THYRISTOR MODULE

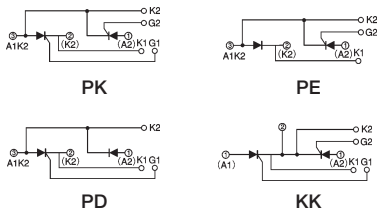
PK(PD,PE,KK)110F

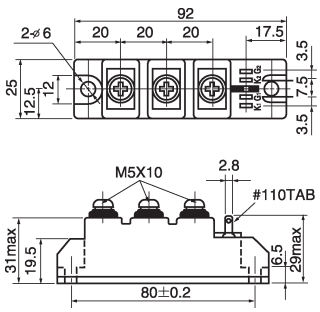
UL:E76102 (M)

Power Thyristor/Diode Module **PK110F** 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. High precision 25mm (1inch) width package and electrically isolated mounting base make your mechanical design easy.

- $I_{T(AV)}$110A, $I_{T(RMS)}$172A, I_{TSM} 2550A
- di/dt 200 A/ μs
- dv/dt 500V/ μs

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





Unit : mm

■Maximum Ratings

Symbol	Item	Ratings				Unit
		PK110F40 PD110F40 PE110F40 KK110F40	**PK110F80 PD110F80 PE110F80 KK110F80**	**PK110F120 PD110F120 PE110F120 KK110F120**	**PK110F160 PD110F160 PE110F160 KK110F160**	
V_{RRM}	＊Repetitive Peak Reverse Voltage	400	800	1200	1600	V
V_{RSM}	＊Non-Repetitive Peak Reverse Voltage	480	960	1300	1700	V
V_{DRM}	Repetitive Peak Off-State Voltage	400	800	1200	1600	V

Symbol	Item		Conditions	Ratings	Unit
$I_{T(AV)}$	＊Average On-State Current		Single phase, half wave, 180˚conduction, Tc：88℃	110	A
$I_{T(RMS)}$	＊R.M.S. On-State Curren		Single phase, half wave, 180˚conduction, Tc：88℃	172	A
I_{TSM}	＊Surge On-State Current		1/2cycle, 50Hz/60Hz, peak Value, non-repetitive	2300/2550	A
I^2t	＊I^2t		Value for one cycle of surge current	26500	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 (M5)	Recommended 1.5～2.5 (15～25)	2.7 (28)	N・m (kgf・cm)
		Terminal (M5)	Recommended 1.5～2.5 (15～25)	2.7 (28)	
	Mass			170	g

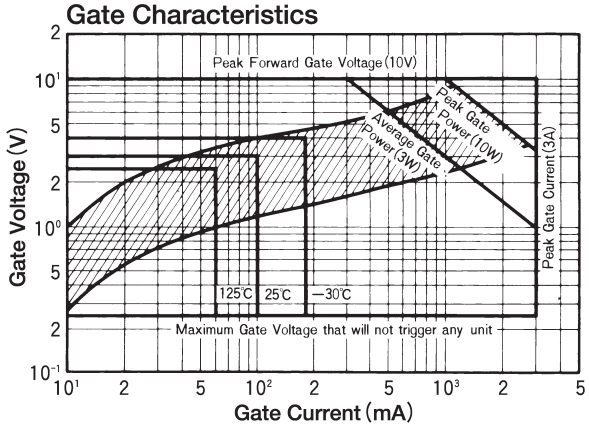
■Electrical Characteristics

Symbol	Item	Conditions	Ratings	Unit
I_{DRM}	Repetitive Peak Off-State Current, max.	at V_{DRM}, single phase, half wave, Tj=125℃	20	mA
I_{RRM}	＊Repetitive Peak Reverse Current, max.	at V_{DRM}, single phase, half wave, Tj=125℃	20	mA
V_{TM}	＊Peak On-State Voltage, max.	On-State Current 350A, Tj=25℃ Inst. measurement	1.45	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=110A, 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	0.25	℃/W

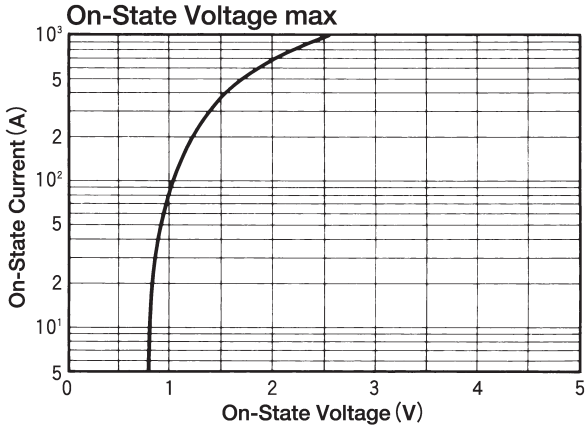
＊mark：Thyristor and Diode part. No mark：Thyristor part

SanRex

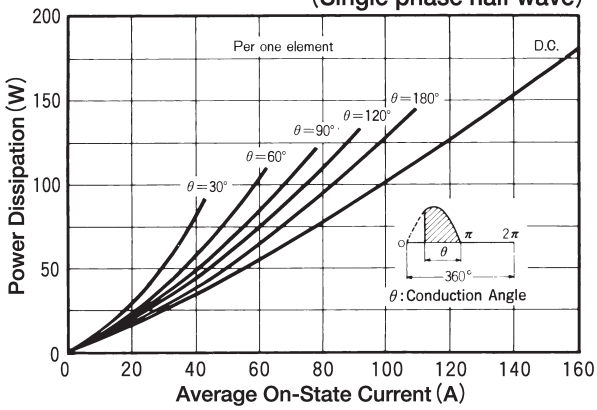
Gate Characteristics



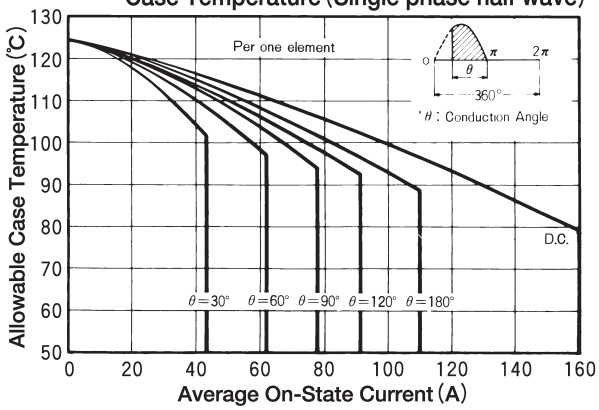
On-State Voltage max



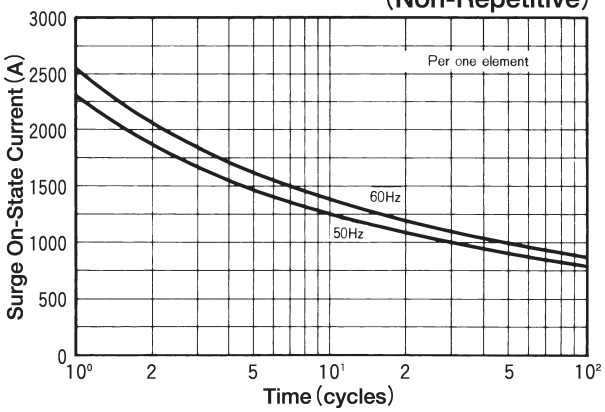
Average On-State Current Vs Power Dissipation (Single phase half wave)



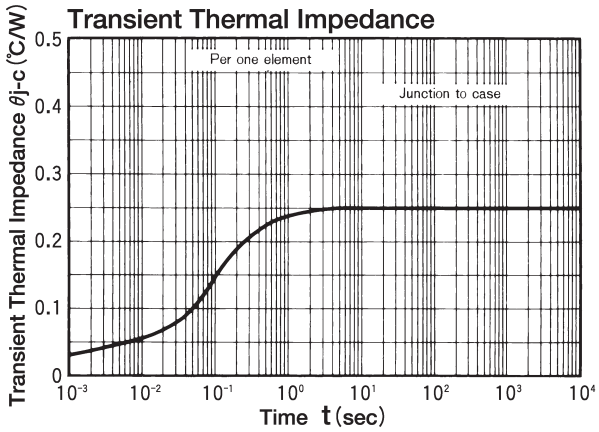
Average On-State Current Vs Maximum Allowable Case Temperature (Single phase half wave)

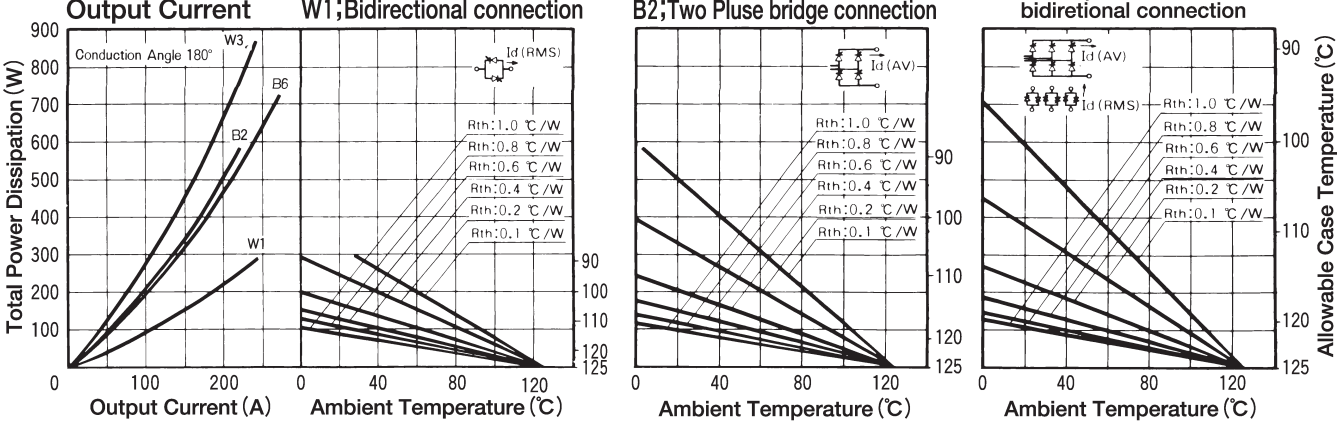


Surge On-State Current Rating (Non-Repetitive)



Transient Thermal Impedance



Output Current — W1;Bidirectional connection

B6;Six pulse bridge connection
W3;Three phase bidiretional connection