THYRISTOR MODULE

PK(PD,PE,KK)90HB

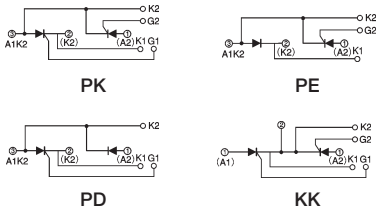
UL;E76102 (M)

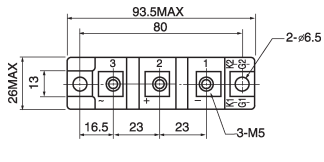
Power Thyristor/Diode Module **PK90HB** series are designed for various rectifier circuits and power controls. For your circuit application. following internal connections and wide voltage ratings up to 1,600V are available. and electrically isolated mounting base make your mechanical design easy.

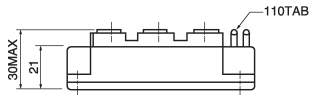
- $I_{T(AV)}$ 90A, $I_{T(RMS)}$ 140A, I_{TSM} 1800A
- di/dt 200 A/ μs
- dv/dt 500V/ μs

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

Internal Configurations







Unit : mm

■Maximum Ratings

Symbol	Item	Ratings		Unit
		PK90GB40 PD90GB40 KK90GB40 PE90GB40	PK90GB80 PD90GB80 KK90GB80 PE90GB80	
V_{RRM}	＊Repetitive Peak Reverse Voltage	1200	1600	V
V_{RSM}	＊Non-Repetitive Peak Reverse Voltage	1350	1700	V
V_{DRM}	Repetitive Peak Off-State Voltage	1200	1600	V

Symbol	Item		Conditions	Ratings	Unit
$I_{T(AV)}$	＊Average On-State Current		Single phase, half wave, 180˚conduction, Tc：88℃	90	A
$I_{T(RMS)}$	＊R.M.S. On-State Current		Single phase, half wave, 180˚conduction, Tc：88℃	140	A
I_{TSM}	＊Surge On-State Current		1/2cycle, 50Hz/60Hz, peak Value, non-repetitive	1650/1800	A
I^2t	＊I^2t		Value for one cycle of surge current	15000	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=1/2V_{DRM}, dI_G/dt=0.1A/μs	200	A/μs
V_{ISO}	＊Isolation Breakdown Voltage (R.M.S.)		A.C.1minute	2500	V
Tj	＊Operating Junction Temperature			−40～+125	℃
Tstg	＊Storage Temperature			−40～+125	℃
	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

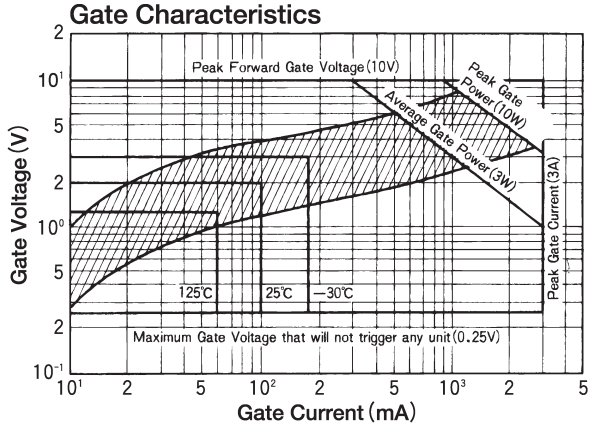
■Electrical Characteristics

Symbol	Item	Conditions	Ratings	Unit
I_{DRM}	Repetitive Peak Off-State Current, max.	at V_{DRM}, single phase, half wave, Tj=125℃	15	mA
I_{RRM}	＊Repetitive Peak Reverse Current, max.	at V_{DRM}, single phase, half wave, Tj=125℃	15	mA
V_{TM}	＊Peak On-State Voltage, max.	On-State Current 270A, Tj=125℃ Inst. measurement	1.40	V
I_{GT}／V_{GT}	Gate Trigger Current/Voltage, max.	Tj=25℃, I_T=1A, V_D=6V	100/2	mA/V
V_{GD}	Non-Trigger Gate, Voltage. min.	Tj=125℃, V_D=1/2V_{DRM}	0.25	V
tgt	Turn On Time, max.	I_T=90A, I_G=100mA, Tj=25℃, V_D=1/2V_{DRM}, dI_G/dt=0.1A/μs	10	μs
dv／dt	Critical Rate of Rise of Off-State Voltage, min.	Tj=125℃, V_D=2/3V_{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	0.30	℃/W

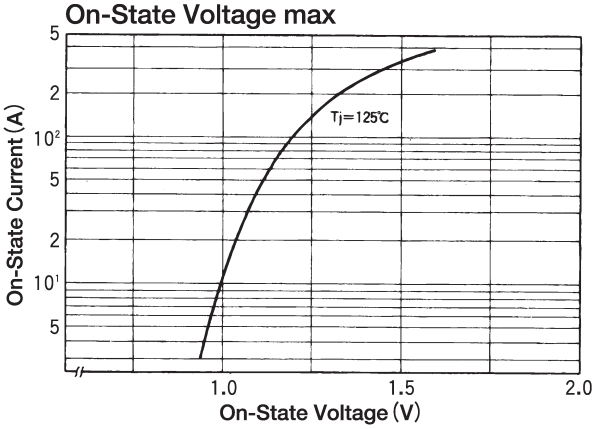
＊mark：Thyristor and Diode part. No mark：Thyristor part

SanRex

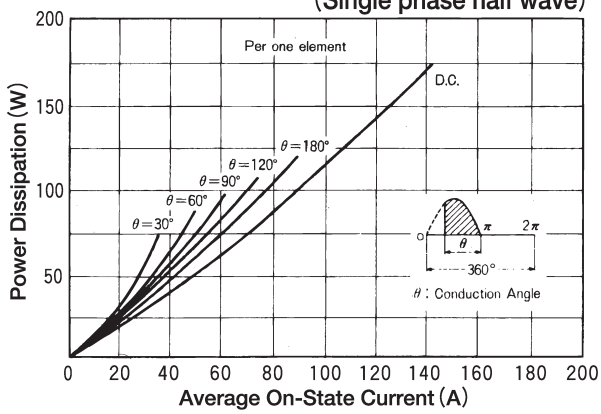
Gate Characteristics



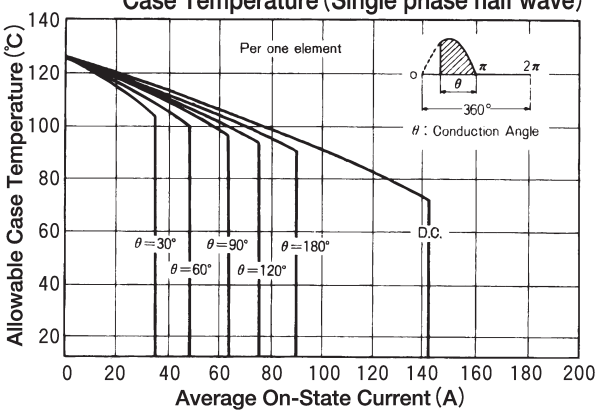
On-State Voltage max



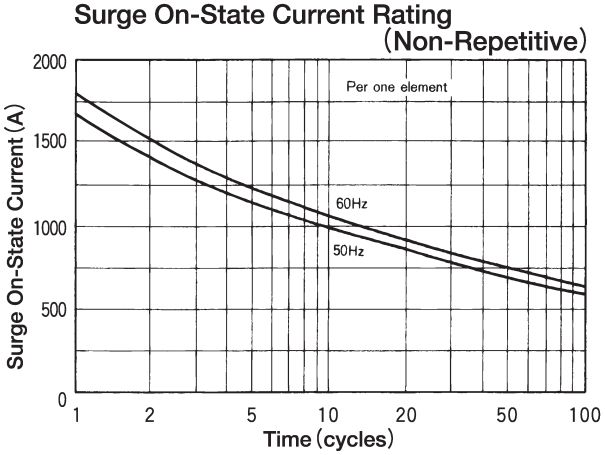
Average On-State Current Vs Power Dissipation (Single phase half wave)



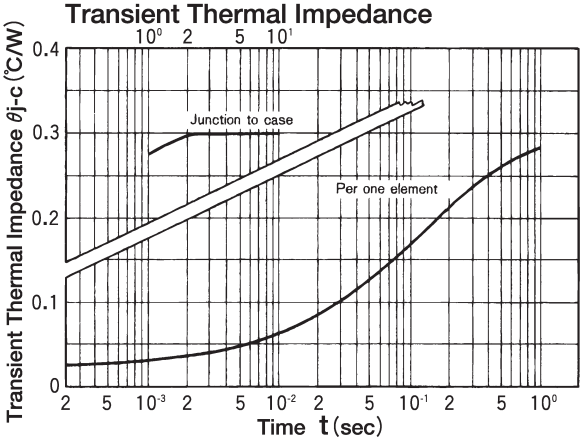
Average On-State Current Vs Maximum Allowable Case Temperature (Single phase half wave)



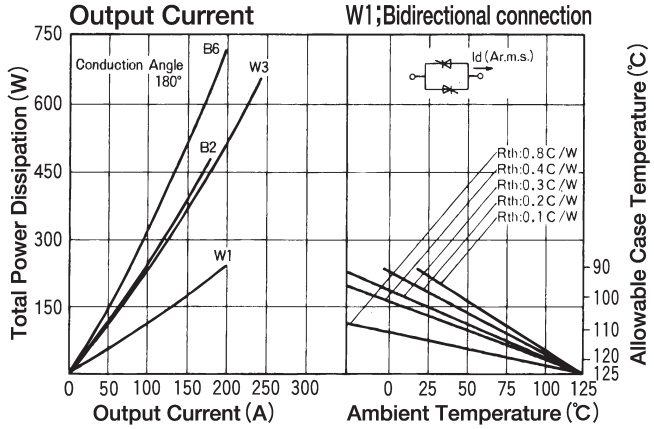
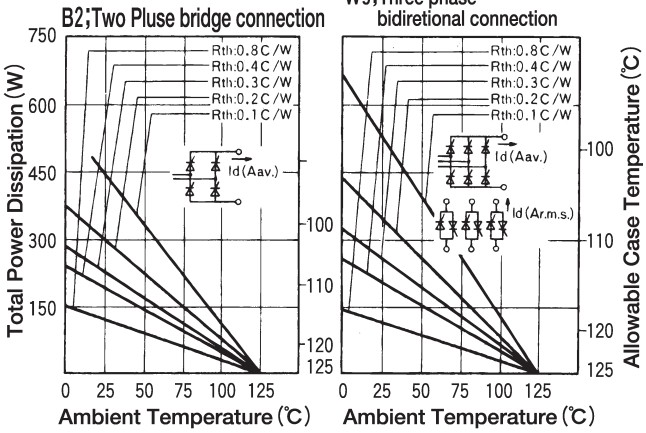
Surge On-State Current Rating (Non-Repetitive)



Transient Thermal Impedance



Output Current W1;Bidirectional connection



B2;Two Pluse bridge connection / B6;Six pulse bridge connection W3;Three phase bidiretional connection