

Thyristors

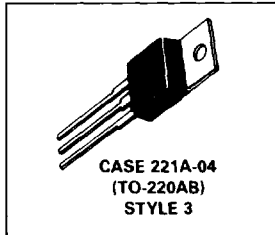
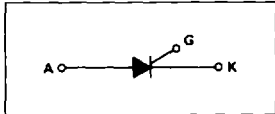
Silicon Controlled Rectifiers

... designed for back-to-back SCR output devices for solid state relays or applications requiring high surge operation.

- Photo Glass Passivated Blocking Junctions for High Temperature Stability, Center Gate for Uniform Parameters
- 400 Amperes Surge Capability
- Blocking Voltage to 800 Volts

**MCR264-2
thru
MCR264-10**

**SCRs
40 AMPERES RMS
50 thru 800 VOLTS**



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Reverse Blocking Voltage, Note 1 MCR264-2 MCR264-3 MCR264-4 MCR264-6 MCR264-8 MCR264-10	V_{RRM}	50 100 200 400 600 800	Volts
Forward Current ($T_C = 80^\circ C$) (All Conduction Angles)	$I_{T(RMS)}$ $I_{T(AV)}$	40* 25*	Amps
Peak Nonrepetitive Surge Current — 8.3 ms (1/2 Cycle, Sine Wave) 1.5 ms	I_{TSM}	400 450	Amps
Forward Peak Gate Power	PGM	20	Watts
Forward Average Gate Power	$P_{G(AV)}$	0.5	Watt
Forward Peak Gate Current (300 μs , 120 PPS)	I_{GM}	2	Amps
Operating Junction Temperature Range	T_J	-40 to +125	$^\circ C$
Storage Temperature Range	T_{stg}	40 to +150	$^\circ C$

Note 1. V_{RRM} for all types can be applied on a continuous dc basis without incurring damage. Ratings apply for zero or negative voltage. Devices should not be tested for blocking capability in a manner such that the voltage supplied exceeds the rated blocking voltage.

MCR264-2 thru MCR264-10

Thermal Characteristics

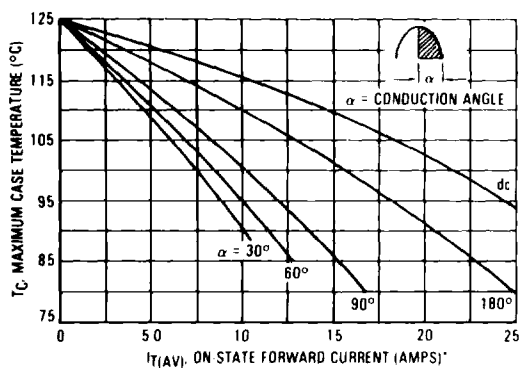
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1	$^{\circ}\text{C/W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	60	$^{\circ}\text{C/W}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward Blocking Voltage ($T_J = 125^{\circ}\text{C}$)	V_{DRM}				Volts
MCR264-2		50	—	—	
MCR264-3		100	—	—	
MCR264-4		200	—	—	
MCR264-6		400	—	—	
MCR264-8		600	—	—	
MCR264-10		800	—	—	
Peak Forward or Reverse Blocking Current (Rated V_{DRM} or V_{RRM}) $T_J = 25^{\circ}\text{C}$ $T_J = 125^{\circ}\text{C}$	I_{DRM}, I_{RRM}	—	—	10	μA
		—	—	2	mA
Forward "On" Voltage, Note 1 ($I_{TM} = 80\text{ A}$)	V_{TM}	—	1.6	2	Volts
Gate Trigger Current (Continuous dc) (Anode Voltage = 12 Vdc, $R_L = 100\text{ Ohms}$, $T_C = 40^{\circ}\text{C}$)	I_{GT}	—	15	50	mA
		—	30	90	
Gate Trigger Voltage (Continuous dc) (Anode Voltage = 12 Vdc, $R_L = 100\text{ Ohms}$)	V_{GT}	—	1	1.5	Volts
Gate Non-Trigger Voltage (Anode Voltage = Rated V_{DRM} , $R_L = 100\text{ Ohms}$, $T_J = 125^{\circ}\text{C}$)	V_{GD}	0.2	—	—	Volts
Holding Current (Anode Voltage = 12 Vdc)	I_H	—	30	60	mA
Turn-On Time ($I_{TM} = 40\text{ A}$, $I_{GT} = 60\text{ mAdc}$)	t_{gt}	—	1.5	—	μs
Critical Rate of Rise of Off-State Voltage (Gate Open, Rated V_{DRM} , Exponential Waveform)	dv/dt	—	50	—	$\text{V}/\mu\text{s}$

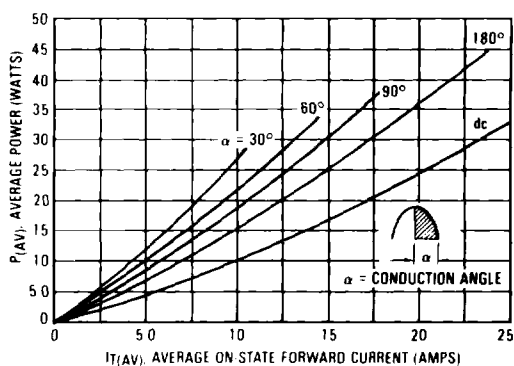
Note 1. Pulse Test: Pulse Width = 300 μs , Duty Cycle = 2%.

FIGURE 1 — AVERAGE CURRENT DERATING



*This device is rated for use in applications subject to high surge conditions. Care must be taken to insure proper heat sinking when the device is to be used at high sustained currents.

FIGURE 2 — MAXIMUM ON-STATE POWER DISSIPATION



MCR264-2 thru MCR264-10

FIGURE 3 — GATE TRIGGER CURRENT

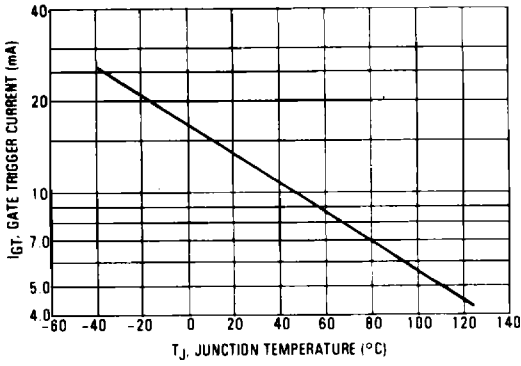


FIGURE 4 — NEW GATE TRIGGER VOLTAGE

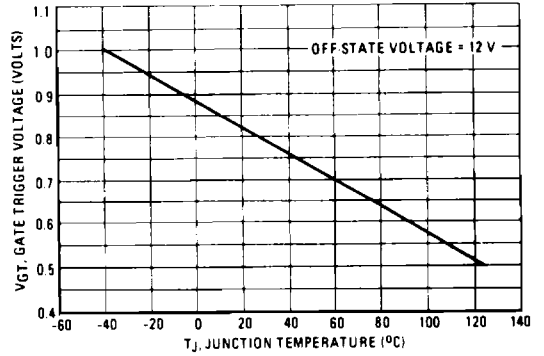


FIGURE 5 — HOLDING CURRENT

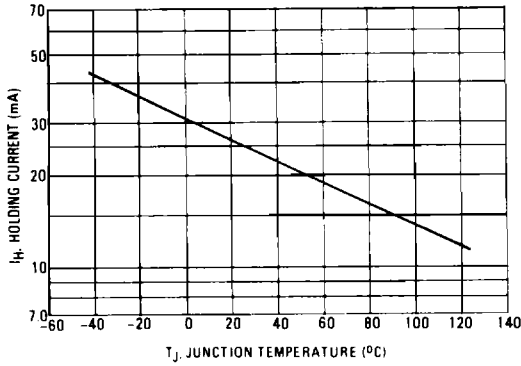


FIGURE 6 — TYPICAL FORWARD VOLTAGE

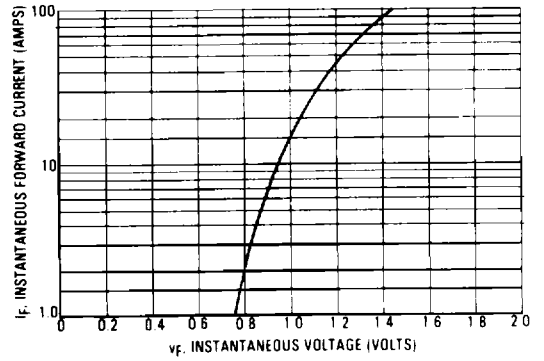
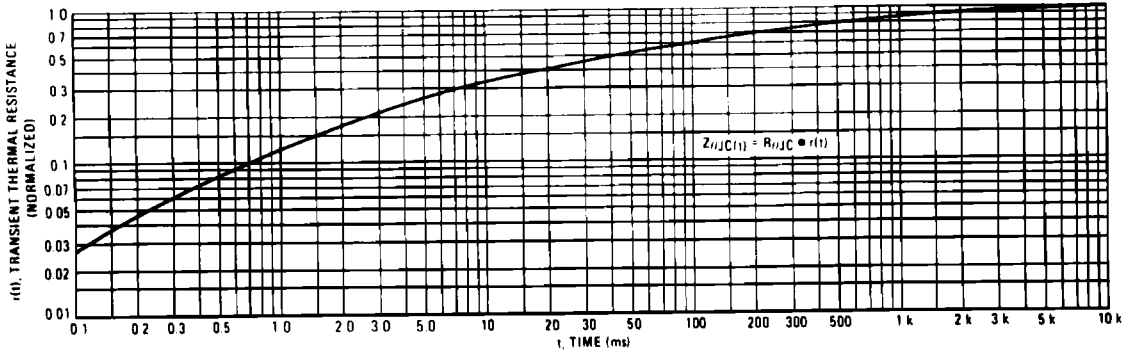


FIGURE 7 — THERMAL RESPONSE



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