

# XI'AN IR-PERI



Company

PRELIMINARY

MFC310TM120/180

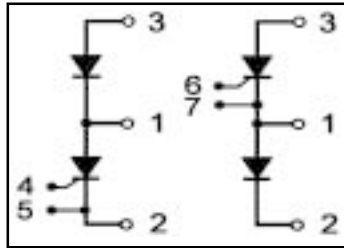
Thyristor Modules MAGN -A -PAK

## Features

- International standard package  
With DBC ceramic base plate
- Planar passivated chips
- High surge capability
- UL recognition pending

## Benefits

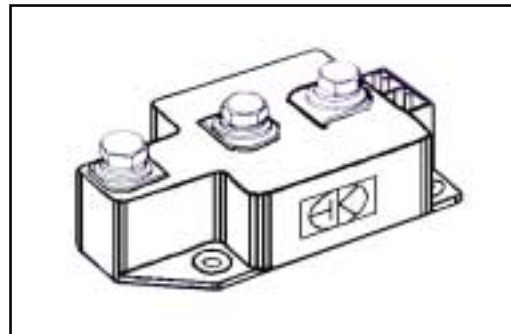
- DC motor control
- Simple AC motor controller
- Light, heat and temperature control



**V<sub>RRM</sub> = 1200V- 1800V**  
**I<sub>FAVM</sub> = 2x310A**  
**I<sub>FRMS</sub> = 2x500A**

## Voltage Ratings

Voltage Code	V <sub>RRM</sub> (V)	V <sub>RSM</sub> (V)	I <sub>RRM</sub> T <sub>J</sub> =25°C(mA)
	V <sub>DRM</sub> (V)	V <sub>DSM</sub> (V)	I <sub>DRM</sub> T <sub>J</sub> =25°C(mA)
120	1200	1300	1.0
140	1400	1500	1.0
160	1600	1700	1.0
180	1800	1900	1.0



## Absolute Maximum Ratings

Symbol	Test Conditions	Max.	Units	
I <sub>FRMS</sub>	T <sub>VJM</sub> =125°C	500	A	
I <sub>FAVM</sub>	T <sub>c</sub> =83°C; 180° sine	320	A	
	T <sub>c</sub> =85°C; 180° sine	310	A	
I <sub>FSM</sub>	T <sub>VJ</sub> =45°C; t=10ms (50 Hz), sine	9200	A	
	V <sub>R</sub> =0 t=8.3ms (60 Hz), sine	9800	A	
	T <sub>VJ</sub> =125°C; t=10ms (50 Hz), sine	8000	A	
	V <sub>R</sub> =0 t=8.3ms (60 Hz), sine	8600	A	
I <sup>2</sup> t	T <sub>VJ</sub> =45°C; t=10ms (50 Hz), sine	420000	A <sup>2</sup> s	
	V <sub>R</sub> =0 t=8.3ms (60 Hz), sine	400000	A <sup>2</sup> s	
	T <sub>VJ</sub> =125°C; t=10ms (50 Hz), sine	320000	A <sup>2</sup> s	
	V <sub>R</sub> =0 t=8.3ms (60 Hz), sine	306000	A <sup>2</sup> s	
di/dt	f=50Hz, t <sub>p</sub> =200μs, V <sub>D</sub> =2/3V <sub>DRM</sub> I <sub>G</sub> =1.0A, di <sub>G</sub> /dt=1.0A/μs, T <sub>VJ</sub> =T <sub>VJM</sub>	repetitive, I <sub>T</sub> =960A	100	A/μs
		non repetitive, I <sub>T</sub> =320A	500	A/μs
dv/dt	T <sub>VJ</sub> =T <sub>VJM</sub> ; V <sub>D</sub> =2/3V <sub>DRM</sub> (linear voltage rise)	1000	V/μs	
V <sub>ISOL</sub>	RMS Isolation Voltage, Any Terminal To Case, t=1 min	2500	V	
T <sub>VJ</sub>		-40 to +125	°C	
T <sub>VJM</sub>		125		
T <sub>STG</sub>		-40 to +125		

**Thermal / Mechanical Characteristics**

	Parameter	Typ.	Max.	Units
R <sub>θJS</sub>	Thermal Resistance, Junction-to- Sink DC	-	0.20	°C/W
R <sub>θJC</sub>	Thermal Resistance, Junction-to- Case DC	-	0.12	°C/W
	Mouting Torque, Case-to-Heatsink	-	4.0	N.m
	Mouting Torque, Case-to-Terminal 1,2 & 3	-	12j«15	N.m
	Weight of Module	230	-	g

**Electrical Characteristics (unless otherwise specified)**

	Test Conditions	Min.	Typ.	Max.	Units
IRRM, IDRM	T <sub>VJ</sub> =T <sub>VJM</sub> ; V <sub>R</sub> =V <sub>RRM</sub> ; V <sub>D</sub> =V <sub>DRM</sub>	-	-	50	mA
V <sub>T</sub> & V <sub>F</sub>	I <sub>T</sub> =600A; T <sub>VJ</sub> =25°C	-	-	1.33	V
V <sub>TO</sub>	For power-loss calculations only(T <sub>VJ</sub> =125°C)	-	-	0.8	V
r <sub>T</sub>		-	-	0.82	mΩ
V <sub>GT</sub>	V <sub>D</sub> =6V; T <sub>VJ</sub> =25°C	-	-	2.0	V
I <sub>GT</sub>	V <sub>D</sub> =6V; T <sub>VJ</sub> =25°C	-	-	150	mA
V <sub>GD</sub>	T <sub>VJ</sub> =T <sub>VJM</sub> ; V <sub>D</sub> =2/3V <sub>DRM</sub>	-	-	0.25	V
I <sub>GD</sub>		-	-	10	mA
I <sub>L</sub>	T <sub>VJ</sub> =25°C; t <sub>p</sub> =30μs; V <sub>D</sub> =6V; I <sub>G</sub> =0.45A; di <sub>G</sub> /dt=0.45A/μs	-	-	200	mA
I <sub>H</sub>	T <sub>VJ</sub> =25°C; V <sub>D</sub> =6V	-	-	150	mA
t <sub>gd</sub>	T <sub>VJ</sub> =25°C; V <sub>D</sub> =1/2V <sub>DRM</sub> ; I <sub>G</sub> =0.5A; di <sub>G</sub> /dt=0.5A/μs	-	-	2	μs
t <sub>q</sub>	T <sub>VJ</sub> =T <sub>VJM</sub> ; I <sub>T</sub> =160A, t <sub>p</sub> =200 μs; -di/dt=10A/ μs V <sub>R</sub> =100V; dv/dt=20V/ μs; V <sub>D</sub> =2/3V <sub>DRM</sub>	-	200	-	μs
Q <sub>S</sub>	T <sub>VJ</sub> =125°C; I <sub>T</sub> =300A, -di/dt=50A/ μs	-	-	760	μC
I <sub>RM</sub>		-	-	275	A

**Case Outline - m-a-pak**

