

MCR69–2, MCR69–3

THEMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.5	$^{\circ}C/W$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	60	$^{\circ}C/W$
Maximum Lead Temperature for Soldering Purposes 1/8 in from Case for 10 Seconds	T_L	260	$^{\circ}C$

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

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Peak Repetitive Forward or Reverse Blocking Current ($V_{AK} = \text{Rated } V_{DRM} \text{ or } V_{RRM}, \text{ Gate Open}$)	I_{DRM}, I_{RRM}	–	–	10	μA
$T_J = 25^{\circ}C$ $T_J = 125^{\circ}C$		–	–	2.0	mA

ON CHARACTERISTICS

Peak Forward On-State Voltage ($I_{TM} = 50 \text{ A}$) (Note 4) ($I_{TM} = 750 \text{ A}, t_w = 1 \text{ ms}$) (Note 5)	V_{TM}	–	–	1.8	V
		–	6.0	–	
Gate Trigger Current (Continuous dc) ($V_D = 12 \text{ V}, R_L = 100 \Omega$)	I_{GT}	2.0	7.0	30	mA
Gate Trigger Voltage (Continuous dc) ($V_D = 12 \text{ V}, R_L = 100 \Omega$)	V_{GT}	–	0.65	1.5	V
Gate Non-Trigger Voltage ($V_D = 12 \text{ Vdc}, R_L = 100 \Omega, T_J = 125^{\circ}C$)	V_{GD}	0.2	0.40	–	V
Holding Current ($V_D = 12 \text{ V}, \text{ Initiating Current} = 200 \text{ mA}, \text{ Gate Open}$)	I_H	3.0	15	50	mA
Latching Current ($V_D = 12 \text{ Vdc}, I_G = 150 \text{ mA}$)	I_L	–	–	60	mA
Gate Controlled Turn-On Time (Note 6) ($V_D = \text{Rated } V_{DRM}, I_G = 150 \text{ mA}$) ($I_{TM} = 50 \text{ A Peak}$)	t_{gt}	–	1.0	–	μs

DYNAMIC CHARACTERISTICS

Critical Rate-of-Rise of Off-State Voltage ($V_D = \text{Rated } V_{DRM}, \text{ Gate Open}, \text{ Exponential Waveform}, T_J = 125^{\circ}C$)	dv/dt	10	–	–	$V/\mu s$
Critical Rate-of-Rise of On-State Current $I_G = 150 \text{ mA}$	di/dt	–	–	100	$A/\mu s$
					$T_J = 125^{\circ}C$

4. Pulse duration $\leq 300 \mu s$, duty cycle $\leq 2\%$.
5. Ratings apply for $t_w = 1 \text{ ms}$. See Figure 1 for I_{TM} capability for various durations of an exponentially decaying current waveform. t_w is defined as 5 time constants of an exponentially decaying current pulse.
6. The gate controlled turn-on time in a crowbar circuit will be influenced by the circuit inductance.

Voltage Current Characteristic of SCR

Symbol	Parameter
V_{DRM}	Peak Repetitive Off State Forward Voltage
I_{DRM}	Peak Forward Blocking Current
V_{RRM}	Peak Repetitive Off State Reverse Voltage
I_{RRM}	Peak Reverse Blocking Current
V_{TM}	Peak On State Voltage
I_H	Holding Current

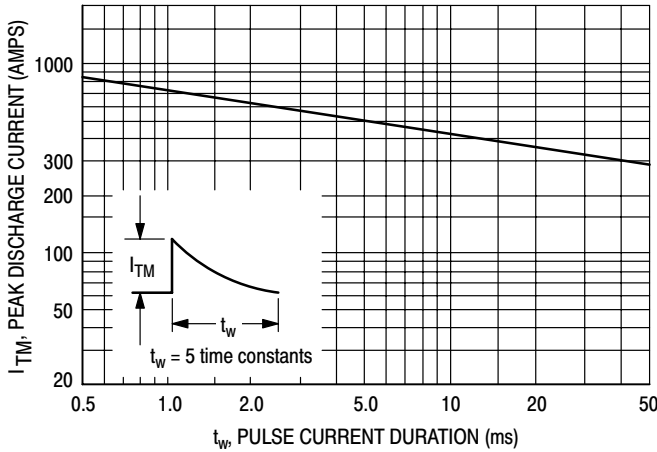
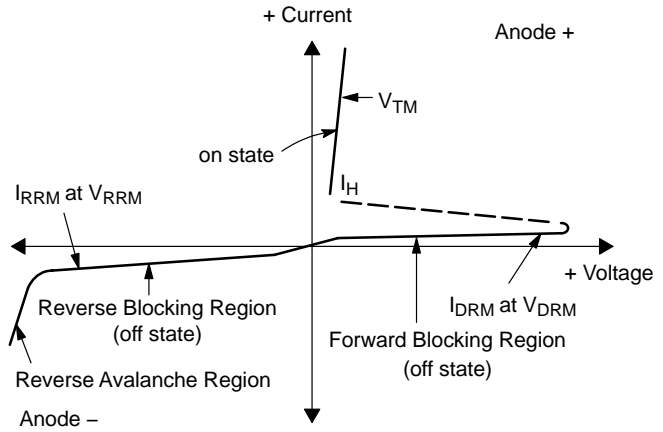


Figure 1. Peak Capacitor Discharge Current

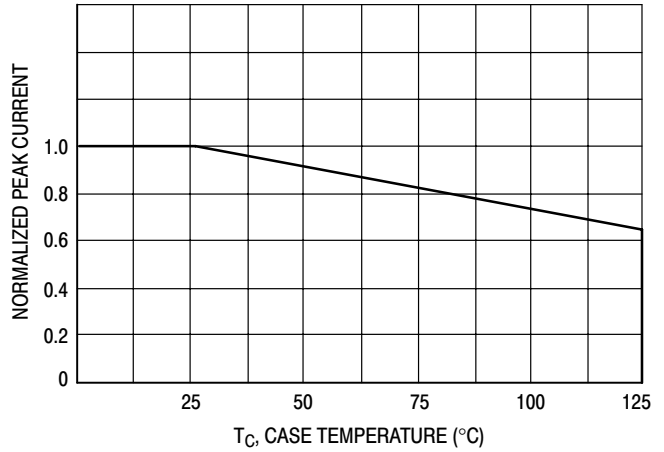


Figure 2. Peak Capacitor Discharge Current Derating

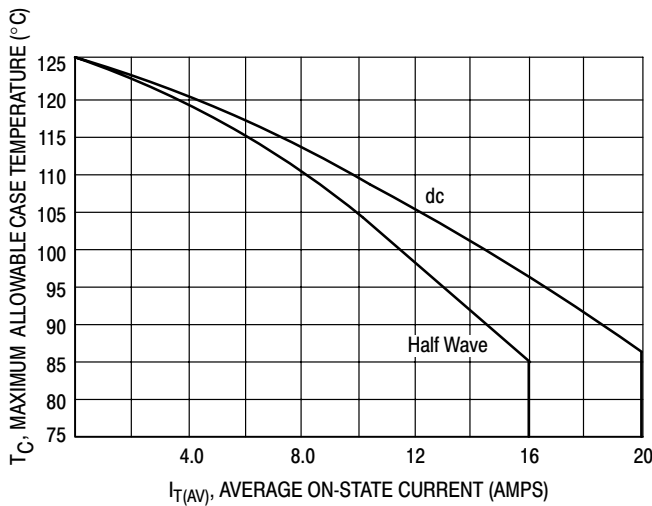


Figure 3. Current Derating

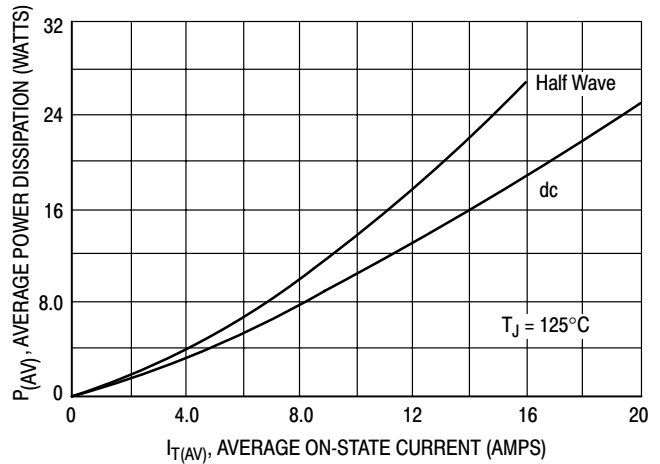


Figure 4. Maximum Power Dissipation

MCR69-2, MCR69-3

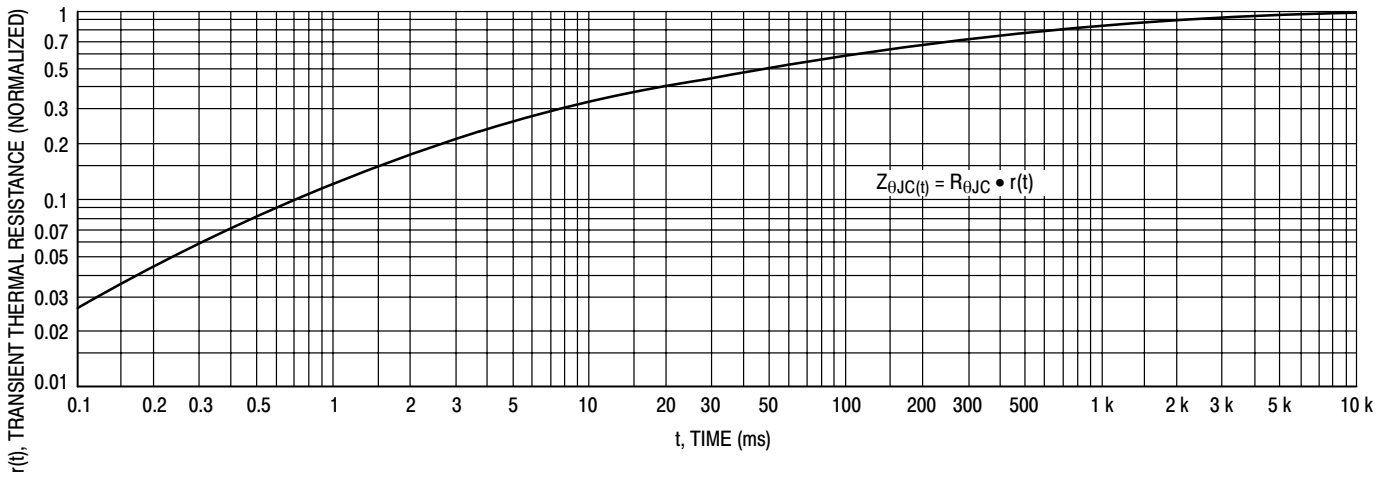


Figure 5. Thermal Response

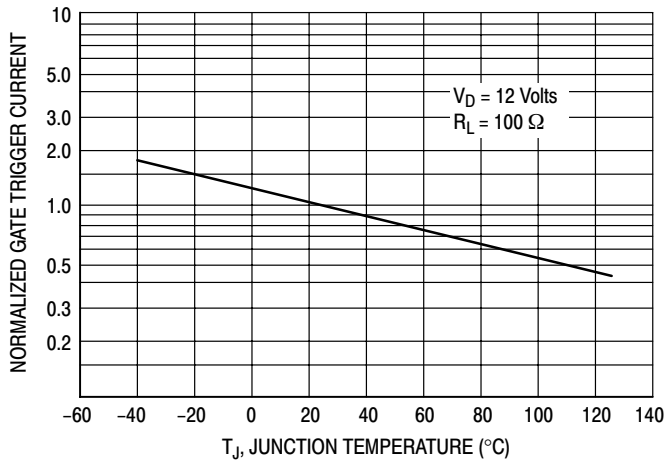


Figure 6. Gate Trigger Current

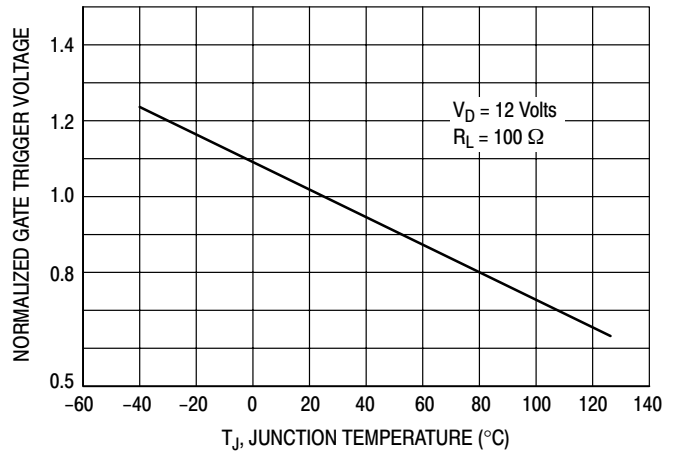


Figure 7. Gate Trigger Voltage

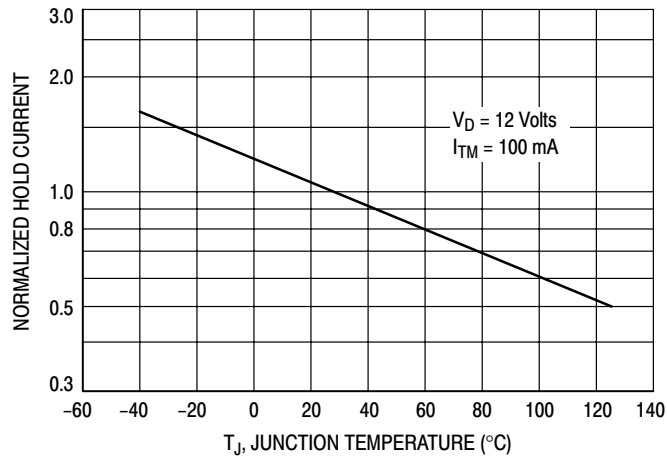
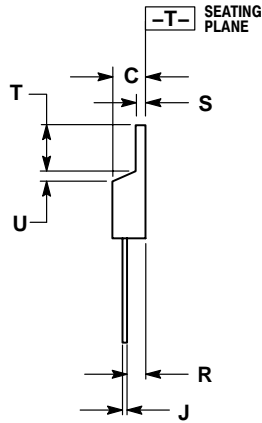
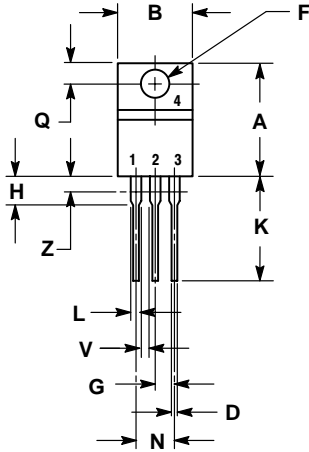


Figure 8. Holding Current

MCR69-2, MCR69-3

PACKAGE DIMENSIONS

TO-220AB
CASE 221A-07
ISSUE AA




- 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.

DIM	INCHES		MILLIMETERS	
	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	0.060	1.15	1.52
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

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

MCR69-2, MCR69-3

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