

# THYRISTOR MODULE (NON-ISOLATED TYPE)

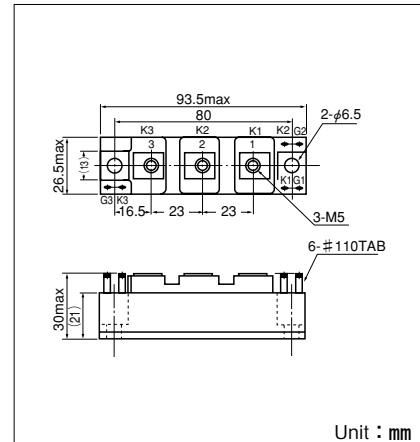
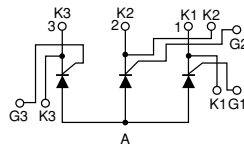
## PWB60A

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

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

### (Applications)

Welding power Supply  
Various DC power Supply



### Maximum Ratings

Symbol	Item	Ratings		Unit
		PWB60A30	PWB60A40	
$V_{RRM}$	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	$\frac{1}{2}$ cycle, 50Hz/60Hz, peak value, non-repetitive	1640/1800	A	
$I^2t$	$I^2t$		13,500	$\text{A}^2\text{S}$	
PGM	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 (R.M.S.)		5	V	
$di/dt$	Critical Rate of Rise of On-State Current	$I_G = 150\text{mA}$ , $T_j = 25^\circ\text{C}$ , $V_D = \frac{1}{2}V_{DRM}$ , $di_G/dt = 1\text{A}/\mu\text{s}$	50	$\text{A}/\mu\text{s}$	
$T_j$	Operating Junction Temperature		-30 to +150	$^\circ\text{C}$	
$T_{stg}$	Storage Temperature		-30 to +125	$^\circ\text{C}$	
	Mounting torque	Mounting (M6)	Recommended Value 2.5-3.9 (25-40)	4.7 (48)	N·m (kgf·cm)
		Terminal (M5)	Recommended Value 1.5-2.5 (15-25)	2.7 (28)	
	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
$V_{GD}$	Non-Trigger Gate, Voltage, min.	$T_j = 150^\circ\text{C}$ , $V_D = \frac{1}{2}V_{DRM}$	0.25	V
tgt	Turn On Time, max.	$I_T = 60\text{A}$ , $I_G = 150\text{mA}$ , $T_j = 25^\circ\text{C}$ , $V_D = \frac{1}{2}V_{DRM}$ , $di_G/dt = 1\text{A}/\mu\text{s}$	10	$\mu\text{s}$
$dv/dt$	Critical Rate of Rise of Off-State Voltage, min.	$T_j = 150^\circ\text{C}$ , $V_D = \frac{2}{3}V_{DRM}$ , 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 ( $\frac{1}{3}$ Module)	0.35	$^\circ\text{C}/\text{W}$

