Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

ON Semiconductor
MCR106-6G

For any questions, you can email us directly:
sales@integrated-circuit.com

MCR106-6, MCR106-8

Preferred Device

Sensitive Gate Silicon Controlled Rectifiers

Reverse Blocking Thyristors

PNPN devices designed for high volume consumer applications such as temperature, light and speed control; process and remote control, and warning systems where reliability of operation is important.

Features

- Glass-Passivated Surface for Reliability and Uniformity
- Power Rated at Economical Prices
- Practical Level Triggering and Holding Characteristics
- Flat, Rugged, Thermopad Construction for Low Thermal Resistance, High Heat Dissipation and Durability
- Pb−Free Packages are Available*

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

Rating	Symbol	Value	Unit
Peak Repetitive Off−State Voltage (Note 1) (T_J = −40 to 110°C, Sine Wave 50 to 60 Hz, R_{GK} = 1 kΩ) MCR106−6 MCR106−8	V_{DRM}, V_{RRM}	400 600	V
On-State RMS Current, (T_C = 93°C) (180° Conduction Angles)	$I_{T(RMS)}$	4.0	A
Average On−State Current, (180° Conduction Angles; T_C = 93°C)	$I_{T(AV)}$	2.55	A
Peak Non-repetitive Surge Current (1/2 Cycle, Sine Wave 60 Hz, T_J = 110°C)	I_{TSM}	25	A
Circuit Fusing Considerations, (t = 8.3 ms)	I^2t	2.6	A^2s
Forward Peak Gate Power, (T_C = 93°C, Pulse Width ≤ 1.0 μs)	P_{GM}	0.5	W
Forward Average Gate Power, (T_C = 93°C, t = 8.3 ms)	$P_{G(AV)}$	0.1	W
Forward Peak Gate Current, (T_C = 93°C, Pulse Width ≤ 1.0 μs)	I_{GM}	0.2	A
Peak Reverse Gate Voltage, (T_C = 93°C, Pulse Width ≤ 1.0 μs)	V_{RGM}	6.0	V
Operating Junction Temperature Range	T_J	−40 to +110	°C
Storage Temperature Range	T_{stg}	−40 to +150	°C
Mounting Torque (Note 2)	−	6.0	in. lb.

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

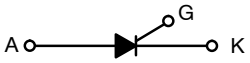
1. V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.
2. Torque rating applies with use of compression washer (B52200-F006 or equivalent). Mounting torque in excess of 6 in. lb. does not appreciably lower case-to-sink thermal resistance. Anode lead and heatsink contact pad are common. (See AN209B). For soldering purposes (either terminal connection or device mounting), soldering temperatures shall not exceed +200°C. For optimum results, an activated flux (oxide removing) is recommended.

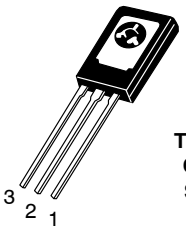
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ON Semiconductor®

http://onsemi.com

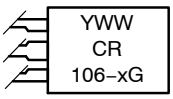
SCRs
4 AMPERES RMS
400 thru 600 VOLTS





TO−225AA
CASE 77
STYLE 2

MARKING DIAGRAM



Y = Year
WW = Work Week
CR106−x = Device Code
x = 6 or 8
G = Pb−Free Package

PIN ASSIGNMENT	
1	Cathode
2	Anode
3	Gate

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

Preferred devices are recommended choices for future use and best overall value.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	3.0	°C/W
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	75	°C/W
Maximum Lead Temperature for Soldering Purposes 1/8″ from Case for 10 Seconds	T_L	260	°C

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

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Peak Repetitive Forward or Reverse Blocking Current (V_{AK} = Rated V_{DRM} or V_{RRM}; R_{GK} = 1 kΩ)	T_J = 25°C T_J = 110°C	I_{DRM}, I_{RRM}	− −	− −	10 200	μA μA
ON CHARACTERISTICS						
Peak Forward On−State Voltage (Note 3) (I_{TM} = 4 A Peak)		V_{TM}	−	−	2.0	V
Gate Trigger Current (Continuous dc) (Note 4) (V_{AK} = 7 Vdc, R_L = 100 Ω) (T_C = −40°C)		I_{GT}	 − −	 − −	 200 500	μA
Gate Trigger Voltage (Continuous dc) (Note 4) (V_{AK} = 7 Vdc, R_L = 100 Ω)		V_{GT}	−	−	1.0	V
Gate Non-Trigger Voltage (Note 4) (V_{AK} = 12 Vdc, R_L = 100 Ω, T_J = 110°C)		V_{GD}	0.2	−	−	V
Holding Current (V_{AK} = 7 Vdc, Initiating Current = 200 mA, R_{GK} = 1 kΩ)		I_H	−	−	5.0	mA
DYNAMIC CHARACTERISTICS						
Critical Rate−of−Rise of Off−State Voltage (T_J = 110°C, R_{GK} = 1 kΩ)		dv/dt	−	10	−	V/μs

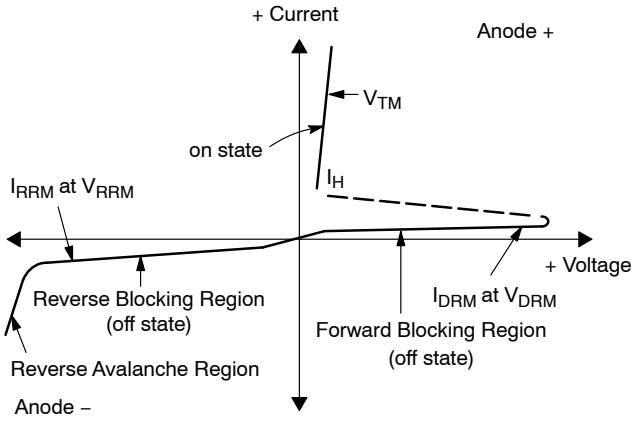
3. Pulse Test: Pulse Width ≤ 1.0 ms, Duty Cycle ≤ 1%.
4. R_{GK} current is not included in measurement.

ORDERING INFORMATION

Device	Package	Shipping
MCR106−6	TO−225AA	500 Units / Box
MCR106−6G	TO−225AA (Pb−Free)	500 Units / Box
MCR106−8	TO−225AA	500 Units / Box
MCR106−8G	TO−225AA (Pb−Free)	500 Units / Box

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



CURRENT DERATING

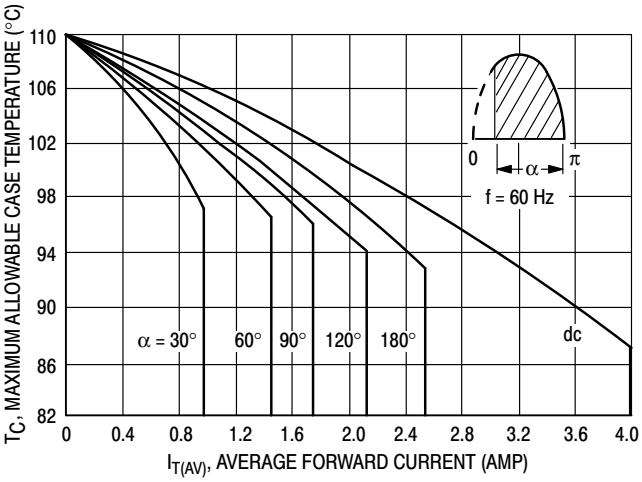


Figure 1. Maximum Case Temperature

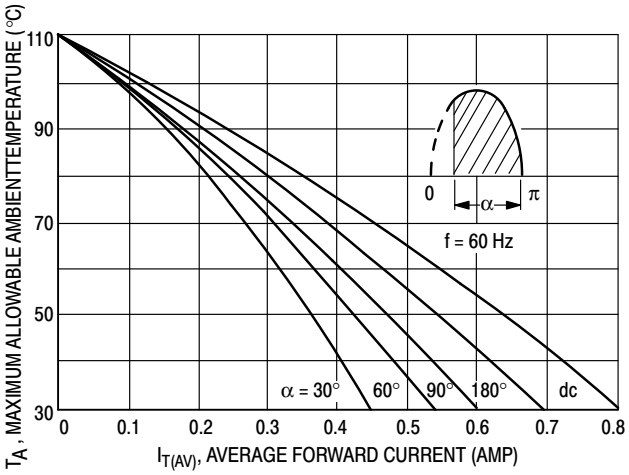
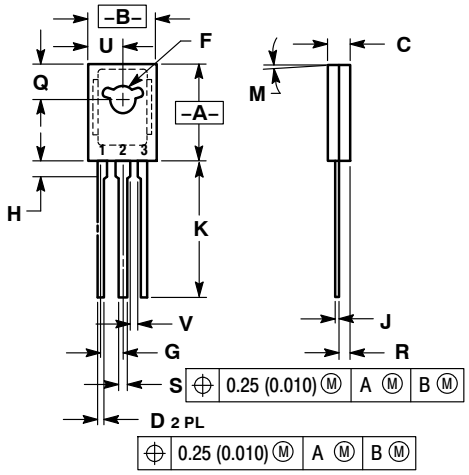


Figure 2. Maximum Ambient Temperature

PACKAGE DIMENSIONS

TO−225
CASE 77−09
ISSUE Z



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 077−01 THRU −08 OBSOLETE, NEW STANDARD 077−09.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.425	0.435	10.80	11.04
B	0.295	0.305	7.50	7.74
C	0.095	0.105	2.42	2.66
D	0.020	0.026	0.51	0.66
F	0.115	0.130	2.93	3.30
G	0.094 BSC		2.39 BSC	
H	0.050	0.095	1.27	2.41
J	0.015	0.025	0.39	0.63
K	0.575	0.655	14.61	16.63
M	5° TYP		5° TYP	
Q	0.148	0.158	3.76	4.01
R	0.045	0.065	1.15	1.65
S	0.025	0.035	0.64	0.88
U	0.145	0.155	3.69	3.93
V	0.040	---	1.02	---

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
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N. American Technical Support: 800−282−9855 Toll Free USA/Canada
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Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81−3−5773−3850

ON Semiconductor Website: **www.onsemi.com**

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative

MCR106/D