THYRISTOR MODULE

PK(PD,PE,KK)90GB

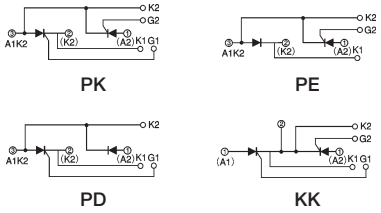
UL;E76102 (M)

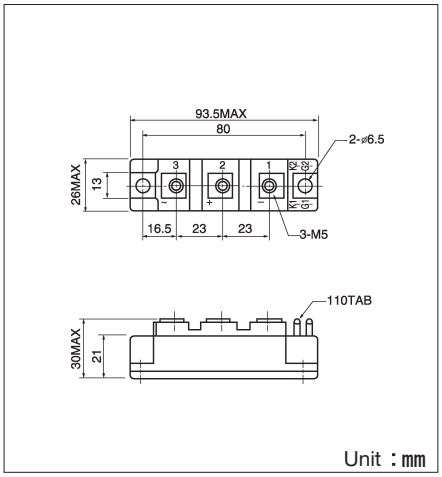
Power Thyristor/Diode Module **PK90GB** series are designed for various rectifier circuits and power controls. For your circuit application. following internal connections and wide voltage ratings up to 800V are available. and electrically isolated mounting base make your mechanical design easy.

- $I_{T(AV)}$ 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





■Maximum Ratings

Symbol	Item	Ratings		Unit
		PK90HB120 PD90HB120 KK90HB120 PE90HB120	PK90HB160 PD90HB160 KK90HB160 PE90HB160	
V_{RRM}	＊Repetitive Peak Reverse Voltage	400	800	V
V_{RSM}	＊Non-Repetitive Peak Reverse Voltage	480	960	V
V_{DRM}	＊Non-Repetitive Peak Reverse Voltage	400	800	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

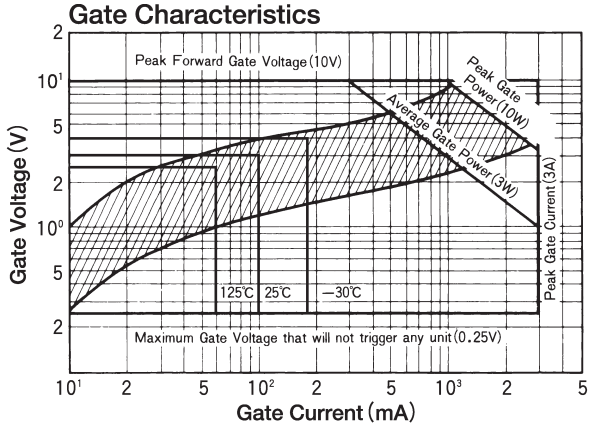
■Electrical Characteristics

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	1.30	V
I_{GT}／V_{GT}	Gate Trigger Current/Voltage, max.	Tj=25℃, I_T=1A, V_D=6V	100/3	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

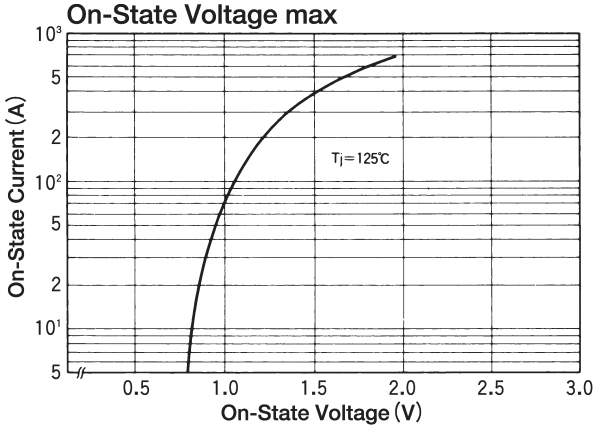
＊mark：Thyristor and Diode part. No mark：Thyristor part

SanRex

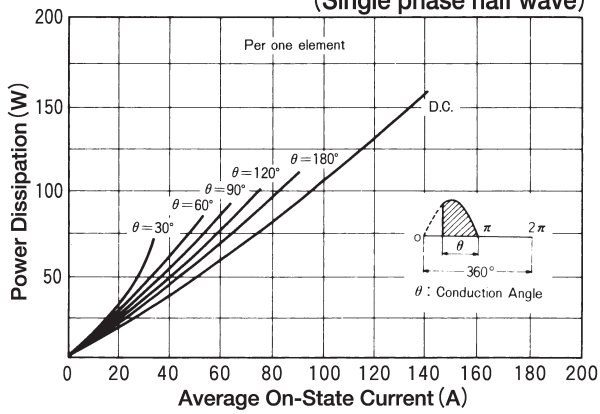
Gate Characteristics



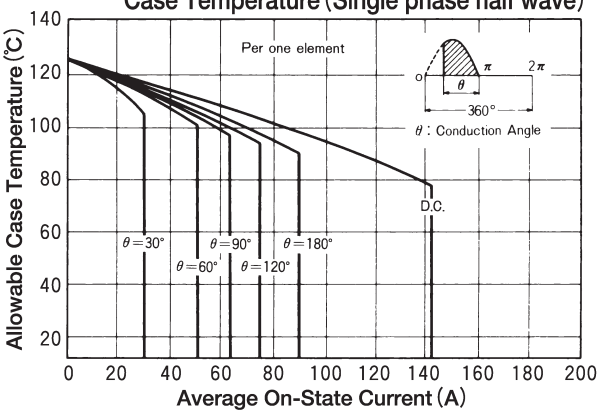
On-State Voltage max



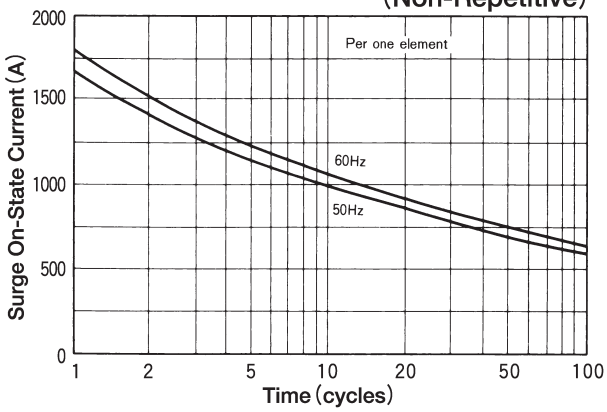
Average On-State Current Vs Power Dissipation (Single phase half wave)



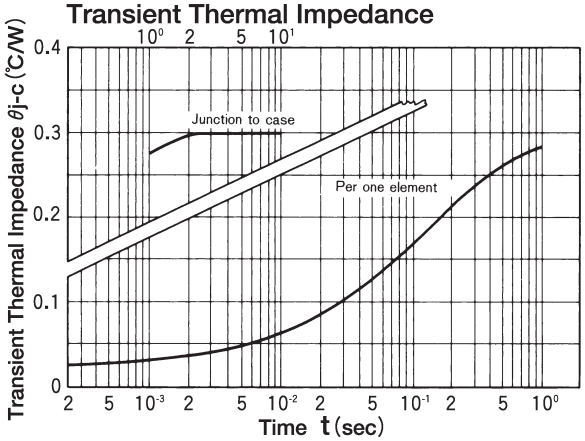
Average On-State Current Vs Maximum Allowable Case Temperature (Single phase half wave)



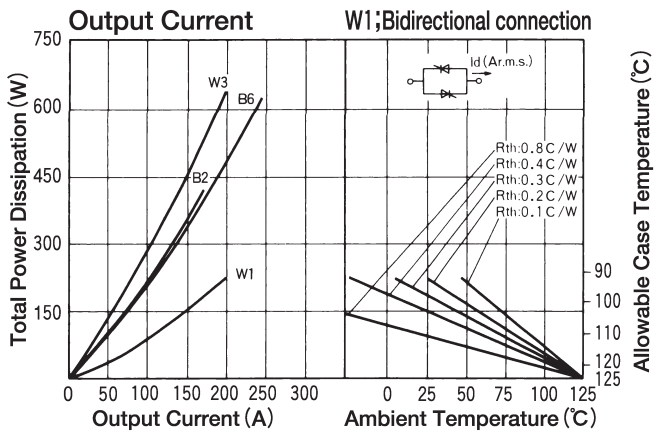
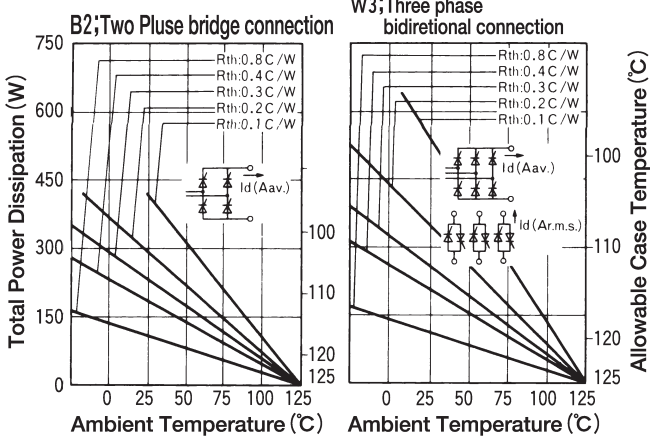
Surge On-State Current Rating (Non-Repetitive)



Transient Thermal Impedance



Output Current

W1;Bidirectional connection

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