

THYRISTOR MODULE (NON-ISOLATED TYPE)

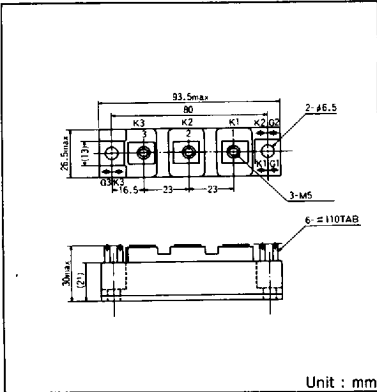
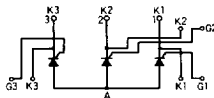
PWB60A

PWB60A is a Thyristor module suitable for low voltage, 3 phase rectifier applications.

- $I_{F(AV)}$:60A (each device)
- High Surge Current 1800 A (60Hz)
- Easy Construction
- Non-isolated. Mounting base as common Anode terminal

(Applications)

- Welding power Supply
- Variouse DC Power Supply



Maximum Ratings

Symbol	Item	PWD60A30	PWD60A40	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	300	400	V
V_{RSM}	Non-Repetitive Peak Reverse Voltage	360	480	V
V_{DRM}	Repetitive Peak Off-State Voltage	300	400	V

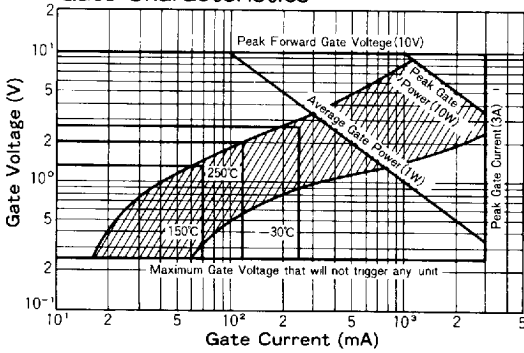
Symbol	Item	Conditions	Ratings	Unit
$I_{T(AV)}$	Average On-State Current	Single phase, half wave, 180° conduction, $T_c : 123^{\circ}\text{C}$	60	A
$I_{T(RMS)}$	R.M.S On-State Current	Single phase, half wave, 180° conduction, $T_c : 123^{\circ}\text{C}$	94	A
I_{TSM}	Surge On-State Current	$1/2$ cycle, 50/60Hz, peak value, non-repetitive	1640/1800	A
I^2t	I^2t		13,500	A^2S
P_{GM}	Peak Gate Power Dissipation		10	W
$P_{G(AV)}$	Average Gate Power Dissipation		1	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	$I_g = 150\text{mA}$, $T_j = 25^{\circ}\text{C}$, $V_D = 1/2 V_{DRM}$, $dI_g/dt = 1\text{A}/\mu\text{s}$	50	$\text{A}/\mu\text{s}$
T_j	Operating Junction Temperature		$-30 \sim +150$	$^{\circ}\text{C}$
T_{stg}	Storage Temperature		$-30 \sim +125$	$^{\circ}\text{C}$
	Mounting Torque	(M6)	Recommended Value 2.5~3.9 (25~40)	4.7 (48) $\text{N}\cdot\text{m}$
		Terminal (M5)	Recommended Value 1.5~2.5 (15~25)	2.7 (28) $(\text{kgf}\cdot\text{cm})$
	Mass		170	g

Electrical Characteristics

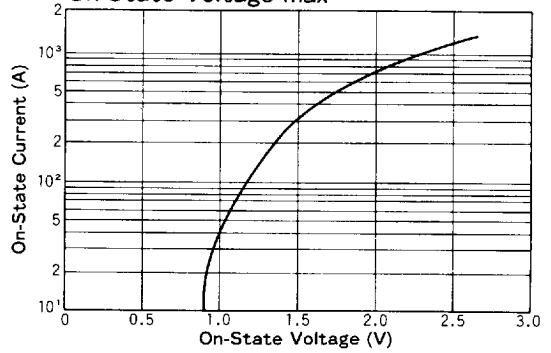
Symbol	Item	Conditions	Ratings	Unit
I_{DRM}	Repetitive Peak Off-State Current, max.	at V_{DRM} , single phase, half wave, $T_j = 150^{\circ}\text{C}$	10	mA
I_{RRM}	Repetitive Peak Reverse Current, max.	at V_{DRM} , single phase, half wave, $T_j = 150^{\circ}\text{C}$	10	mA
V_{TM}	Peak On-State Voltage, max.	On-State Current 180A, $T_j = 25^{\circ}\text{C}$ Inst. measurement	1.25	V
I_{GT}/V_{GT}	Gate Trigger Current/Voltage, max.	$T_j = 25^{\circ}\text{C}$, $I_T = 1\text{A}$, $V_D = 6\text{V}$	150/2	mA/V
V_{GO}	Non-Trigger Gate, Voltage, min.	$T_j = 150^{\circ}\text{C}$, $V_D = 1/2 V_{DRM}$	0.25	V
t_{gt}	Turn On Time, max	$I_T = 60\text{A}$, $I_g = 150\text{mA}$, $T_j = 25^{\circ}\text{C}$, $V_D = 1/2 V_{DRM}$, $dI_g/dt = 1\text{A}/\mu\text{s}$	10	μs
dv/dt	Critical Rate of Rise of On-State Voltage, min.	$T_j = 150^{\circ}\text{C}$, $V_D = 2/3 V_{DRM}$, Exponential wave.	50	$\text{V}/\mu\text{s}$
I_H	Holding Current, typ.	$T_j = 25^{\circ}\text{C}$	100	mA
$R_{th(j-c)}$	Thermal Impedance, max.	Junction to case	0.35	$^{\circ}\text{C}/\text{W}$

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

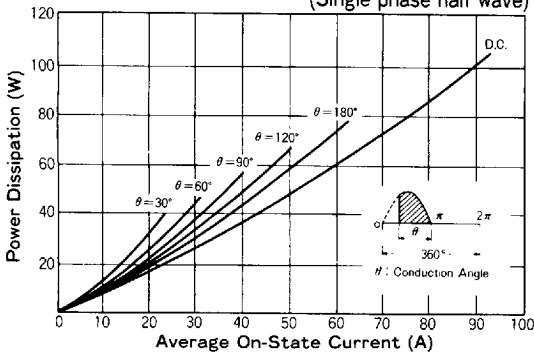
Gate Characteristics



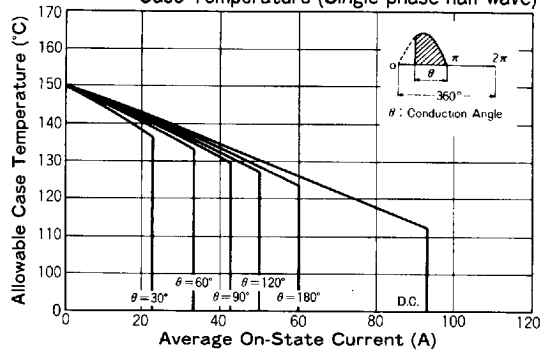
On-State Voltage max



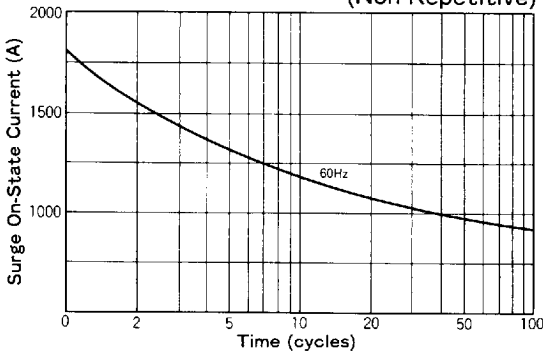
Average On-State Current Vs Power Dissipation (Single phase half wave)



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



Surge On-State Current Rating (Non-Repetitive)



Transient Thermal Impedance

