

THYRISTOR MODULE

PK(PD,PE,KK)110F

TOP

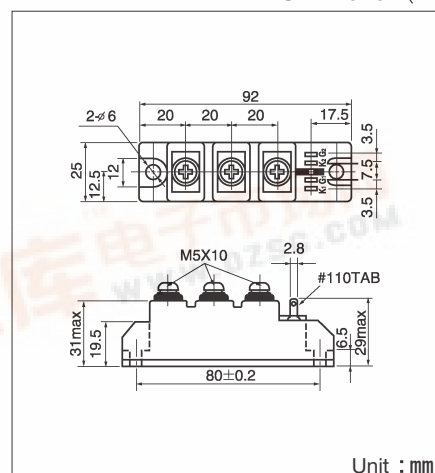
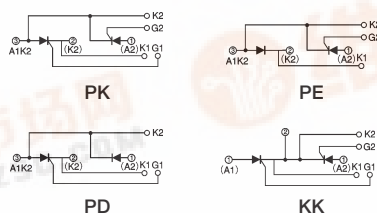
UL:E76102 (M)

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/ μ s
- dv/dt 500V/ μ s

(Applications)

- Various rectifiers
- AC/DC motor drives
- Heater controls
- Light dimmers
- Static switches



Maximum Ratings

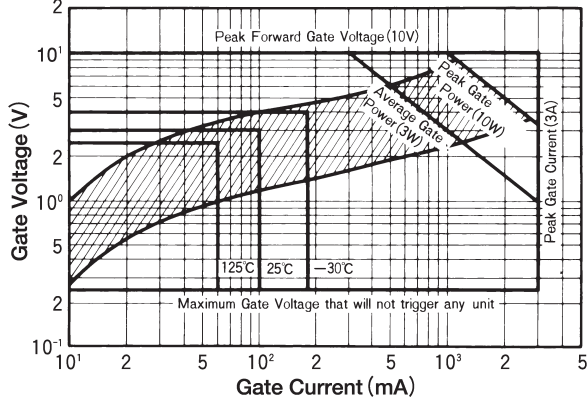
Symbol	Item	Ratings				Unit
		PK110F40	PK110F80	PK110F120	PK110F160	
		PD110F40	PD110F80	PD110F120	PD110F160	
		PE110F40	PE110F80	PE110F120	PE110F160	
		KK110F40	KK110F80	KK110F120	KK110F160	
V _{RRM}	* Repetitive Peak Reverse Voltage	400	800	1200	1600	V
V _{RSM}	* Non-Repetitive Peak Reverse Voltage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

Symbol	Item		Conditions	Ratings	Unit
IT (AV)	*Average On-State Current		Single phase, half wave, 180° conduction, Tc : 88℃	110	A
IT (RMS)	*R.M.S. On-State Curren		Single phase, half wave, 180° conduction, Tc : 88℃	172	A
ITSM	*Surge On-State Current		1/2cycle, 50Hz/60Hz, peak Value, non-repetitive	2300/2550	A
I²t	*I²t		Value for one cycle of surge current	26500	A²S
PGM	Peak Gate Power Dissipation			10	W
PG (AV)	Average Gate Power Dissipation			3	W
IFGM	Peak Gate Current			3	A
VFGM	Peak Gate Voltage(Forward)			10	V
VRGM	Peak Gate Voltage(Reverse)			5	V
di/dt	Critical Rate of Rise of On-State Current		IG=100mA, Tj=25℃, VD=1/2VDRM, dIG/dt=0.1A/μs	200	A/μs
VISO	*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

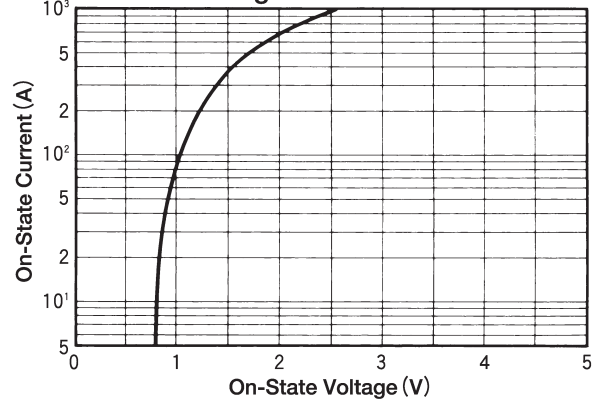
■ Electrical Characteristics

Symbol	Item	Conditions	Ratings	Unit
I_{DRM}	Repetitive Peak Off-State Current, max.	at V_{DRM} , single phase, half wave, $T_j=125^\circ\text{C}$	20	mA
I_{RRM}	*Repetitive Peak Reverse Current, max.	at V_{DRM} , single phase, half wave, $T_j=125^\circ\text{C}$	20	mA
V_{TM}	*Peak On-State Voltage, max.	On-State Current 350A, $T_j=25^\circ\text{C}$ Inst. measurement	1.45	V
I_{GT}/V_{GT}	Gate Trigger Current/Voltage, max.	$T_j=25^\circ\text{C}$, $I_T=1\text{A}$, $V_D=6\text{V}$	100/3	mA/V
V_{GD}	Non-Trigger Gate, Voltage. min.	$T_j=125^\circ\text{C}$, $V_D=1/2V_{DRM}$	0.25	V
t_{gt}	Turn On Time, max.	$I_T=110\text{A}$, $I_G=100\text{mA}$, $T_j=25^\circ\text{C}$, $V_D=1/2V_{DRM}$, $di_G/dt=0.1\text{A}/\mu\text{s}$	10	μs
dv/dt	Critical Rate of Rise of Off-State Voltage, min.	$T_j=125^\circ\text{C}$, $V_D=2/3V_{DRM}$, Exponential wave.	500	$\text{V}/\mu\text{s}$
I_H	Holding Current, typ.	$T_j=25^\circ\text{C}$	50	mA
I_L	Latching Current, typ.	$T_j=25^\circ\text{C}$	100	mA
$R_{th(j-c)}$	*Thermal Impedance, max.	Junction to case	0.25	$^\circ\text{C}/\text{W}$

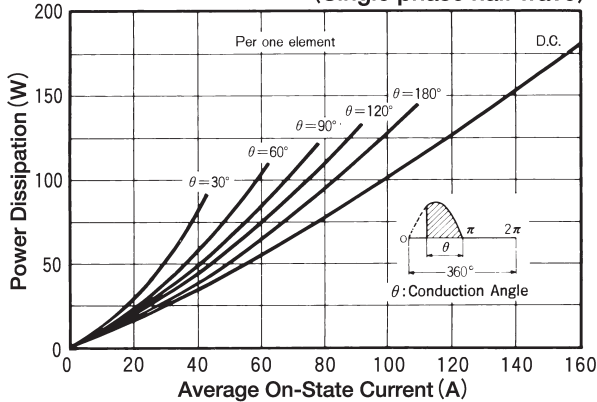
Gate Characteristics



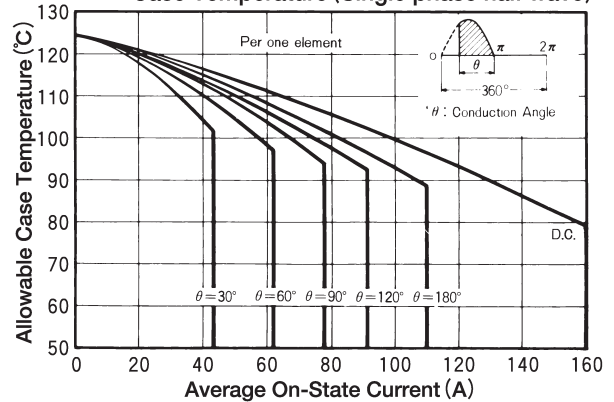
On-State Voltage max



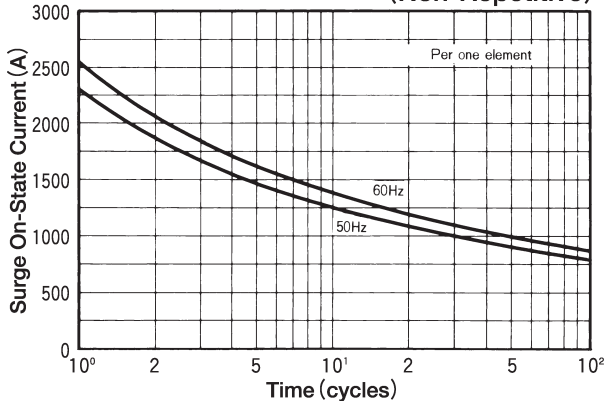
Average On-State Current Vs Power Dissipation (Single phase half wave)



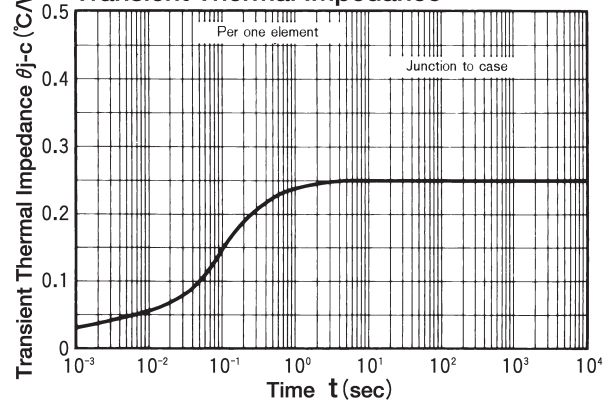
Average On-State Current Vs Maximum Allowable Case Temperature (Single phase half wave)



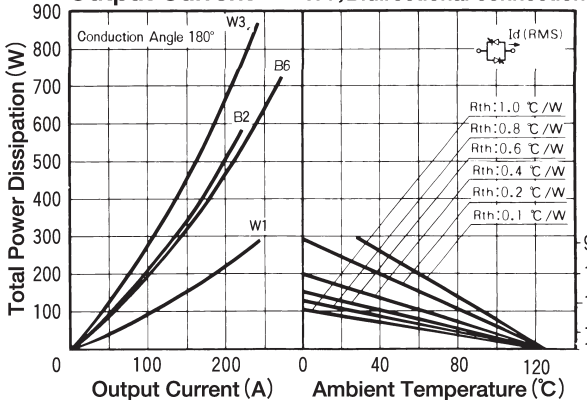
Surge On-State Current Rating (Non-Repetitive)



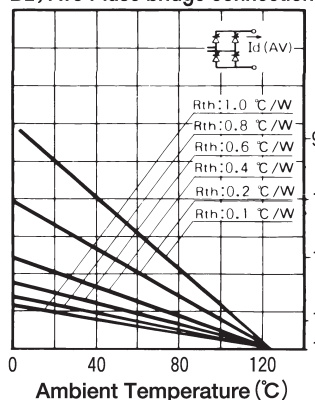
Transient Thermal Impedance



Output Current W1; Bidirectional connection



B2; Two Pulse bridge connection



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

