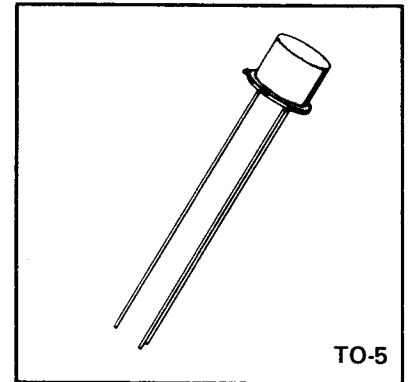


HIGH-LEVEL GATE-TURNOFF SCR

**SILICON PLANAR
 HIGH-LEVEL GATE
 TURNOFF (GTO)
 TRIODE THYRISTOR
 (GATE TURNOFF SCRs)**



DESIGN FEATURES

- Pulse turnoff to 5A
- Typical 5A turnoff gain of 10 – 15
- Blocking voltages to 400V
- Typical T_{OFF} under $5\mu s$
- Operating temperature to $+125^{\circ}C$

Transitron's RTGD02 series high-level gate turnoff (GTO) thyristors are unique in combining the high power characteristics of SCRs with the on-off switching flexibility of conventional power transistors without the need for continuous base (gate) current. Unlike conventional SCRs, the GTO is characterized in terms of being triggered off as well as on. The units offer reliable, simplified techniques for bi-stable switching including such uses, as an interface element between low level digital logic and high level DC power control. They offer many advantages in applications involving solenoid driving, high voltage and high current pulse switching, and high level logic design.

REPETITIVE PEAK OFF-STATE VOLTAGE (V_{DRM}) AND REPETITIVE PEAK REVERSE VOLTAGE (V_{RRM})

Symbol	RTGD 0206	RTDG 0210	RTDG 0220	RTDG 0230	RTDG 0240	Test Conditions
V_{DRM} – VOLTS	60	100	200	300	400	$T_C = 125^{\circ}C$ & $R_{GK} = 1.0$ kilohms
V_{RRM} – VOLTS	60	100	200	300	400	

ABSOLUTE MAXIMUM RATINGS @ $T_C = 80^{\circ}C$

Definitions	Symbol	Limits
Average On-State Current	$I_T(AV)$	1.0A
RMS On-State Current	$I_T(RMS)$	1.6A
Peak One-Cycle Surge Current (60 Hz)	I_{TSM}	10A
Peak Reverse Gate Voltage	V_{GRM}	5
Peak Gate Power	P_{GM}	500 mW
Average Gate Power	$P_{G(AV)}$	100 mW
Operating Temperature Range	T_{op}	-65 to $+125^{\circ}C$
Storage Temperature Range	T_{stg}	-65 to $+150^{\circ}C$

HIGH-LEVEL GATE-TURN-OFF SCR

ELECTRICAL CHARACTERISTICS

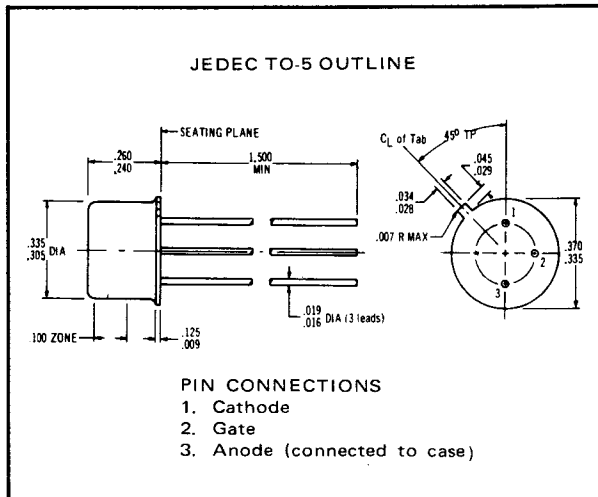
PARAMETER			LIMITS		TEST CONDITIONS			
Symbol	Units	Definitions	Min.	Max.	T °C	R _{GK} ohms	V _{AA} volts	Other Conditions
V _{TM}	Volts	Max. On-State Voltage	—	3	25	—	—	I _{TM} = 5 Amps peak
I _{DRM}	μA	Rep. Peak Off-State Current	—	10	25	1K	V _{DRM}	
			—	100	125	1K	V _{DRM}	
I _{RRM}	μA	Rep. Peak Reverse Current	—	10	25	1K	V _{RRM}	
			—	100	125	1K	V _{RRM}	
I _{GT}	mA	Gate Trigger Current	—	15	25	∞	6	
V _{GT}	Volts	Gate Trigger Voltage	—	1.5	25	∞	6	
I _{GQM}	mA	Gate Turn-off Current	—	500	25	∞	6	I _{TM} = 5A (pulse)
V _{GQM}	Volts	Gate Turn-off Voltage	—	5	25	∞	6	I _{TM} = 5A (pulse)
I _H	mA	Holding Current	—	50	25	1K	6	
I _{GR}	μA	Gate Reverse Current	—	10	25	∞	OPEN	V _{GC} = -5 Volts
dv/dt	V/μs	Rate of rise of V _{DRM}	100*	—	25	1K	V _{DRM}	

*Typical

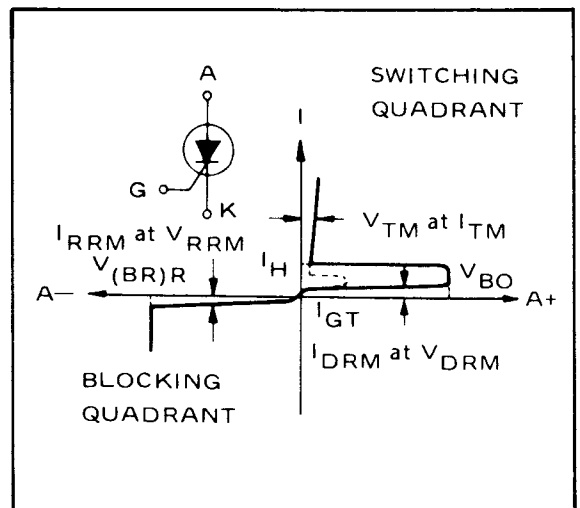
NOTE

FOR CHARACTERISTIC CURVES FOR THIS FAMILY REFER TO THE END OF THIS GROUP OF SPECIFICATIONS.

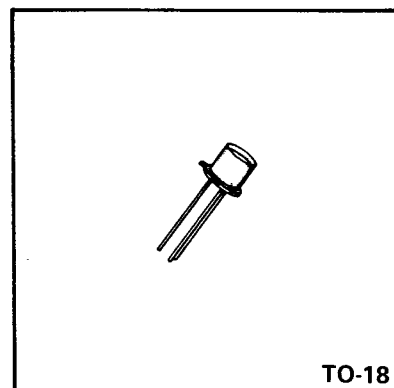
PACKAGING DATA



V-I CHARACTERISTICS



SILICON PLANAR LIGHT SENSITIVE REVERSE BLOCKING TRIODE THYRISTORS (LIGHT SENSITIVE SCR's)



DESIGN FEATURES

- Light sensitivity typically 100 foot-candles
- Blocking voltage to 200V
- Current range to 400 mA RMS
- Peak pulse current to 40 A
- Operating temperature to +125°C

Transitron's new RTPC 01 Series light activated SCR's are designed specifically for those industrial and consumer applications where excellent light sensitivity, superior electrical performance, high reliability, and low cost are companion requirements. These new photo SCR's combine both the light sensing and power amplification function on a single silicon planar chip to eliminate complicated circuitry associated with other light sensitive components. The result is a photo device which provides a whole new set of simplified solutions to those difficult opto-electronic problems. These new photo-SCR's are ideal for use in punched card and tape readers, optical tachometers and shaft encoders, flame detectors, intrusion alarms, and a variety of other light control applications.

REPETITIVE PEAK OFF-STATE VOLTAGE (V_{DRM}) AND REPETITIVE PEAK REVERSE VOLTAGE (V_{RRM})

Symbol	RTPC 0101	RTPC 0103	RTPC 0106	RTPC 0110	RTPC 0115	RTPC 0120	Test Conditions
V_{DRM} - VOLTS	15	30	60	100	150	200	$T_A = 100^\circ\text{C}$ & $R_{GK} = 27$ kilohms
V_{RRM} - VOLTS	15	30	60	100	150	200	

MAXIMUM RATINGS @ $T_A = 75^\circ\text{C}$

Definitions	Symbol	Limits
Average On-State Current	$I_T(AV)$	250mA
RMS On-State Current	$I_T(RMS)$	400mA
Peak One-Cycle Surge Current (60 Hz)	I_{TSM}	5.0A
Peak Reverse Gate Voltage	V_{GRM}	5.0V
Peak Gate Power	P_{GM}	200mW
Average Gate Power	$P_{G(AV)}$	20mW
Operating Temperature Range	T_{op}	-65 to +125°C
Storage Temperature Range	T_{stg}	-65 to +150°C

