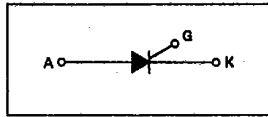


Silicon Controlled Rectifiers Reverse Blocking Triode Thyristors

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

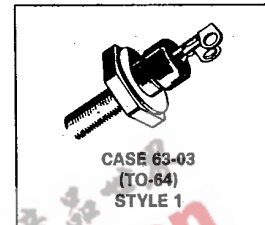
- High-Voltage: $V_{DRM} = 300$ to 800 Volts
- Turn-On Times: in Nanosecond Range
- Repetitive Pulse Current to 100 Amps
- Stable Switching Characteristics Over an Operating Temperature Range From -65 to $+105^{\circ}\text{C}$
- Pulse Repetition Rates as High as 10,000 pps



MCR649AP1-10
(See 2N2574)

MCR729-5
thru
MCR729-10

SCRs
5 AMPERES RMS
300 thru 800 VOLTS



3

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Forward Blocking Voltage, Note 1 MCR729-5	V_{DRM}	300	Volts
-6		400	
-7		500	
-8		600	
-9		700	
-10		800	
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°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°C	I _{DRM} , I _{RRM}	—	0.2	2	mA
Gate Trigger Current (Continuous dc) (V _D = 7 Vdc, R _L = 100 ohms)	I _{GT}	—	10	50	mA _{dc}
Gate Trigger Voltage (Continuous dc) (V _D = 7 Vdc, R _L = 100 ohms)	V _{GT}	—	0.8	1.5	Volts
Holding Current (V _D = 7 Vdc, gate open)	I _H	3	15	—	mA
Forward On Voltage (I _{TM} = 5 A, PW ≤ 1 ms, Duty Cycle ≤ 1%)	V _{TM}	—	—	2.6	Volts
Dynamic Forward On Voltage (0.5 μs after 50% pt, I _G = 200 mA, V _D = Rated V _{DRM} , I _F (pulse) = 30 Amps)	V _{TM}	—	15	25	Volts
Turn-On Time (t _d + t _r) (I _G = 200 mA, V _D = Rated V _{DRM}) (I _{TM} = 30 Amps peak) (I _{TM} = 100 Amps peak)	t _{on}	—	200 400	—	ns
Turn-On Time Variation (T _C = +25°C to +105°C and -65°C to +25°C, I _{TM} = 30 A)	t _{on}	—	±500	—	ns
Pulse Turn-Off Time (I _F (pulse) = 30 Amps, I _{reverse} = 0) (Inductive charging circuit)	t _{rec}	—	15	—	μs
Forward Voltage Application Rate (Linear Rate of Rise) (V _D = Rated V _{DRM} , gate open, T _C = 105°C)	dv/dt	50	—	—	V/μs
Thermal Resistance (Junction to Case)	θ _{JC}	—	—	4	°C/W