

Thyristor/Diode Modules

VRRM / VDRM 1600V
IFAV / ITAV 70 Amp

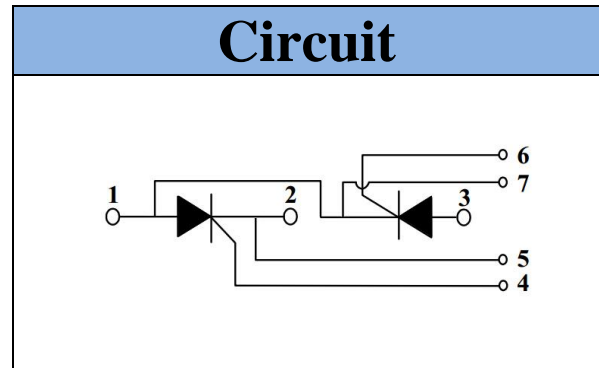


Applications

- Power Converters
- Lighting Control
- DC Motor Control and Drives
- Heat and temperature control

Features

- International standard package
- High Surge Capability
- Glass passivated chip
- Simple Mounting
- Heat transfer through aluminum oxide
DBC ceramic isolated metal baseplate
- UL recognized applied for file no. E304417



Module Type

TYPE	VRRM	VRSM
EK60M01-160B	1600V	1700V

Maximum Ratings

Symbol	Item	Conditions	Values	Units
ITAV	Average On-State Current	Sine180° ; Tc=85°C	70	A
ITSM	Surge On-State Current	Tvj =45°C t=10mS, sine	1600	A
i ² t	Circuit Fusing Consideration	Tvj =45°C t=10mS, sine	12800	A ² s
V _{isol}	Isolation Breakdown Voltage(R.M.S)	a.c.50HZ;r.m.s.;1min	3000	V
T _{vj}	Operating Junction Temperature		-40 to +125	°C
T _{stg}	Storage Temperature		-40 to +125	°C
Mt	Mounting Torque	To terminals(M5)	3±15%	Nm
Ms		To heatsink(M6)	5±15%	Nm
Weight	Module (Approximately)		120	g
di/dt	Critical Rate of Rise of On-State Current	T _{VJ} =T _{VJM} ,2/3V _{DRM} ,I _G =500mA Tr<0.5us,tp>6us	150	A/us
dv/dt	Critical Rate of Rise of Off-State Voltage, min	T _{VJ} =T _{VJM} ,2/3V _{DRM} linear voltage rise	1000	V/us

Thermal Characteristics

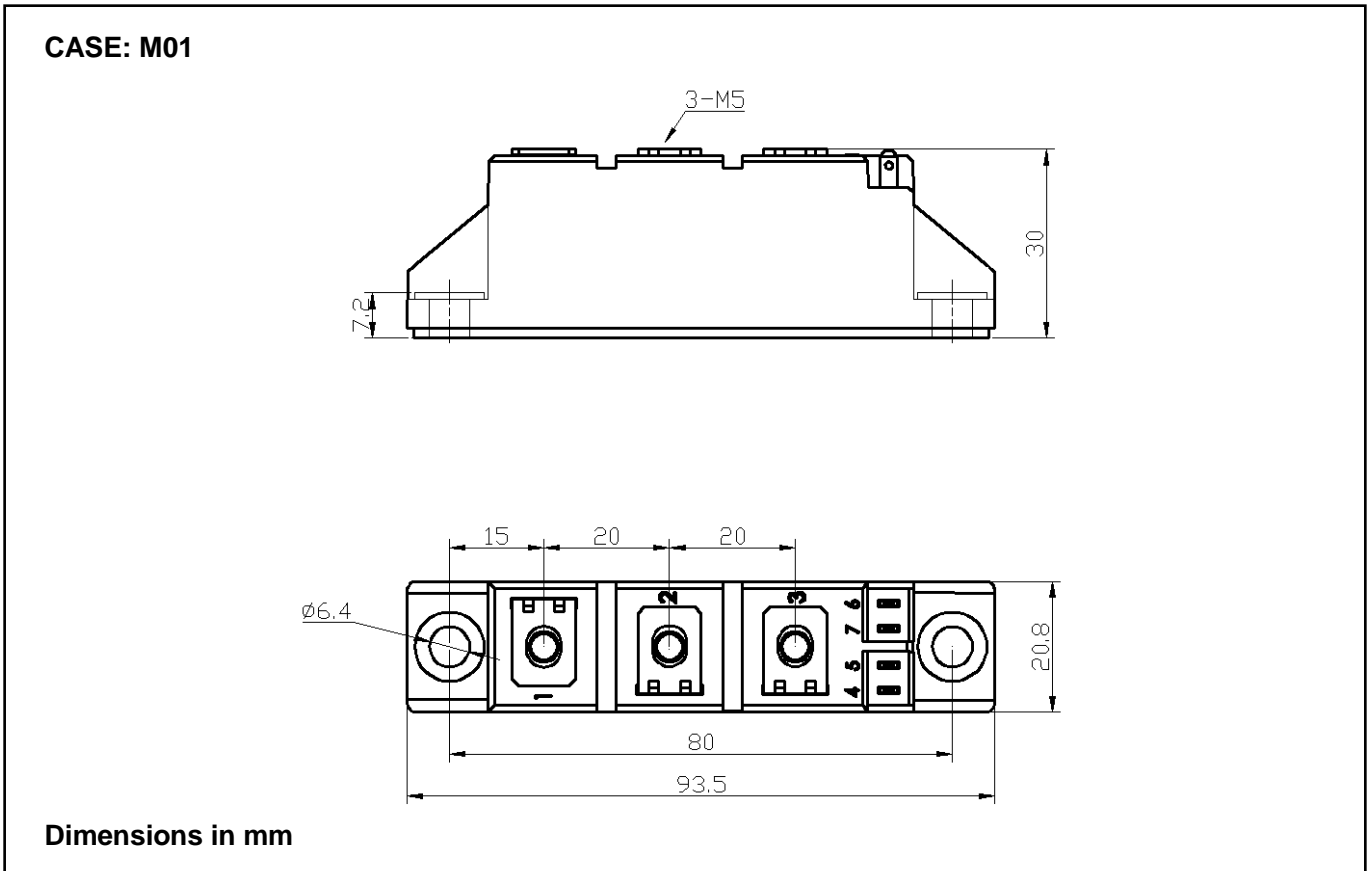
Symbol	Item	Conditions	Values	Units
R _{th(j-c)}	Thermal Impedance, max	Junction to Case	0.45	°C/W
R _{th(c-s)}	Thermal Impedance, max	Case to Heatsink	0.05	°C/W



Electrical Characteristics

Symbol	Item	Conditions	Values			Units
			Min.	Typ.	Max.	
V _{TM}	Peak On-State Voltage, max.	T=25°C I _T =210A	-	-	1.60	V
I _{RRM} /I _{DRM}	Repetitive Peak Reverse Current, max Repetitive Peak Off-State Current, max	T _{VJ} =T _{VJM} , V _R =V _{RRM} , V _D = V _{DRM}	-	-	20	mA
V _{TO}	On state threshold voltage	For power-loss calculation only (T _{VJ} =125°C)	-	-	0.85	V
r _T	Value of on-state slope resistance, max	T _{VJ} =T _{VJM}	-	-	1.5	mΩ
V _{GT}	Gate Trigger Voltage, max	T _{VJ} =25°C , V _D =6V	-	-	3	V
I _{GT}	Gate Trigger current, max	T _{VJ} =25°C , V _D =6V	-	-	150	mA
V _{GD}	Non-triggering gate voltage, max	T _{VJ} =125°C , V _D =2/3V _{DRM}	-	-	0.25	V
I _{GD}	Non-triggering gate current, max	T _{VJ} =125°C , V _D =2/3V _{DRM}	-	-	10	mA
I _L	Latching current, max	T _{VJ} =25°C , R _G =33Ω	-	300	1000	mA
I _H	Holding current, max	T _{VJ} =25°C , V _D =6V	-	150	400	mA
t _{gd}	Gate controlled delay time	T _{VJ} =25°C I _G =1A, diG/dt=1A/US	1			us
t _q	Circuit commutated turn-off time	T _{VJ} =T _{VJM}	100			us

Package Outline Information



Performance Curves

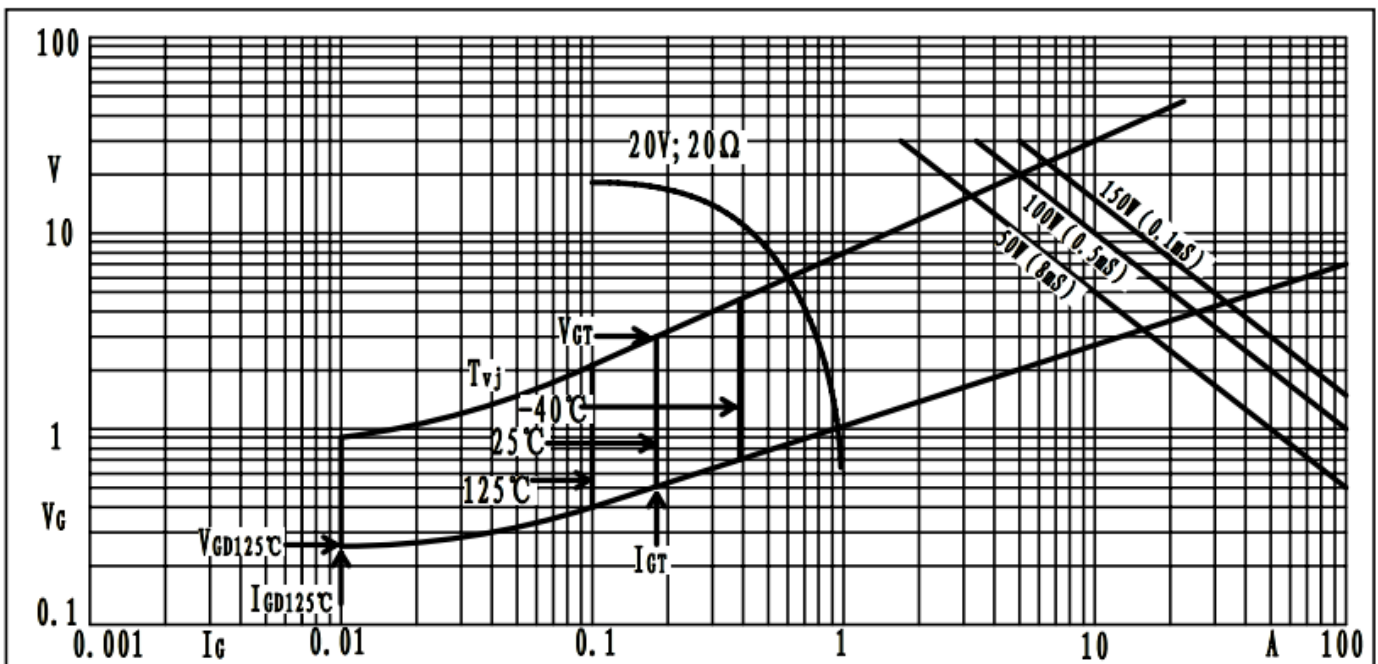


Fig1. Gate trigger characteristics

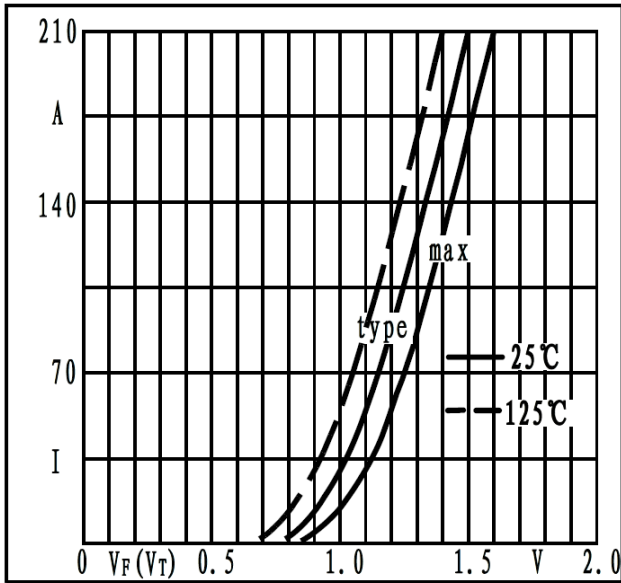


Fig2. Forward characteristics

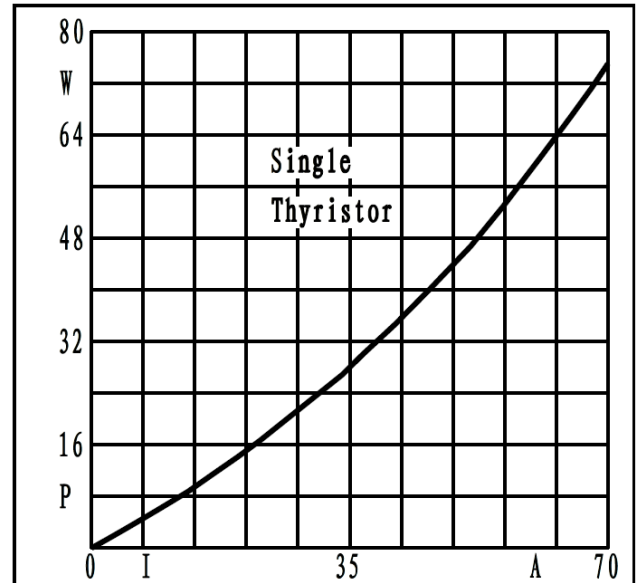


Fig3. Power dissipation

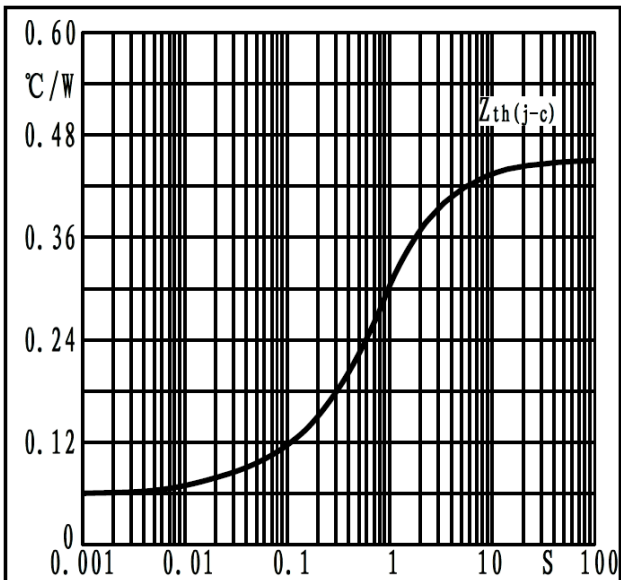


Fig4. Transient thermal impedance

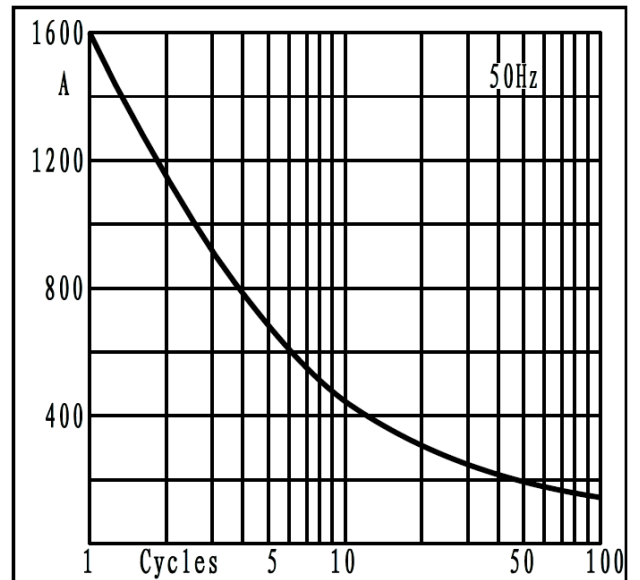


Fig5. Max non-repetitive forward surge current

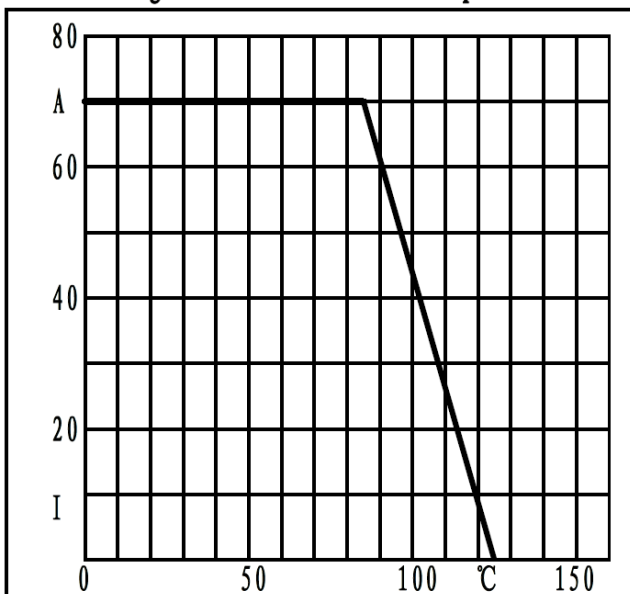


Fig6. Forward current derating curve