THYRISTOR MODULE

AK55GB40/80

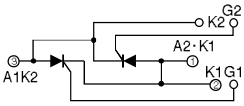
UL;E76102(M)

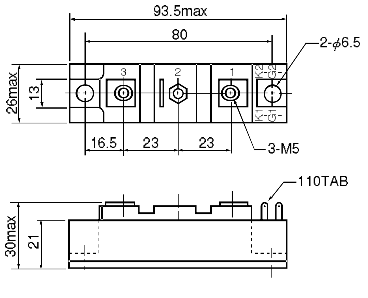
Power ThyristorModule **AK55GB** series are designed for various rectifier circuits and power controls. For your circuit application. following internal connections and wide voltage ratings up to 1,600V are available, and electrically isolated mounting base make your mechanical design easy.

Isolated mounting base
- ● $I_{T(AV)}$ 55A, $I_{T(RMS)}$ 122A, I_{TSM} 1100A
- ● di/dt 150 A/μs
- ● dv/dt 500V/μs

(Applications)
AC/DC motor drives
Heater controls
Light dimmers
Static switches

Internal Configurations





Unit : mm

■Maximum Ratings

(Tj=25℃ unless otherwise specified)

Symbol	Item	Ratings		Unit
		AK55GB40	AK55GB80	
V_{DRM}	Repetitive Peak Off-State Voltage	400	800	V

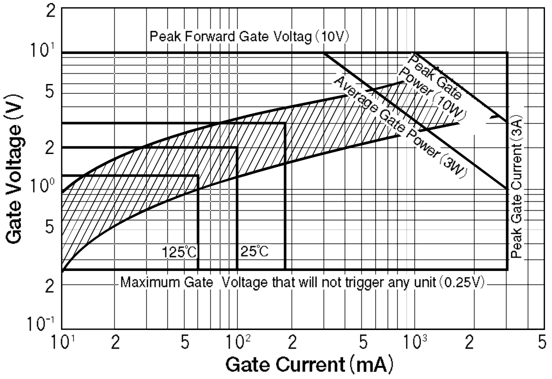
Symbol	Item	Conditions	Ratings	Unit
$I_{T(AV)}$	Average On-State Current	Single phase, half wave, 180° conduction, Tc : 89℃	55	A
$I_{T(RMS)}$	R.M.S. On-State Current	Tc : 89℃	122	A
I_{TSM}	Surge On-State Current	½cycle, 50Hz/60Hz, peak value, non-reqetitive	1000/1100	A
I^2t	I^2t	Value for one cycle of surge current	5000	A^2S
P_{GM}	Peak Gate Power Dissipation		10	W
$P_{G(AV)}$	Average Gate Power Dissipation		3	W
I_{FGM}	Peak Gate Current		3	A
V_{FGM}	Peak Gate Voltage (Forward)		10	V
V_{RGM}	Peak Gate Voltage (Reverse)		5	V
di/dt	Critical Rate of Rise of On-State Current	I_G=100mA, Tj=25℃, V_D=½V_{DRM}, dI_G/dt=0.1A/μs	150	A/μs
V_{ISO}	Isolation Breakdown Voltage (R.M.S.)	A.C. 1 minute	2500	V
Tj	Operating Junction Temperature		−40 to +125	℃
Tstg	Storage Temperature		−40 to +125	℃
	Mounting Torque Mounting (M6)	Recommended Value 2.5-3.9 (25-40)	4.7 (48)	N・m (kgf・cm)
	Mounting Torque Terminal (M5)	Recommended Value 1.5-2.5 (15-25)	2.7 (28)	
	Mass	Typical Value	170	g

■Electrical Characteristics

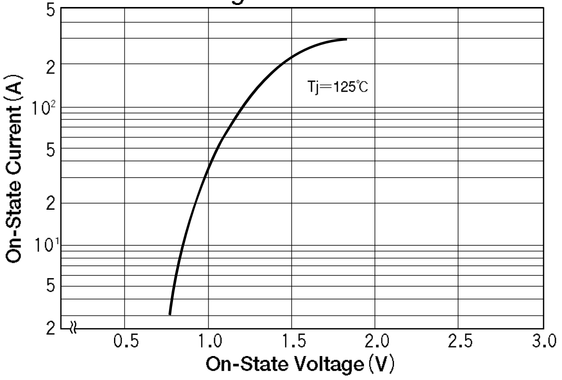
Symbol	Item	Conditions	Ratings	Unit
I_{DRM}	Repetitive Peak Off-State Current, max.	at V_{DRM}, Single phase, half wave, Tj=125℃	20	mA
V_{TM}	Peak On-State Voltage, max.	On-State Current 165A, Tj=125℃ Inst. measurement	1.35	V
I_{GT}/V_{GT}	Gate Trigger Current/Voltage, max.	Tj=25℃, I_T=1A, V_D=6V	100/3	mA/V
V_{GD}	Non-trigger Gate, Voltage, min	Tj=125℃, V_D=½V_{DRM}	0.25	V
tgt	Turn On Time, max.	I_T=55A, I_G=100mA, Tj=25℃, V_D=½V_{DRM}, dI_G/dt=0.1A/μs	10	μs
dv/dt	Critical Rate of Rise of Off-State Voltage, min.	Tj=125℃, V_D=⅔V_{DRM}, Exponential wave.	500	V/μs
I_H	Holding Current, typ	Tj=25℃	50	mA
I_L	Lutching Current, typ	Tj=25℃	100	mA
Rth(j-c)	Thermal Impedance, max.	Junction to case, per ½ Module	0.50	℃/W
		Junction to case, per 1 Module	0.25	

*mark : Thyristor and Diode part. No mark : Thyristor part

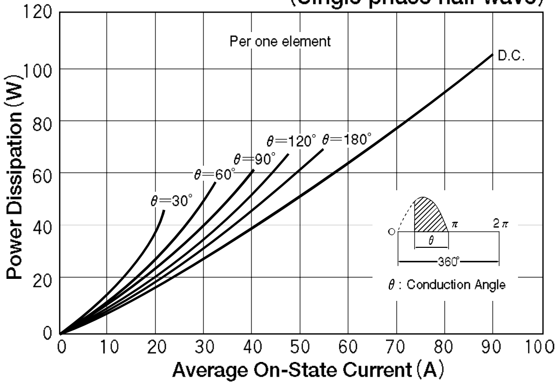
Gate Characteristics



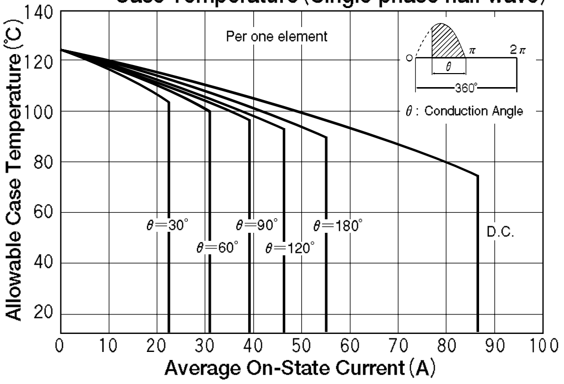
On-State Voltage max



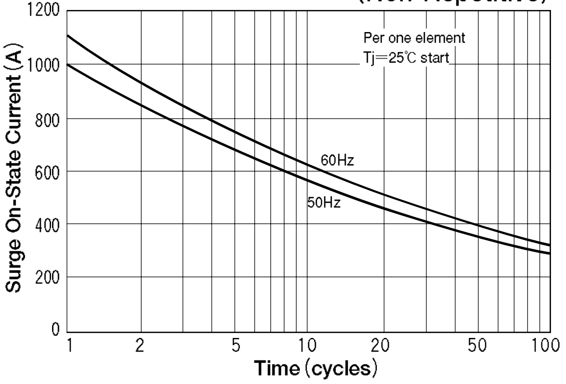
Average On-State Current Vs Power Dissipation (Single phase half wave)



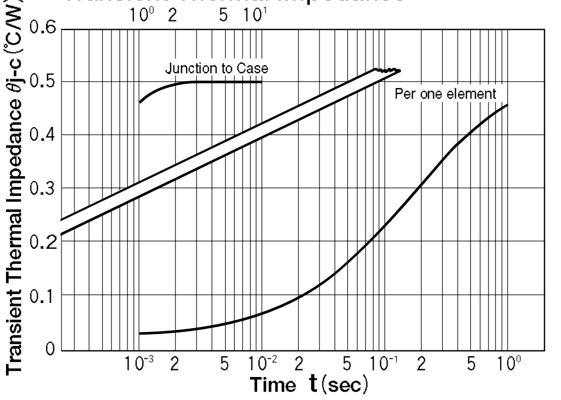
Average On-State Current Vs Maximum Allowable Case Temperature (Single phase half wave)



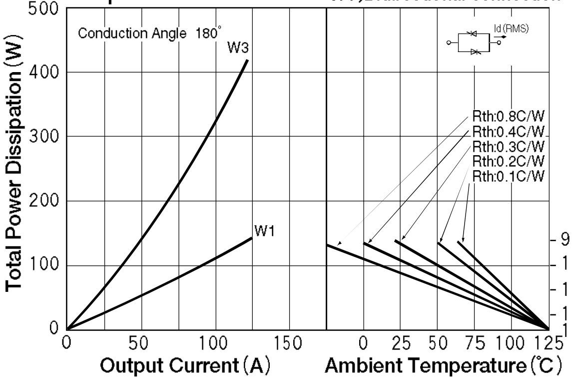
Surge On-State Current Rating (Non-Repetitive)



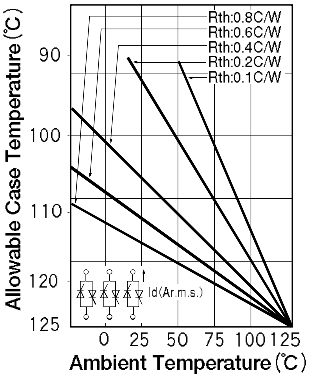
Transient Thermal Impedance



Output Current W1;Bidirectional connection



W3;Three phase bidiretional connection



RMS On-State Current Vs Allowable Case Temperature