1,3</small>	$I_{GT}$		300		mA
Minimum anode cathode Current to Latch on-state <small>Notes 1, 5</small>	$I_L$		500		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>	$I_{GRM}$		1		Amperes
Average Gate Power (recommended) <small>Note 2, 3</small>	$P_{G(AVE)}$		0.9 ~ 3		Watts

Note 1:  $T_J$  25°C. Note 2:  $T_J$  125°C. Note 3: Rectangular pulse,  $t_b \leq 8.3$  ms. Note 4: Rectangular  $-V_{DC}$  pulse,  $t_b \leq 8.3$  ms. Note 5: Test conditions:  $I_{DC}$   $R_L = 12\Omega$ .

**Current**

Parameter	Symbol	Rating	Units
Maximum, Average, On state, Current <small>Notes: 3, 4</small>	$I_{T(AVE)}$	2040	Amperes
Maximum, RMS, On state, Current <small>Notes: 3, 4</small>	$I_{T(RMS)}$	3140	Amperes
Maximum non repetitive, Surge, On state, Current, with no reverse voltage reapplied. <small>Notes: 2, 4</small>	$I_{TSM} 0\%V_{RRM}$	29.5	kA
Maximum non repetitive, Surge, On state, Current, with maximum reverse voltage reapplied. <small>Notes: 2, 4</small>	$I_{TSM} 100\%V_{RRM}$	25	kA
Critical rate of rising On-state Current, non repetitive <small>Note: 6, 7</small>	$di/dt$	250	$A/\mu s$
Maximum On-State Forward Voltage <small>Notes: 1, 4</small>	$V_{TM} @ 3000A$	1.6	Volts
Critical rate of rising On-state Current <small>Notes: 6, 7</small>	$di/dt$	150	$A/\mu s$
Holding Current <small>Notes: 1, 5</small>	$I_H$	800	mA
$I_{DRM}$ = Maximum (threshold), Repetitive, Off-State, Current. <small>Note: 1</small> $I_{RRM}$ = Maximum (threshold), Repetitive, Reverse, Current. <small>Note: 1</small>	$I_{DRM}$ & $I_{RRM}$	50	mA
Fuse's absolute maximum $I^2 t$ with no reverse voltage reapplied <small>Note: 2, 4</small>	$I^2 t, 0\% V_{RR}$	4160	kA
Fuse's absolute maximum $I^2 t$ with up to 80% of $V_{RRM}$ reapplied <small>Note: 2, 4</small>	$I^2 t, \leq 80\% V_{RRM}$	2640	kA
Reverse Recovery Charge ( $C_s$ = Stored Charge)	$Q_{RR}$	Consult factory	$\mu C_s$

Note 1:  $T_J$  25°C. Note 2:  $T_J$  125°C. Note 3:  $T_{CSMB}$  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 0.2 $\mu F$  and 20 $\Omega$  snubber circuit

**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>	$R_{th-J-C}$	0.015	°C/W
Maximum Thermal resistance, Case to Heat Sink <small>Notes: 1, 2, 3, 4, 5</small>	$R_{th-C-HS}$	0.002	°C/W
Mounting Pressure		3600 ~ 4500 8000 ~ 10000	kg lb.

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