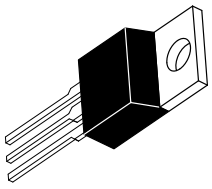
Thyristors
Silicon Controlled Rectifiers

MCR265-2 thru MCR265-10

. . . 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

SCRs
55 AMPERES RMS
50 thru 800 VOLTS



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

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted.)

Rating	Symbol	Value	Unit
Peak Repetitive Forward and Reverse Blocking Voltage(1) (T_J = 25 to 125°C, Gate Open) MCR265-2 MCR265-4 MCR265-6 MCR265-8 MCR265-10	V_{DRM} V_{RRM}	 50 200 400 600 800	Volts
Forward Current (T_C = 70°C) (All Conduction Angles)	$I_{T(RMS)}$ $I_{T(AV)}$	55 35	Amps
Peak Non-repetitive 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

1. V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.
These devices are 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.

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 or Reverse Blocking Current (V_{AK} = Rated V_{DRM} or V_{RRM}, Gate Open) T_J = 25°C T_J = 125°C	I_{DRM}, I_{RRM}	 —	 —	10 2	μA mA
Forward "On" Voltage(1) (I_{TM} = 110 A)	V_{TM}	—	1.5	1.9	Volts
Gate Trigger Current (Continuous dc) (Anode Voltage = 12 Vdc, R_L = 100 Ohms) (T_C = –40°C)	I_{GT}	 —	 20	 50	mA
		—	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, Gate Open)	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, V_D = Rated V_{DRM}, Exponential Waveform)	dv/dt	—	50	—	V/μs

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

FIGURE 1 — AVERAGE CURRENT DERATING

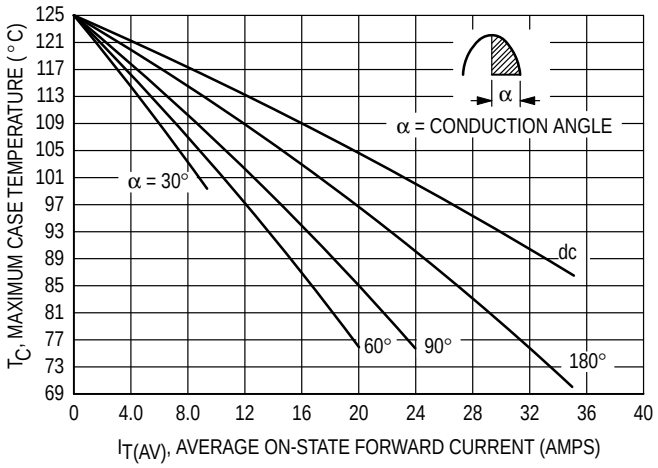


FIGURE 2 — MAXIMUM ON-STATE POWER DISSIPATION

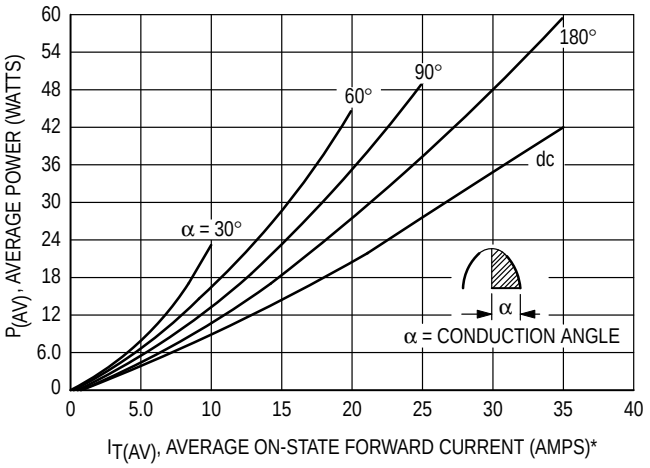


FIGURE 3 — GATE TRIGGER CURRENT

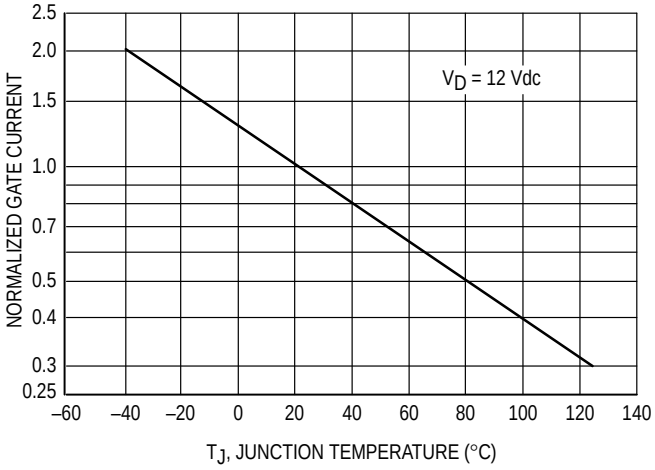


FIGURE 4 — GATE TRIGGER VOLTAGE

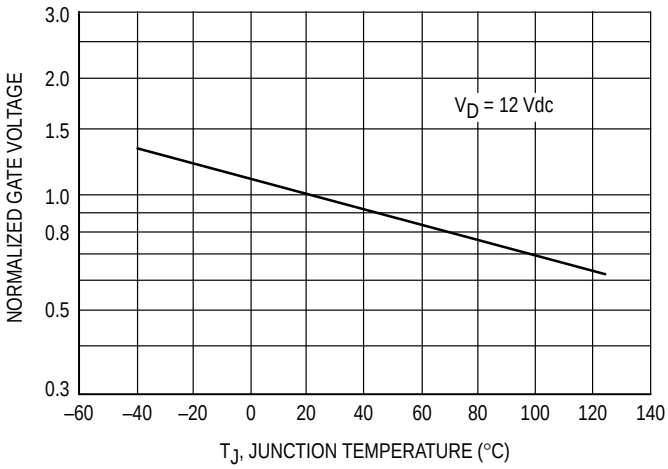


FIGURE 5 — HOLDING CURRENT

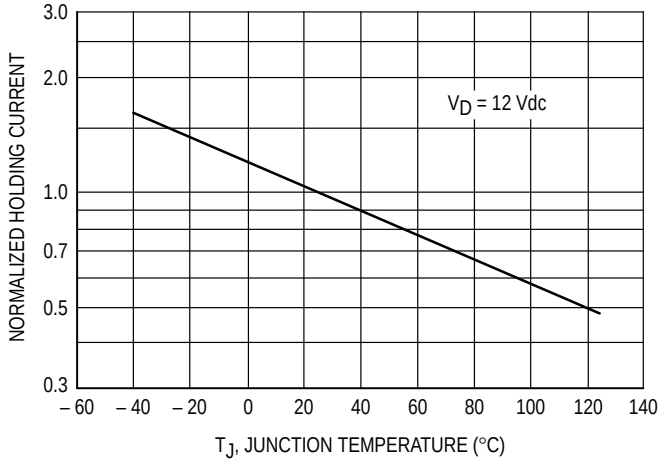


FIGURE 6 — TYPICAL ON-STATE CHARACTERISTICS

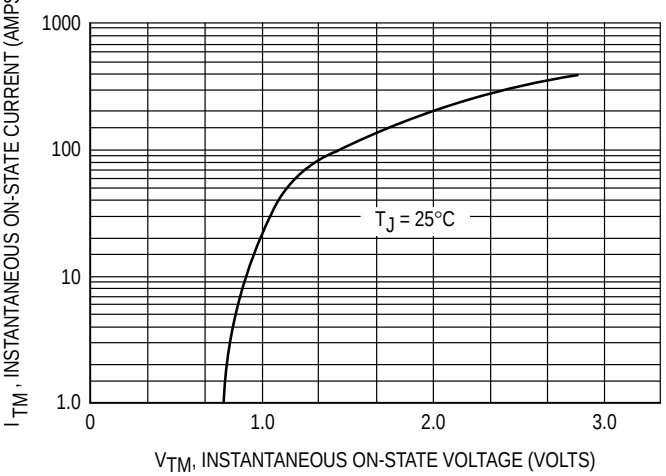
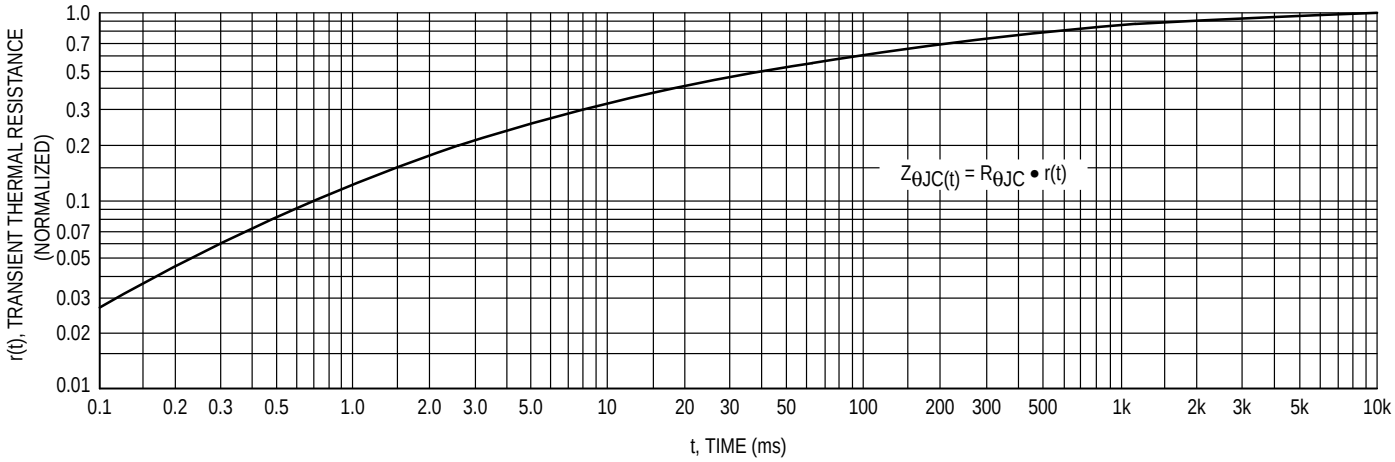
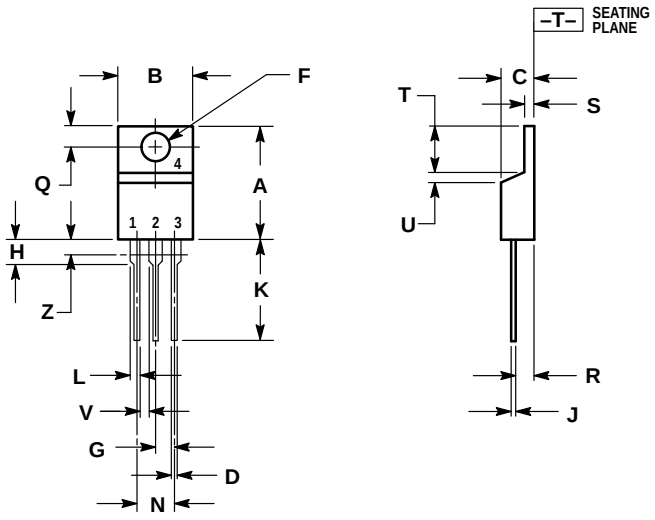


FIGURE 7 — THERMAL RESPONSE



PACKAGE DIMENSIONS



STYLE 3:
PIN 1. CATHODE
2. ANODE
3. GATE
4. ANODE

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.022	0.36	0.55
K	0.500	0.562	12.70	14.27
L	0.045	0.055	1.15	1.39
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	—	1.15	—
Z	—	0.080	—	2.04

CASE 221A-04
(TO–220AB)

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