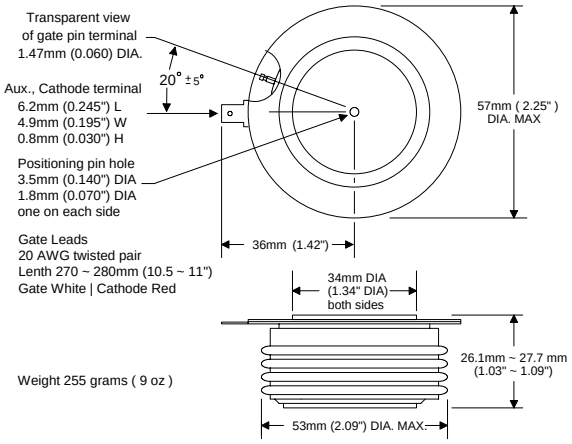
G package

JEDEC: TO-200AC



Part number scheme

G	T	09	N	16	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: 16 x 100 = 1600)
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 Notes: 1, 3, 4, 5, 6, 7	V_{DRM}	1200 ~ 1800	Volts
Maximum Repetitive Reverse Voltage Notes: 1, 3, 4, 5, 6	V_{RRM}	1200 ~ 1800	Volts
Maximum non repetitive Surge of Reverse Voltage Notes: 2, 3, 4, 5, 6	V_{RSM}	V_{RRM} + 100	Volts
Critical rate of rising off-state Voltage, Linear to 80% of V_{DRM} Note: 2	dv/dt	200	V/μs

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%.

Specifying voltage: 1400V, GT09N14 1800V, GT09N18
1200V, GT09N12 1600V, GT09N16 Above 1800V inquire for availability.

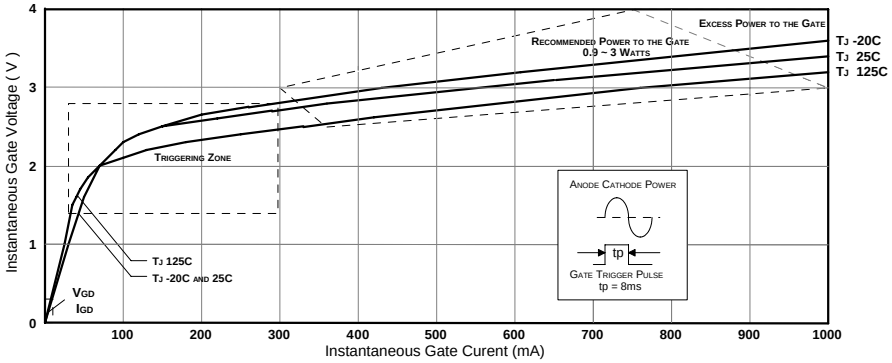
Gate

Parameter	Symbol	Rating			Units
		Temp.	Typ.	Max.	
Gate Trigger Voltage Note 3	V_{GT}	-20° C	2.3 ~ 2.8	3	Volts
		25° C	1.9 ~ 2.4		
		125° C	1.4 ~ 1.6		
Maximum Gate Trigger Current Notes 1,3	I_{GT}	300			mA
Minimum Forward Current to Latch on-state Notes 1, 5	I_L	800			mA
Maximum permissible Gate Voltage not to Trigger Notes 1,3	V_{GDM}	250			mV
Maximum permissible Gate Current not to Trigger Notes 1, 3	I_{GDM}	10			mA
Maximum peak non repetitive Gate Voltage Notes 2, 3	V_{GM}	8.4			Volts
Maximum Negative Gate Voltage Notes 2, 4	$-V_{GM}$	5			Volts
Maximum non repetitive Gate Current Notes 2, 3	I_{GM}	3.7			Amperes
Maximum Repetitive Gate Current Notes 2, 3	I_{GRM}	1			Amperes
Average Gate Power (recommended) Note 2, 3	$P_{G(AVE)}$	0.9 ~ 3			Watts

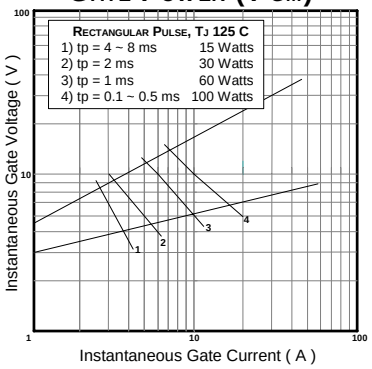
Note 1: T_J 25°C. Note 2: T_J 125°C. Note 3: Rectangular pulse, $t_p \leq 8.3$ ms. Note 4: Rectangular $-V_{DC}$ pulse, $t_p \leq 8.3$ ms. Note 5: Test conditions: I_{DC} $R_L = 12\Omega$.

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

Gate Charateristics



Maximum non repetitive Gate Power (PGM)

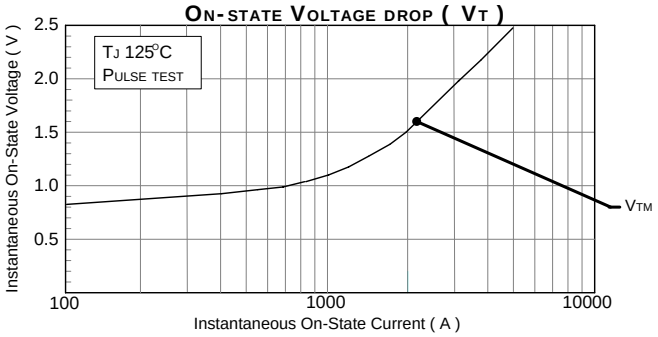


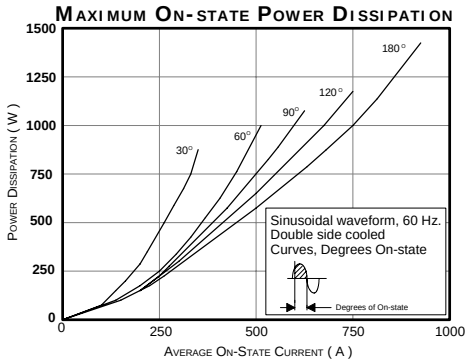
Current

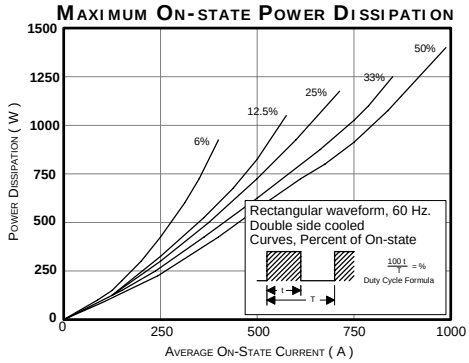
Parameter	Symbol	Rating	Units
Maximum, Average, On state, Current Notes: 3, 4	$I_{T(AVE)}$	890	Amperes
Maximum, RMS, On state, Current Notes: 3, 5	$I_{T(RMS)}$	1400	Amperes
Maximum non repetitive, Surge. On state, Current ,with no reverse voltage reapplied. Notes: 2, 4	I_{TSM} 0%V_{RRM}	13	kA
Maximum non repetitive, Surge, On state, Current, with maximum reverse voltage reapplied. Notes: 2, 4	I_{TSM} 100%V_{RRM}	11	kA
Critical rate of rising On-state Current, non repetitive Note: 6, 7	di/dt	400	A/μs
Holding Current Notes: 1, 5	I_H	400	mA
I_{DR} = Repetitive, Off-State, leakage Current (typical) Note: 1 I_{RR} = Repetitive, Reverse, leakage Current. (typical) Note: 1	I_{DR} & I_{RR}	2 ~ 7	mA
I_{DRM} = Maximum (threshold), Repetitive, Off-State, Current. Note: 1 I_{RRM} = Maximum (threshold), Repetitive, Reverse, Current. Note: 1	I_{DRM} & I_{RRM}	35	mA
Fuse's absolute maximum I^2t with no reverse voltage reapplied Note: 2, 4	I^2 t, 0% V_{RR}	700	kA
Fuse's absolute maximum I^2t with up to 80% of V_{RRM} reapplied Note: 2, 4	I^2 t, $\leq$ 80% V_{RRM}	404	kA
Reverse Recovery Charge (C_S = Stored Charge)	Q_{RR}	Consult factory	μC_s

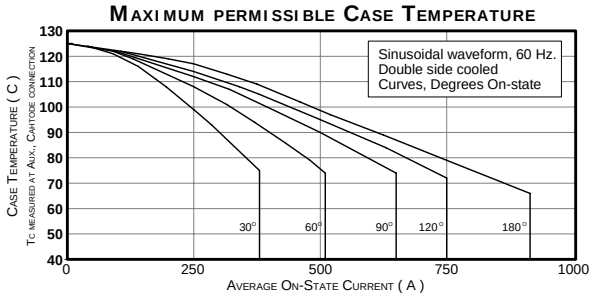
Note 1: T_J 25°C. Note 2: T_J 125°C. Note 3: T_{Case} 55°C, double side air cooled. Note 4: 180° conduction, 60Hz sine wave.
Note 5: Test conditions: I_{DC} R_L = 12Ω. Note 6: Switching from $V_{DRM} \leq$ 1000V Note 7: In addition to 0.2μF and 20Ω snubber circuit

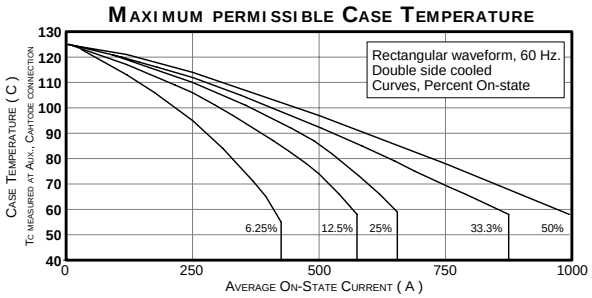
These graphs depict a typical device, each device has unique characteristics











Thermal & Mechanical

Parameter	Symbol	Rating	Units
Operating Temperature Range	T_J	-40° ~ 125°	°Celsius
Maximum Thermal resistance, Junction to Case Notes:1, 3, 5	$R_{th\text{-}J\text{-}C}$	0.04	°C/W
Maximum Thermal resistance, Case to Heat Sink Notes: 1, 2, 3, 4, 5	$R_{th\text{-}C\text{-}hs}$	0.03	°C/W
Mounting Pressure		1360 ~ 1600 3000 ~ 3500	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