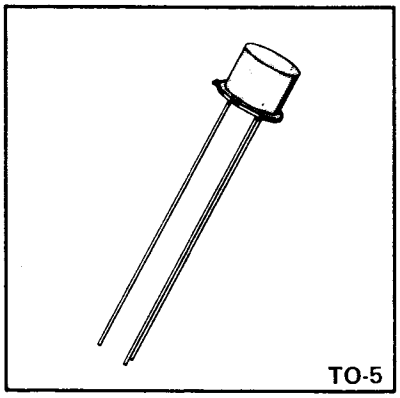
SILICON PLANAR

REVERSE BLOCKING TRIODE THYRISTORS



DESIGN FEATURES

- High dv/dt
- Blocking to 400 V
- Excellent gate sensitivity

Transitron's hermetically sealed, RTD01 SCR series is designed specifically for those industrial and consumer applications where excellent electrical performance and high reliability are companion requirements. These SCRs are exceptionally well suited to such applications as solenoid and lamp drivers, temperature controllers, voltage and current sensing, motor control, and many other current and voltage switching requirements.

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

Symbol	RTD 0101	RTD 0103	RTD 0106	RTD 0110	RTD 0115	RTD 0120	RTD 0130	RTD 0140	Test Conditions
V_{DRM} – VOLTS	15	30	60	100	150	200	300	400	T_A = 100°C & R_{GK} = 1 K
V_{RRM} – VOLTS	15	30	60	100	150	200	300	400	

ABSOLUTE MAXIMUM RATINGS @ T_C = 80°C

Definitions	Symbol	Limits
Average On-State Current	$I_{T(AV)}$	1.0 A
RMS On-State Current	$I_{T(RMS)}$	1.6 A
Peak One-Cycle Surge Current (60 Hz)	I_{TSM}	15.0 A
Peak Reverse Gate Voltage	V_{GRM}	5.0 V
Peak Gate Power	P_{GM}	500 mW
Average Gate Power	$P_{G(AV)}$	100 mW
Operating Temperature Range	T_{op}	–65 to +100°C
Storage Temperature Range	T_{stg}	–65 to +150°C

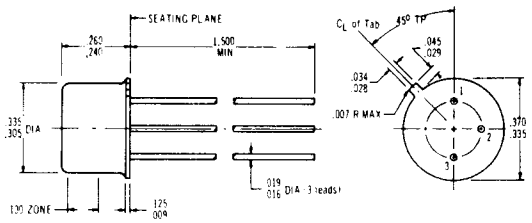
ELECTRICAL CHARACTERISTICS

PARAMETERS			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	–	2.5	25	–	–	I_{TM} = 1.0 A peak
I_{DRM}	μA	Rep. Peak Off-State Current	–	250	25	1K	V_{DRM}	
			–	1000	100	1K	V_{DRM}	
I_{RRM}	μA	Rep. Peak Reverse Current	–	250	25	1K	V_{RRM}	
			–	1000	100	1K	V_{RRM}	
I_{GT}	μA	Gate Trigger Current	–	1000	25	∞	6	
V_{GT}	Volts	Gate Trigger Voltage	–	1.0	25	∞	6	
I_H	mA	Holding Current	–	10.0	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

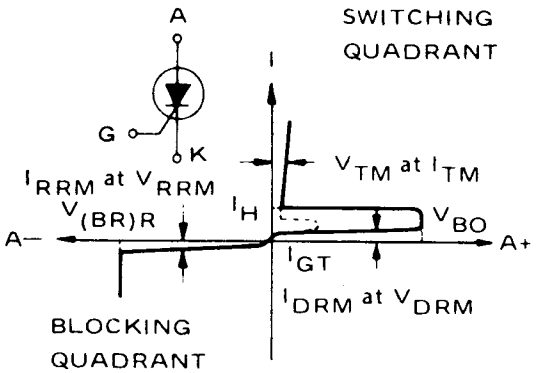
NOTE
FOR CHARACTERISTIC CURVES FOR THIS FAMILY REFER TO THE END OF THIS GROUP OF SPECIFICATIONS.

JEDEC TO-5 OUTLINE



PIN CONNECTIONS
1. Cathode
2. Gate
3. Anode (connected to case)

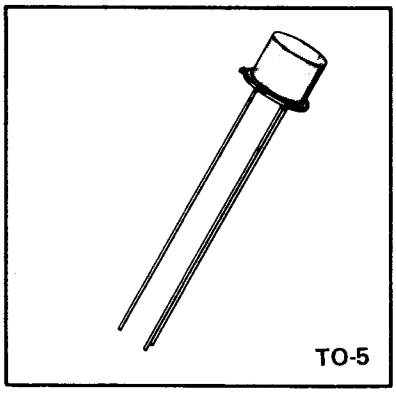
V-I CHARACTERISTICS



SILICON PLANAR

REVERSE BLOCKING TRIODE THYRISTORS

(SCRs)



DESIGN FEATURES

- Operation to 125°C
- High dv/dt
- Excellent gate sensitivity

Transitron's hermetically sealed, RTD04 SCR series is designed specifically for those industrial and consumer applications where excellent electrical performance and high reliability are companion requirements. These SCRs are exceptionally well suited to such applications as solenoid and lamp drivers, temperature controllers, voltage and current sensing, motor control, and many other current and voltage switching requirements.

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

Symbol	RTD 0401	RTD 0403	RTD 0406	RTD 0410	RTD 0415	RTD 0420	RTD 0430	RTD 0440	Test Conditions
V_{DRM} – VOLTS	15	30	60	100	150	200	300	400	T_A = 125°C & R_{GK} = 1 K
V_{RRM} – VOLTS	15	30	60	100	150	200	300	400	

ABSOLUTE MAXIMUM RATINGS @ T_C = 80°C

Definitions	Symbol	Limits
Average On-State Current	$I_{T(AV)}$	1.0 A
RMS On-State Current	$I_{T(RMS)}$	1.6 A
Peak One-Cycle Surge Current (60 Hz)	I_{TSM}	15.0 A
Peak Reverse Gate Voltage	V_{GRM}	5.0 V
Peak Gate Power	P_{GM}	500 mW
Average Gate Power	$P_{G(AV)}$	500 mW
Operating Temperature Range	T_{op}	−65 to +125°C
Storage Temperature Range	T_{stg}	−65 to +150°C

ELECTRICAL CHARACTERISTICS

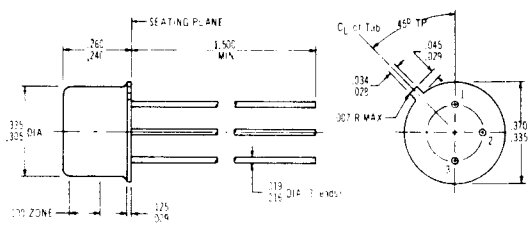
PARAMETERS			LIMITS		TEST CONDITIONS			
Symbol	Units	Definitions	Min.	Max.	T °C	R_{GK} ohms	V_{AA} volts	Other Conditions
V_{TM}	Volts	Max. On-State Voltage	–	1.4	25	–	–	I_{TM} = 1.0 A peak
I_{DRM}	μA	Rep. Peak Off-State Current	–	10	25	1K	V_{DRM}	
			–	100	125	1K	V_{DRM}	
I_{RRM}	μA	Rep. Peak Reverse Current	–	10	25	1K	V_{RRM}	
			–	100	125	1K	V_{RRM}	
I_{GT}	μA	Gate Trigger Current	–	100	25	∞	6	
V_{GT}	Volts	Gate Trigger Current	–	0.8	25	∞	6	
I_H	mA	Holding Current	–	5.0	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.

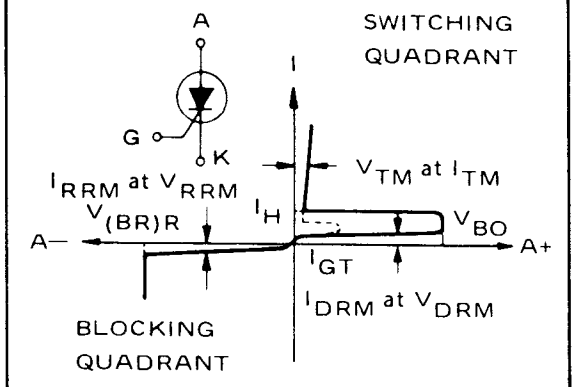
PACKAGING DATA

JEDEC TO-5 OUTLINE



PIN CONNECTIONS
1. Cathode
2. Gate
3. Anode (connected to case)

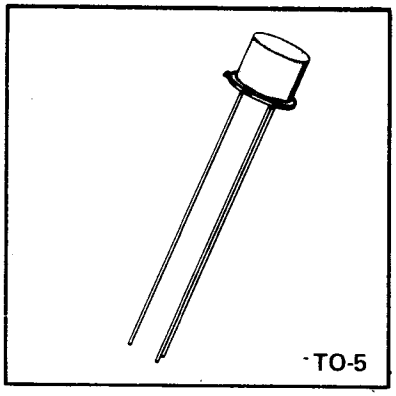
V-I CHARACTERISTICS



SILICON PLANAR

REVERSE BLOCKING TRIODE THYRISTORS

(INSENSITIVE GATE PLANAR SCRs)



DESIGN FEATURES

- Peak current to 100 A (20 μsec)
- Shorted-emitter construction
- Operation to 125°C
- Eutectic bonding for fatigue-free operation in C-D ignitions, etc.

Transitron's hermetically sealed, RTD21 SCR series is designed specifically for those industrial and consumer applications where excellent electrical performance and high reliability are companion requirements. These SCRs are exceptionally well suited to such applications as solenoid and lamp drivers, temperature controllers, voltage and current sensing, motor control, and many other current and voltage switching requirements.

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

Symbol	RTD 2101	RTD 2103	RTD 2106	RTD 2110	RTD 2115	RTD 2120	RTD 2130	RTD 2140	Test Conditions
V_{DRM} – VOLTS	15	30	60	100	150	200	300	400	T_A = 125°C
V_{RRM} – VOLTS	15	30	60	100	150	200	300	400	

ABSOLUTE MAXIMUM RATINGS @ T_C = 80°C

Definitions	Symbol	Limits
Average On-State Current	$I_{T(AV)}$	1.0 A
RMS On-State Current	$I_{T(RMS)}$	1.6 A
Peak One-Cycle Surge Current (60 Hz)	I_{TSM}	15 A
Peak Reverse Gate Voltage	V_{GRM}	5 V
Peak Gate Power	P_{GM}	500 mW
Average Gate Power	$P_{G(AV)}$	100 mW
Operating Temperature Range	T_{op}	−65 to +125°C
Storage Temperature Range	T_{stg}	−65 to +150°C

RTD2101 RTD2110 RTD2120
RTD2103 RTD2115 RTD2130
RTD2106 RTD2140

SHORTED-EMITTER 1.6A SCR

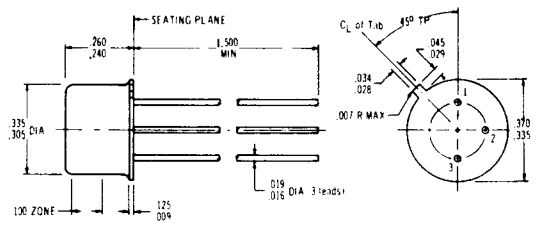
ELECTRICAL CHARACTERISTICS

PARAMETERS			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	–	1.5	25	–	–	I_{TM} = 1A
			–	5.0	25	–	–	I_{TM} = 60A (pulse)
I_{DRM}	μA	Rep. Peak Off-State Current	–	10	25	∞	V_{DRM}	
			–	100	125	∞	V_{RRM}	
I_{RRM}	μA	Rep. Peak Reverse Current	–	10	125	∞	V_{RRM}	
			–	100	125	∞	V_{RRM}	
I_{GT}	mA	Gate Trigger Current	0.1	10	25	∞	6	
V_{GT}	Volts	Gate Trigger Voltage	–	3	25	∞	6	
I_H	mA	Holding Current	–	20	25	∞	6	
T_Q	μS	Turn-off Time	–	10	25	∞	–	I_{TM} = I_R = 1A
dv/dt	V/μs	Rate of rise of V_{DRM}	100	–	25	∞	V_{DRM}	

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

PACKAGING DATA

JEDEC TO-5 OUTLINE



PIN CONNECTIONS
1. Cathode
2. Gate
3. Anode (connected to case)

V-I CHARACTERISTICS