THYRISTOR MODULE
SBA500AA

Power Thyristor Module **SBA500AA** series are designed for high power rectifier control applications. Two independent thyristor elements in a electrically isolated package enable you to achieve flexible design, especially for AC switch application, idial terminal location for bus bar connection helps both your mechanical design and mounting procedure be more efficient. SBA series for two thyristors with blocking voltage up to 1600V are available.
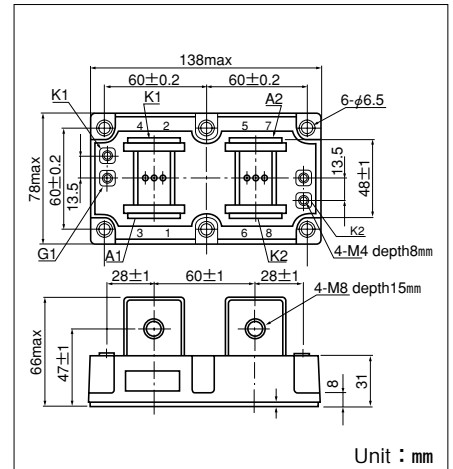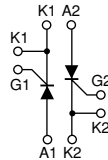
Isolated mounting base
- $I_{T(AV)}$ 500A, $I_{T(RMS)}$ 785A
- di/dt 200 A/μs
- dv/dt 500V/μs

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

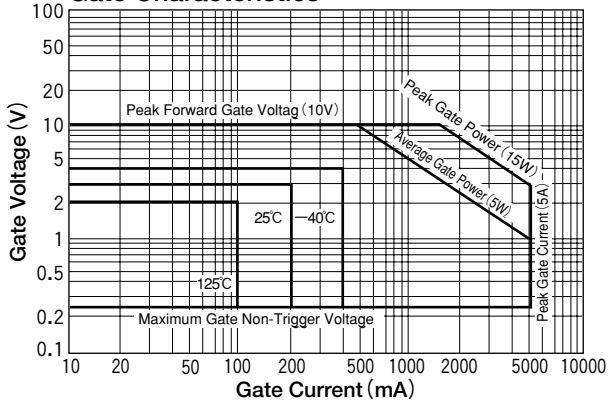Internal Configurations

Unit : mm

■Maximum Ratings

Symbol	Item	Ratings				Unit
		SBA500AA40	SBA500AA80	SBA500AA120	SBA500AA160	
V_{DRM}	Repetitive Peak Off-State Voltage	400	800	1200	1600	V
V_{RSM}	Non-Repetitive Peak Reverse Voltage	480	960	1350	1700	V
V_{RRM}	Repetitive Peak Reverse Voltage	400	800	1200	1600	V

Symbol	Item	Conditions	Ratings	Unit
$I_{T(AV)}$	Average On-State Current	Single phase, half wave, 180° conduction, Tc : 66℃	500	A
$I_{T(RMS)}$	R.M.S. On-State Current	Single phase, half wave, 180° conduction, Tc : 66℃	785	A
I_{TSM}	Surge On-State Current	½cycle, 50Hz/60Hz, peak Value, non-reqetitive	9.1/10.0	kA
I^2t	I^2t	Value for one cycle of surge current	416	kA²S
P_{GM}	Peak Gate Power Dissipation		15	W
$P_{G(AV)}$	Average Gate Power Dissipation		5	W
I_{FGM}	Peak Gate Current		5	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=200mA, V_D=½V_{DRM}, dI_G/dt=0.2A/μs	200	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	4.7	N・m
			(Recommended Value 25-40)	(48)	(kgf・cm)
		Terminal (M8)	Recommended Value 8.8-10	11.0	N・m
			(Recommended Value 90-105)	(115)	(kgf・cm)
		Terminal (M4)	Recommended Value 1.0-1.4	1.5	N・m
			(Recommended Value 10-14)	(15)	(kgf・cm)
	Mass	Typical Value	1100	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℃	150	mA
I_{RRM}	Repetitive Peak Reverse Current, max.	at V_{DRM}, Single phase, half wave, Tj=125℃	150	mA
V_{TM}	Peak On-State Voltage, max.	I_T=1500A	1.45	V
I_{GT}	Gate Trigger Current, max.	V_D=6V, I_T=1A	200	mA
V_{GT}	Gate Trigger Voltage, max.	V_D=6V, I_T=1A	3	V
V_{GD}	Non-Trigger Gate, Voltage. min.	Tj=125℃, V_D=½V_{DRM}	0.25	V
dv/dt	Critical Rate of Rise of Off-State Voltage, min.	Tj=125℃, V_D=⅔V_{DRM}, exp, waveform	500	V/μs
Rth(j-c)	Thermal Impedance, max.	Junction to case	0.085	℃/W

Gate Characteristics

Gate Voltage (V)

Peak Forward Gate Voltag (10V)
Peak Gate Power (15W)
Average Gate Power (5W)
Peak Gate Current (5A)
25℃
−40℃
125℃
Maximum Gate Non-Trigger Voltage

Gate Current (mA)

On-State Characteristics

On-State Current (A)

$Tj=25℃$

Maximum

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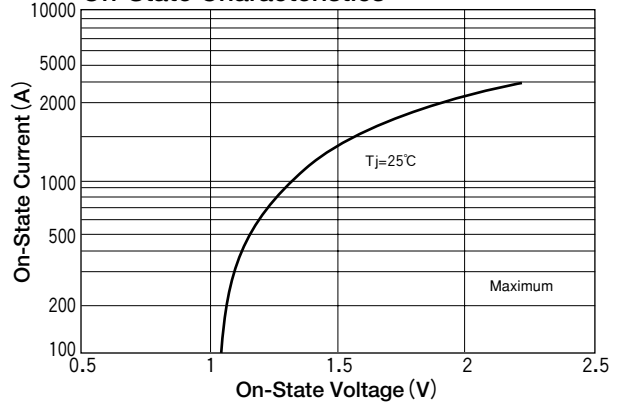
Average On-State Current Vs Power Dissipation (Single phase half wave)

Power Dissipation (W)

Per one element

DC
180°
120°
90°
60°
30°

θ：Conduction Angle
360°

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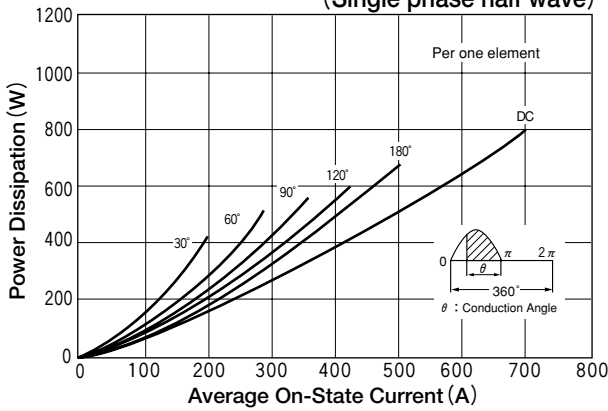
Average On-State Current Vs Maximum Allowable Case Temperature (Single phase half wave)

Allowable Case Temperature (℃)

Per one element

θ：Conduction Angle
360°

30° 60° 90° 120° 180° DC

Average On-State Current (A)
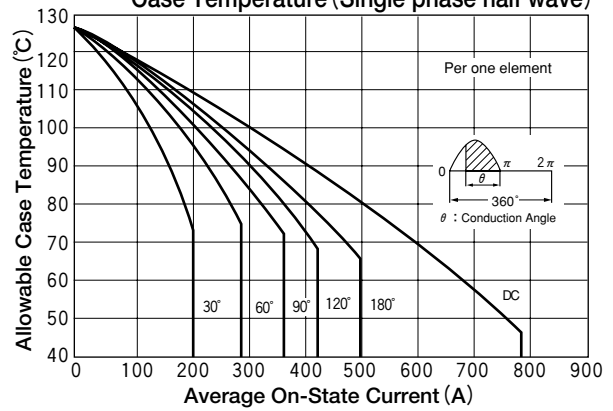
Surge On-State Current Rating (Non-Repetitive)

Surge On-State Current (A)

Per one element
$Tj=25℃$ start

60Hz
50Hz

Time (cycles)

Transient Thermal Impedance

Transient Thermal Impedance θj-c (℃/W)

Per one element

Junction to Case

Time t (sec)
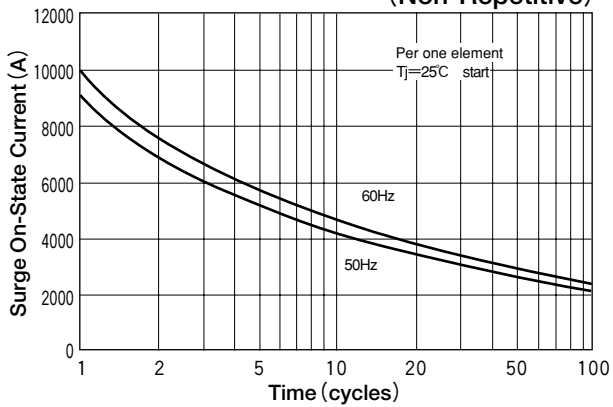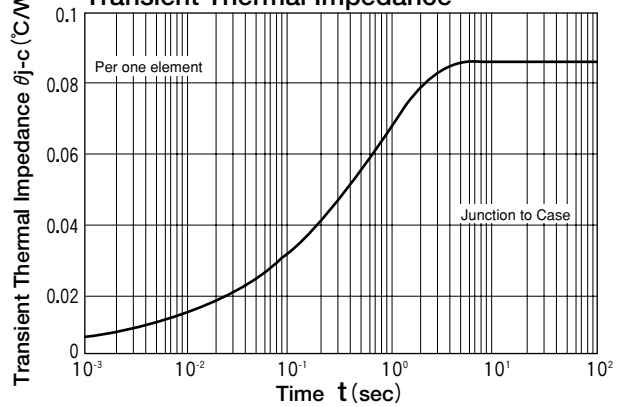
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