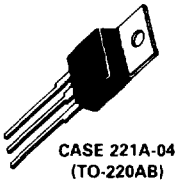
Thyristors
Silicon Controlled Rectifiers

MCR265-2 thru MCR265-10

SCRs
55 AMPERES RMS
50 thru 800 VOLTS

. . . designed for inverse parallel SCR output devices for solid state relays, welders, battery chargers, motor controls or applications requiring high surge operation.

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



CASE 221A-04
(TO-220AB)
STYLE 3

3

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Reverse Blocking Voltage, Note 1 MCR265-2 MCR265-3 MCR265-4 MCR265-6 MCR265-8 MCR265-10	V_{RRM}	 50 100 200 400 600 800	Volts
Forward Current (T_C = 70°C) (All Conduction Angles)	$I_{T(RMS)}$ $I_{T(AV)}$	55 35	Amps
Peak Nonrepetitive Surge Current — 8.3 ms (1/2 Cycle, Sine Wave)	I_{TSM}	550	Amps
Forward Peak Gate Power	P_{GM}	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	°C
Storage Temperature Range	T_{stg}	−40 to +150	°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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.9	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	60	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

Characteristic		Symbol	Min	Typ	Max	Unit
Peak Forward Blocking Voltage (T_J = 125°C)	MCR265-2	V_{DRM}	50	—	—	Volts
	MCR265-3		100	—	—	
	MCR265-4		200	—	—	
	MCR265-6		400	—	—	
	MCR265-8		600	—	—	
	MCR265-10		800	—	—	
Peak Forward or Reverse Blocking Current (Rated V_{DRM} or V_{RRM}) T_J = 25°C		I_{DRM}, I_{RRM}	—	—	10	μA
T_J = 125°C			—	—	2	mA
Forward "On" Voltage, Note 1 (I_{TM} = 110 A)		V_{TM}	—	1.5	1.9	Volts
Gate Trigger Current (Continuous dc)		I_{GT}				mA
(Anode Voltage = 12 Vdc, R_L = 100 Ohms)			—	20	50	
(T_C = −40°C)			—	40	90	
Gate Trigger Voltage (Continuous dc) (Anode Voltage = 12 Vdc, R_L = 100 Ohms)		V_{GT}	—	1	1.5	Volts
Gate Non-Trigger Voltage (Anode Voltage = Rated V_{DRM}, R_L = 100 Ohms, T_J = 125°C)		V_{GD}	0.2	—	—	Volts
Holding Current (Anode Voltage = 12 Vdc)		I_H	—	30	75	mA
Turn-On Time (I_{TM} = 55 A, I_{GT} = 200 mAdc)		t_{gt}	—	1.5	—	μs
Critical Rate of Rise of Off-State Voltage (Gate Open, Rated V_{DRM}, Exponential Waveform)		dv/dt	—	50	—	V/μs

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

3

FIGURE 1 — AVERAGE CURRENT DERATING

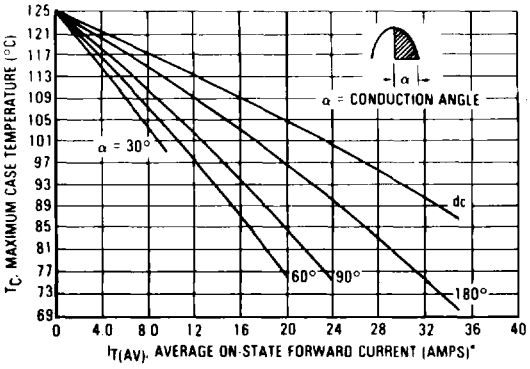
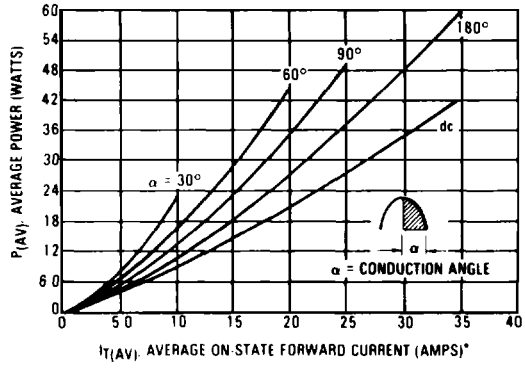


FIGURE 2 — MAXIMUM ON-STATE POWER DISSIPATION



* 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 3 GATE TRIGGER CURRENT

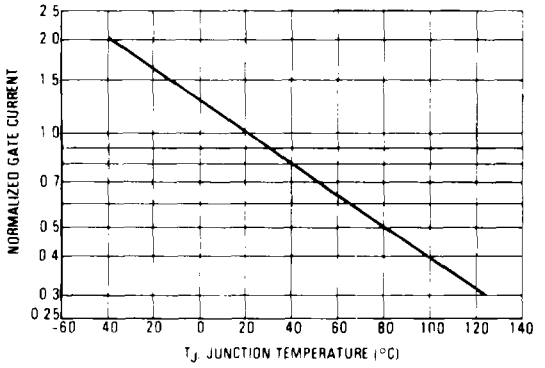


FIGURE 4 GATE TRIGGER VOLTAGE

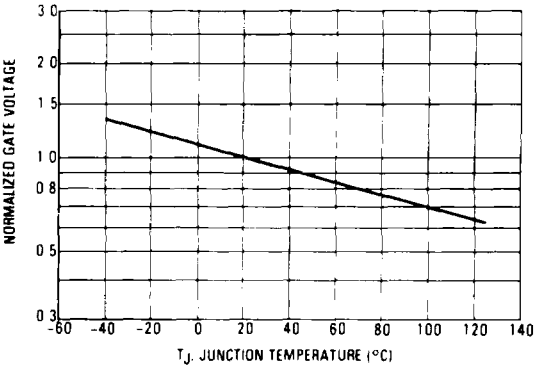


FIGURE 5 HOLDING CURRENT

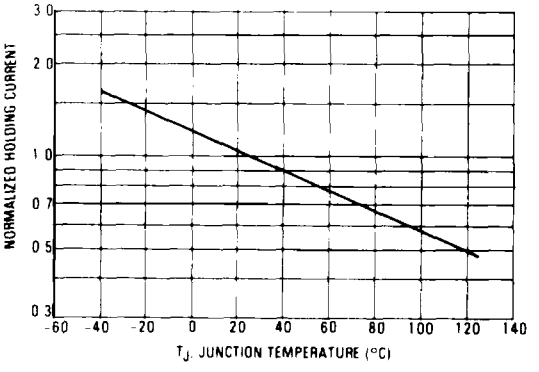


FIGURE 6 ON-STATE CHARACTERISTICS

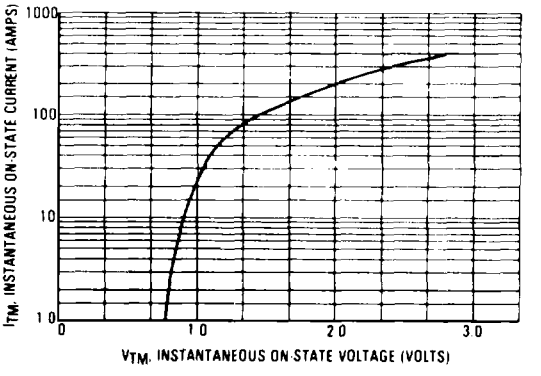


FIGURE 7 THERMAL RESPONSE