

THYRISTOR MODULE (NON-ISOLATED TYPE)

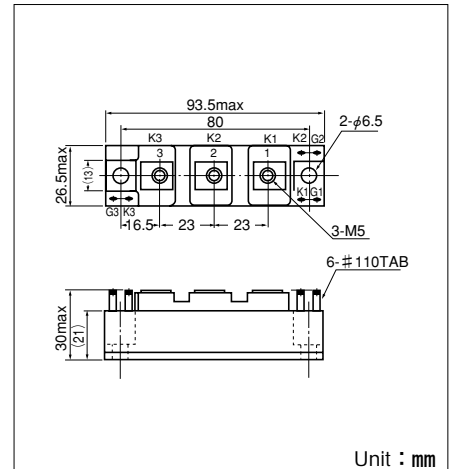
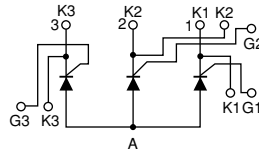
PWB130A

PWB130A is a Thyristor module suitable for low voltage, 3 phase recifier applications.

- $I_{T(AV)}$ 130A (each device)
- high Surge Current 3500 A (50/60Hz)
- Easy Construction
- Non-isolated. Mounting base as common Anode terminal

(Applications)

Welding power Supply
Various DC power Supply



Unit : mm

Maximum Ratings

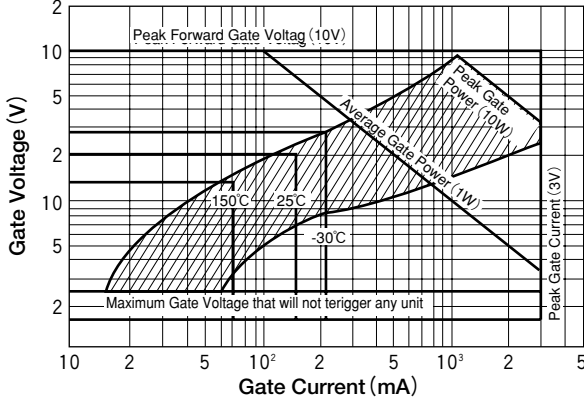
Symbol	Item	Ratings			Unit
		PWB130A20	PWB130A30	PWB130A40	
VRRM	Repetitive Peak Reverse Voltage	200	300	400	V
VRSM	Non-Repetitive Peak Reverse Voltage	240	360	480	V
VDRM	Repetitive Peak Off-State Voltage	200	300	400	V

Symbol	Item	Conditions	Ratings	Unit	
$I_{T(AV)}$	Average On-State Current	Single phase, half wave, 180° conduction, $T_c : 112^\circ\text{C}$	130	A	
$I_{T(RMS)}$	R.M.S. On-State Current	Single phase, half wave, 180° conduction, $T_c : 112^\circ\text{C}$	204	A	
I_{TSM}	Surge On-State Current	$\frac{1}{2}$ cycle, 50Hz/60Hz, peak value, non-repetitive	3200/3500	A	
I^2t	I^2t		51000	A ² S	
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 On-State Current	$I_G=200\text{mA}$, $T_j=25^\circ\text{C}$, $V_D=\frac{1}{2}V_{DRM}$, $dI_G/dt=1\text{A}/\mu\text{s}$	50	A/ μs	
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 2.5-3.9 (25-40)	4.7 (48)	N·m (kgf·cm)
		Terminal (M5)	Recommended 1.5-2.5 (15-25)	2.7 (28)	
	Mass			170	g

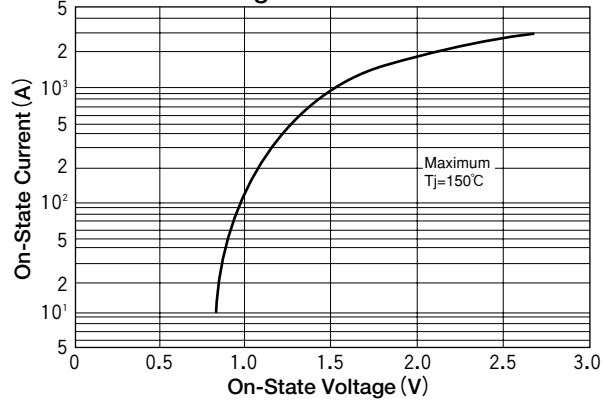
Electrical Characteristics

Symbol	Item	Conditions	Ratings			Unit
			Mix.	Typ.	Min.	
I_{DRM}	Repetitive Peak Off-State Current, max.	at V_{DRM} , single phase, half wave, $T_j=150^\circ\text{C}$			30	mA
I_{RRM}	Repetitive Peak Reverse Current, max.	at V_{DRM} , single phase, half wave, $T_j=150^\circ\text{C}$			30	mA
V_{TM}	Peak On-State Voltage, max.	On-State Current 410A, $T_j=150^\circ\text{C}$ Inst. measurement			1.2	V
I_{GT}	Gate Trigger Current, max.	$T_j=25^\circ\text{C}$, $I_T=1\text{A}$, $V_D=6\text{V}$			150	mA/V
V_{GT}	Gate Trigger Voltage, max.	$T_j=25^\circ\text{C}$, $I_T=1\text{A}$, $V_D=6\text{V}$			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.	$I_T=100\text{A}$, $I_G=200\text{mA}$, $T_j=25^\circ\text{C}$, $V_D=\frac{1}{2}V_{DRM}$, $dI_G/dt=1\text{A}/\mu\text{s}$			10	μs
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			V/ μs
I_H	Holding Current, typ.	$T_j=25^\circ\text{C}$			70	mA
$R_{th(j-c)}$	Thermal Impedance, max.	Junction to case ($\frac{1}{3}$ Module)			0.2	$^\circ\text{C}/\text{W}$

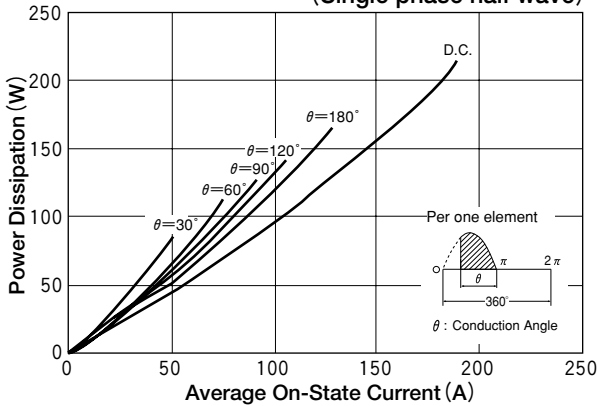
Gate Characteristics



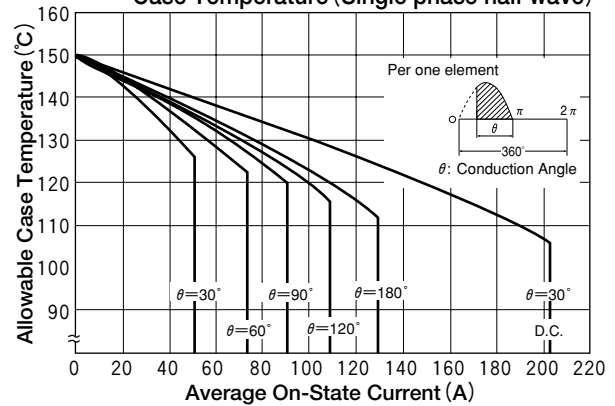
On-State Voltage max



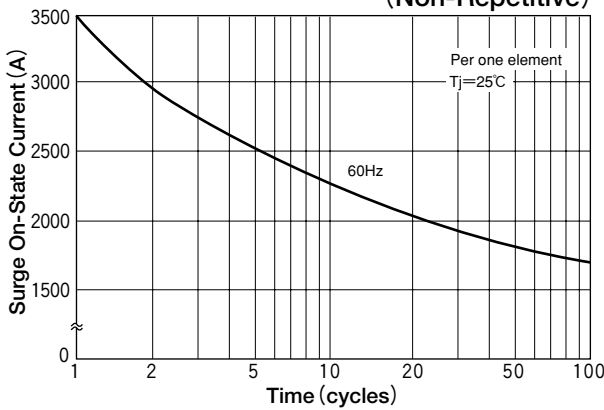
Average On-State Current Vs Power Dissipation (Single phase half wave)



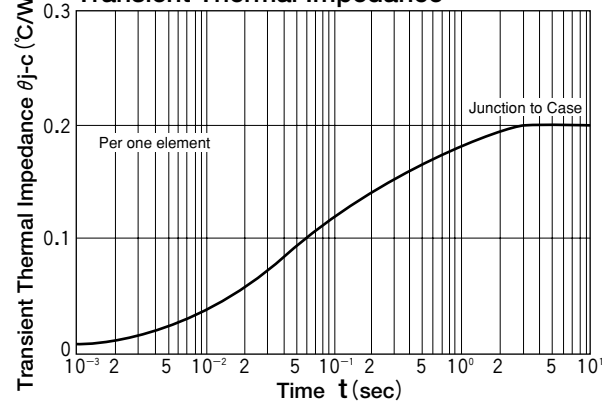
Average On-State Current Vs Maximum Allowable Case Temperature (Single phase half wave)



Surge On-State Current Rating (Non-Repetitive)



Transient Thermal Impedance



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