

XI'AN IR-PERI



Company

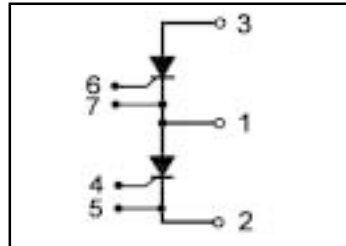
PRELIMINARY

MTC90TA120/180

Thyristor Modules Add -A -PAK

Features

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



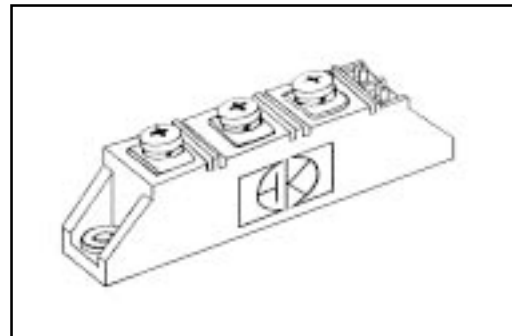
VRRM = 1200V- 1800V
IFAVM = 2x90A
IFRMS = 2x150A

Benefits

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

Voltage Ratings

Voltage Code	VRRM(V)	VRSM(V)	IRRM T _J =25 °C(mA)
	VDRM(V)	VDSM(V)	IDRM T _J =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	
IFRMS	T _{VJM} =125 °C	150	A	
IFAVM	T _c =63 °C; 180° sine	110	A	
	T _c =85 °C; 180° sine	90	A	
IFSM	T _{VJ} =45 °C; t=10ms (50 Hz),sine	1500	A	
	V _R =0 t=8.3ms (60 Hz),sine	1600	A	
	T _{VJ} =125 °C; t=10ms (50 Hz),sine	1340	A	
	V _R =0 t=8.3ms (60 Hz),sine	1440	A	
I ² t	T _{VJ} =45 °C; t=10ms (50 Hz),sine	12450	A ² s	
	V _R =0 t=8.3ms (60 Hz),sine	11500	A ² s	
	T _{VJ} =125 °C; t=10ms (50 Hz),sine	10850	A ² s	
	V _R =0 t=8.3ms (60 Hz),sine	10300	A ² s	
di/dt	f=50Hz, t _p =200μs, V _D =2/3V _{DRM} I _G =0.45A, di _G /dt=0.45A/μs, T _{VJ} =T _{VJM}	repetitive, I _T =250A	150	A/μs
		non repetitive, I _T =110A	500	A/μs
dv/dt	T _{VJ} =T _{VJM} ; V _D =2/3V _{DRM} (linear voltage rise)	1000	V/μs	
V _{ISOL}	RMS Isolation Voltage, Any Terminal To Case, t=1 min	2500	V	
T _{VJ}		-40 to +125	°C	
T _{VJM}		125		
T _{STG}		-40 to +125		

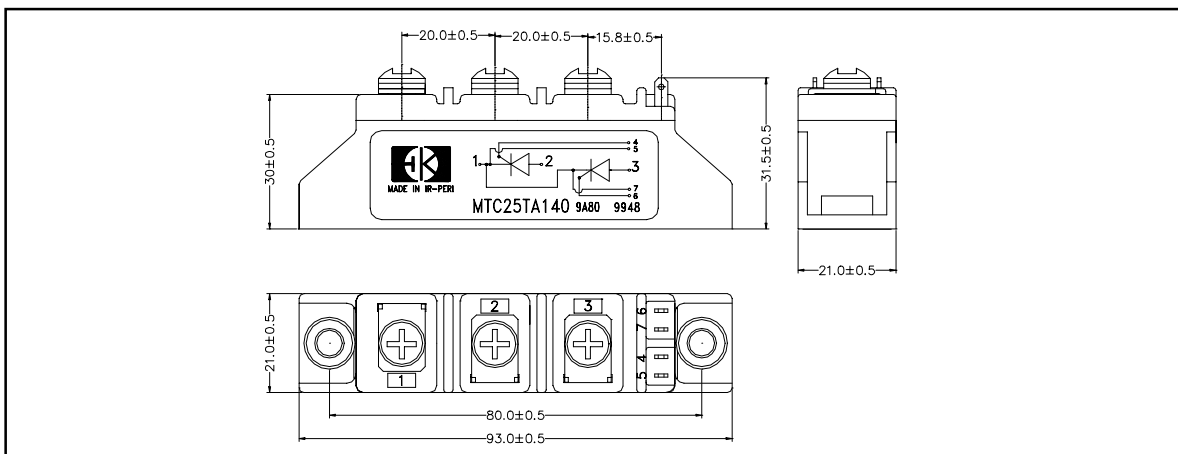
Thermal / Mechanical Characteristics

	Parameter	Typ.	Max.	Units
R _{θJS}	Thermal Resistance, Junction-to- Sink DC	-	0.5	
R _{θJC}	Thermal Resistance, Junction-to- Case DC	-	0.3	°C/W
	Mouting Torque, Case-to-Heatsink	-	4.0	N.m
	Mouting Torque, Case-to-Terminal 1,2 & 3	-	3.0	
	Weight of Module	100	-	g

Electrical Characteristics (unless otherwise specified)

	Test Conditions	Min.	Typ.	Max.	Units
I _{RRM} , I _{DRM}	T _{VJ} =T _{VJM} ; V _R =V _{RRM} ; V _D =V _{DRM}	-	-	5	mA
V _T	I _T =300A; T _{VJ} =25 °C	-	-	1.74	V
V _{TO}	For power-loss calculations only(T _{VJ} =125 °C)	-	-	0.85	V
r _T		-	-	3.2	mΩ
V _{GT}	V _D =6V; T _{VJ} =25 °C	-	-	1.5	V
I _{GT}	V _D =6V; T _{VJ} =25 °C	-	-	100	mA
V _{GD}	T _{VJ} =T _{VJM} ; V _D =2/3V _{DRM}	-	-	0.2	V
I _{GD}		-	-	10	mA
I _L	T _{VJ} =25 °C; t _p =10 μs; V _D =6V; I _G =0.45A; di _G /dt=0.45A/μs	-	-	450	mA
I _H	T _{VJ} =25 °C; V _D =6V	-	-	200	mA
t _{gd}	T _{VJ} =25 °C; V _D =1/2V _{DRM} ; I _G =0.45A; di _G /dt=0.45A/μs	-	-	2	μs
t _q	T _{VJ} =T _{VJM} ; I _T =120A; t _p =200 μs; -di/dt=10A/ μs V _R =100V; dv/dt=20V/ μs; V _D =2/3V _{DRM}	-	185	-	μs
Q _s	T _{VJ} =125 °C; I _T =50A, -di/dt=0.64A/ μs	-	-	170	μC
I _{RM}		-	-	45	A

Case Outline - a-a-pak



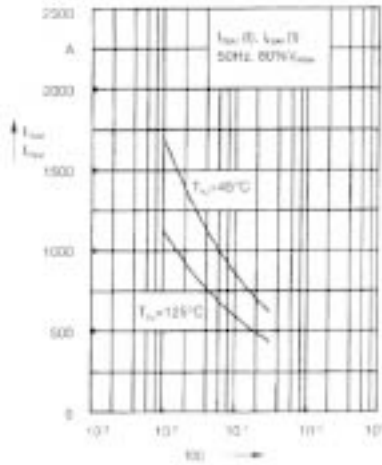


Fig.1 Surge overload current
I_{TSM}, I_{FSM}: Crest value, t: duration

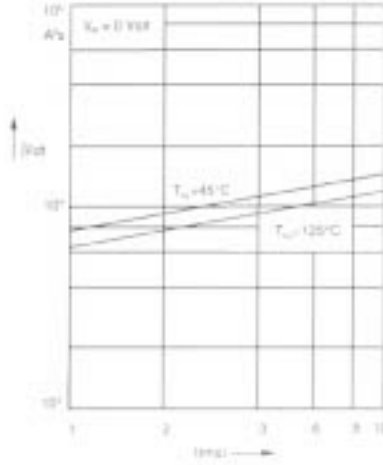


Fig.2 i²dt versus time(1-10ms)

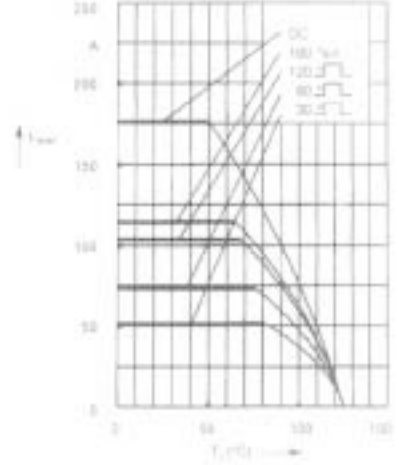


Fig.3 Max. I_{TAVM} & T

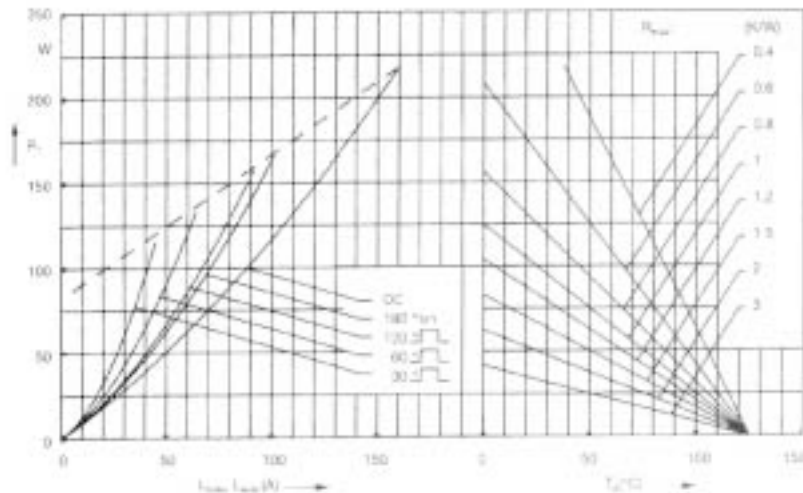


Fig.4 Power dissipation & onstate current and temperature

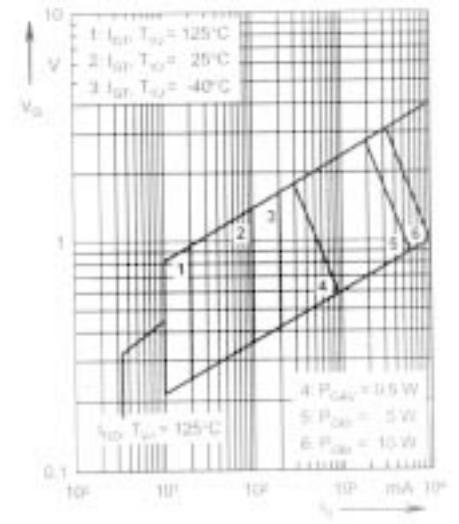


Fig.6 Gate trigger characteristics

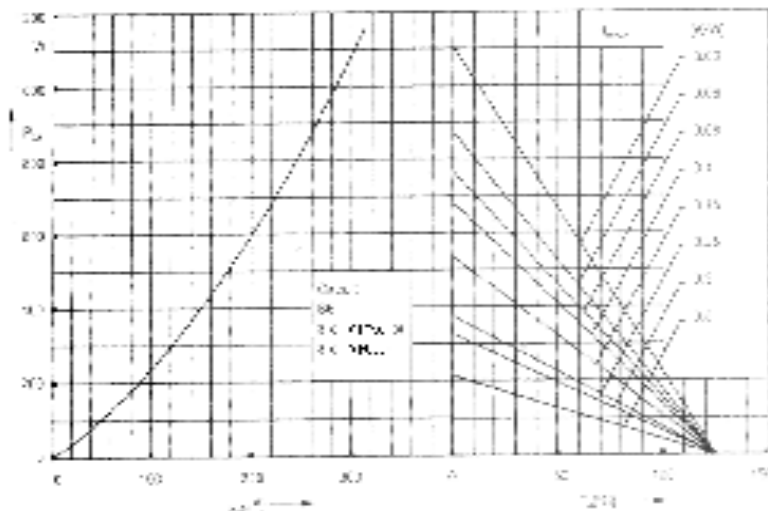


Fig.5 Three phase rectifier bridge: Power dissipation & output current and T

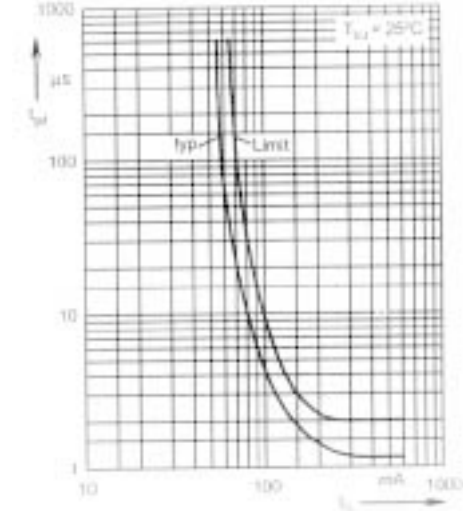
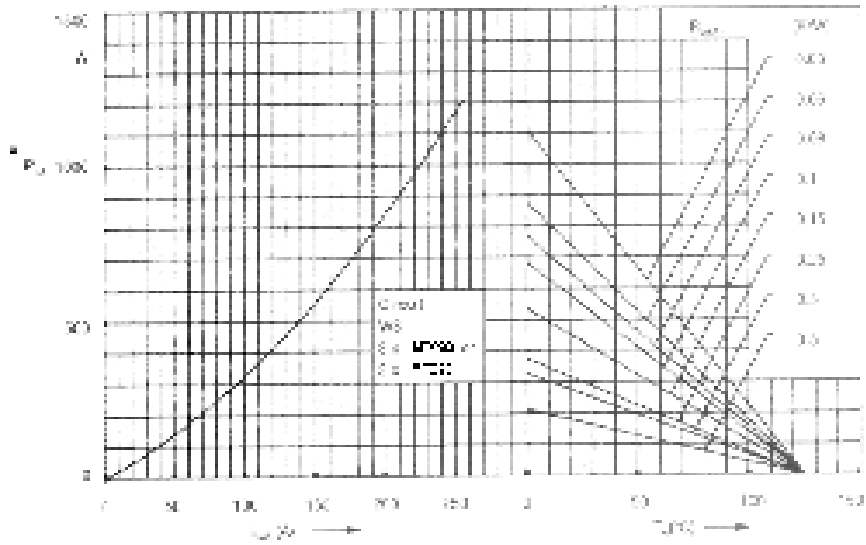
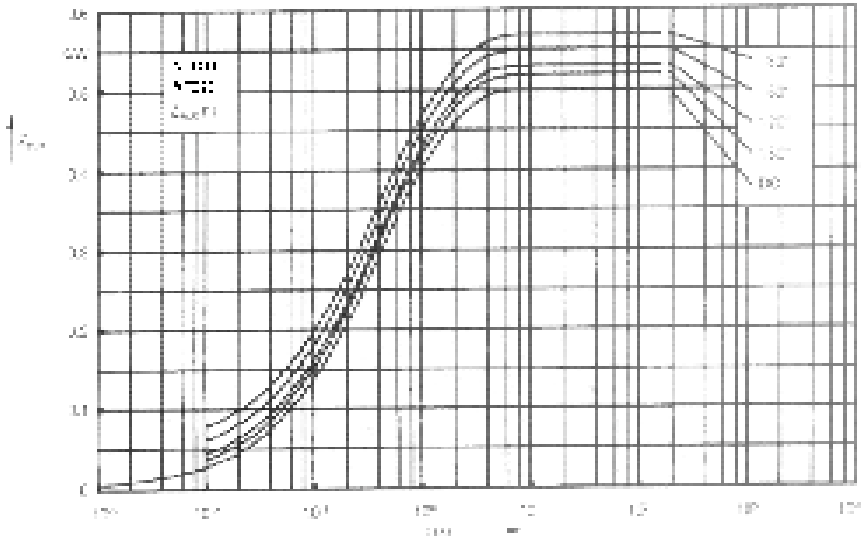
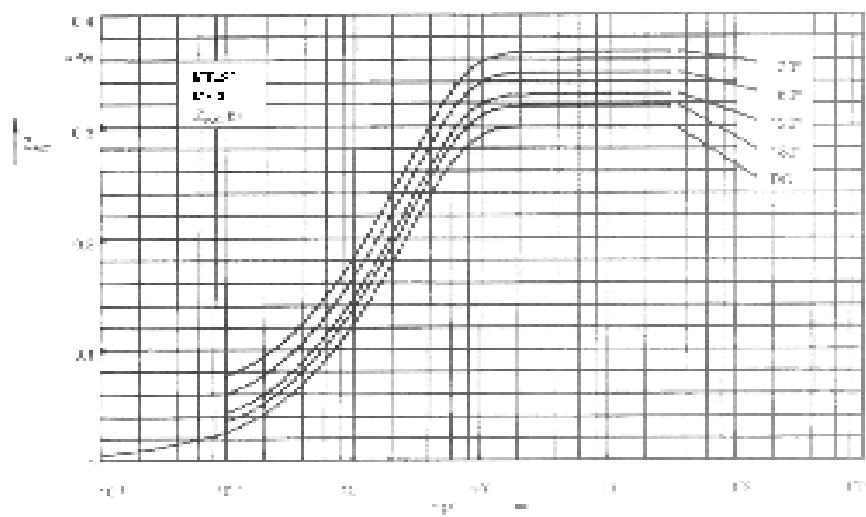


Fig.7 Gate trigger delay time



Three phase AC-... Power dissipation output current and temperature

Fig.9 Transient thermal impedance junction to case (per thyristor)



Transient thermal impedance junction to case (per thyristor)

