

MCR649AP1-10
 (See 2N2574)

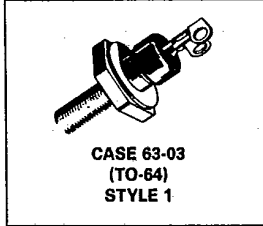
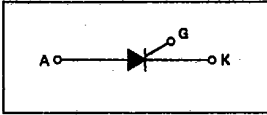
Silicon Controlled Rectifiers Reverse Blocking Triode Thyristors

... fast switching, high-voltage Silicon Controlled Rectifiers especially designed for pulse modulator applications in radar and other similar equipment.

- High-Voltage: $V_{DRM} = 300$ to 800 Volts
- Turn-On Times: in Nanosecond Range
- Repetitive Pulse Current to 100 Amps
- Stable Switching Characteristics Over an Operating Temperature Range From -65 to $+105^{\circ}\text{C}$
- Pulse Repetition Rates as High as 10,000 pps

MCR729-5
 thru
MCR729-10

SCRs
 5 AMPERES RMS
 300 thru 800 VOLTS



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MAXIMUM RATINGS ($T_J = 105^{\circ}\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Forward Blocking Voltage, Note 1	V_{DRM}	300	Volts
MCR729-5		400	
-6		500	
-7		600	
-8		700	
-9		800	
-10			
Peak Repetitive Reverse Blocking Voltage, Note 1	V_{RRM}	50	Volts
Forward Current RMS	$I_T(\text{RMS})$	5	Amps
Average Forward Power	$P_F(\text{AV})$	5	Watts
Peak Repetitive On-State Control ($PW = 10 \mu\text{s}$)	I_{TRM}	100	Amps
Peak Forward Gate Power	P_{GFM}	20	Watts
Average Forward Gate Power	$P_{GF(\text{AV})}$	1	Watt
Peak Forward Gate Current	I_{GFM}	5	Amps
Peak Forward Gate Voltage	V_{GFM}	10	Volts
Peak Reverse Gate Voltage	V_{GRM}	10	Volts
Operating Junction Temperature Range	T_J	-65 to $+105$	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-65 to $+150$	$^{\circ}\text{C}$
Stud Torque		15	in. lb.

Note 1. Ratings apply for zero or negative gate voltages. Devices shall not have a positive bias to the gate concurrently with a negative potential on the anode. Devices should not be tested with a constant current source for forward and reverse blocking voltages such that the applied voltage exceeds the ratings.

T. 25-15

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current (Rated V_{DRM} or V_{RRM} , gate open) $T_C = 105^\circ\text{C}$	I_{DRM}, I_{RRM}	—	0.2	2	mA
Gate Trigger Current (Continuous dc) ($V_D = 7 \text{ Vdc}$, $R_L = 100 \text{ ohms}$)	I_{GT}	—	10	50	mA _{dc}
Gate Trigger Voltage (Continuous dc) ($V_D = 7 \text{ Vdc}$, $R_L = 100 \text{ ohms}$)	V_{GT}	—	0.8	1.5	Volts
Holding Current ($V_D = 7 \text{ Vdc}$, gate open)	I_H	3	15	—	mA
Forward On Voltage ($I_{TM} = 5 \text{ A}$, $PW \leq 1 \text{ ms}$, Duty Cycle $\leq 1\%$)	V_{TM}	—	—	2.6	Volts
Dynamic Forward On Voltage (0.5 μs after 50% pt, $I_G = 200 \text{ mA}$, $V_D = \text{Rated}$ V_{DRM} , $I_F(\text{pulse}) = 30 \text{ Amps}$)	V_{TM}	—	15	25	Volts
Turn-On Time ($t_d + t_r$) ($I_G = 200 \text{ mA}$, $V_D = \text{Rated } V_{DRM}$) ($I_{TM} = 30 \text{ Amps peak}$) ($I_{TM} = 100 \text{ Amps peak}$)	t_{on}	—	200 400	—	ns
Turn-On Time Variation ($T_C = +25^\circ\text{C}$ to $+105^\circ\text{C}$ and -65°C to $+25^\circ\text{C}$, $I_{TM} = 30 \text{ A}$)	t_{on}	—	± 500	—	ns
Pulse Turn-Off Time ($I_F(\text{pulse}) = 30 \text{ Amps}$, $I_{\text{reverse}} = 0$) (Inductive charging circuit)	t_{rec}	—	15	—	μs
Forward Voltage Application Rate (Linear Rate of Rise) ($V_D = \text{Rated } V_{DRM}$, gate open, $T_C = 105^\circ\text{C}$)	dv/dt	50	—	—	$\text{V}/\mu\text{s}$
Thermal Resistance (Junction to Case)	θ_{JC}	—	—	4	$^\circ\text{C}/\text{W}$

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