

THYRISTOR MODULE

PK(PD,PE,KK)130F

TOP



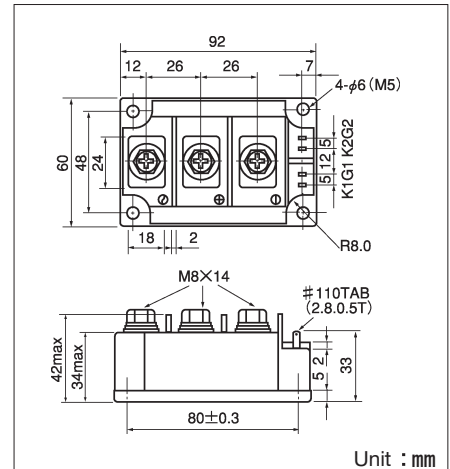
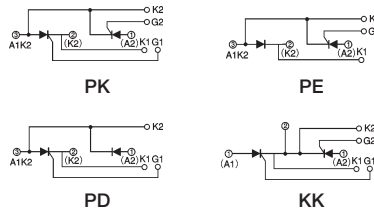
UL:E76102 (M)

Power Thyristor/Diode Module **PK130F** 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. Two elements in a package and electrically isolated mounting base make your mechanical design easy.

- $I_{T(AV)}$ 130A, $I_{T(RMS)}$ 205A, I_{TSM} 4400A
- di/dt 200 A/ μ s
- dv/dt 500V/ μ s

(Applications)

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



Unit : mm

Maximum Ratings

Symbol	Item	Ratings				Unit
		PK130F40 PD130F40 PE130F40 KK130F40	PK130F80 PD130F80 PE130F80 KK130F80	PK130F120 PD130F120 PE130F120 KK130F120	PK130F160 PD130F160 PE130F160 KK130F160	
VRRM	* Repetitive Peak Reverse Voltage	400	800	1200	1600	V
VRSM	* Non-Repetitive Peak Reverse Voltage	480	960	1300	1700	V
VDRM	Repetitive Peak Off-State Voltage	400	800	1200	1600	V

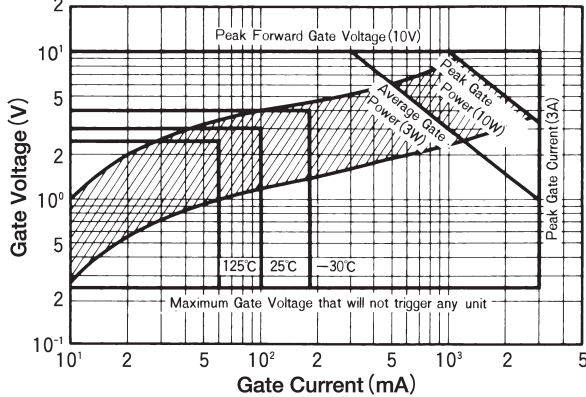
Symbol	Item		Conditions	Ratings	Unit
IT (AV)	*Average On-State Current		Single phase, half wave, 180° conduction, Tc : 90℃	130	A
IT (RMS)	*R.M.S. On-State Current		Single phase, half wave, 180° conduction, Tc : 90℃	205	A
ITSM	*Surge On-State Current		1/2cycle, 50Hz/60Hz, peak Value, non-repetitive	4000/4400	A
I²t	*I²t		Value for one cycle of surge current	8×10⁴	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 (M8)	Recommended 8.8~10 (90~105)	11 (115)	
	Mass			510	g

Electrical Characteristics

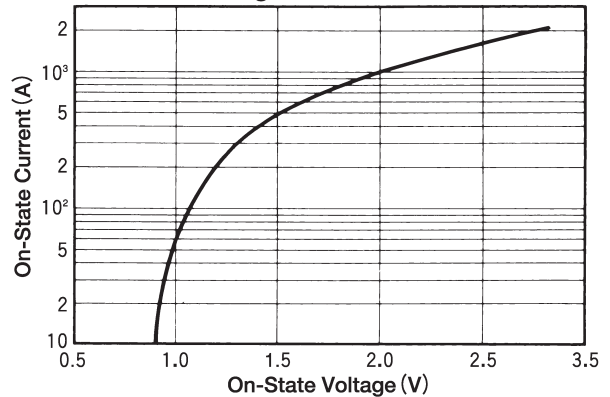
Symbol	Item	Conditions	Ratings	Unit
I _{DRM}	Repetitive Peak Off-State Current, max.	at V_{DRM} , single phase, half wave, $T_j = 125^\circ\text{C}$	50	mA
I _{RRM}	* Repetitive Peak Reverse Current, max.	at V_{DRM} , single phase, half wave, $T_j = 125^\circ\text{C}$	50	mA
V _{TM}	* Peak On-State Voltage, max.	On-State Current 400A, $T_j = 25^\circ\text{C}$ Inst. measurement	1.40	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.	$T_j = 125^\circ\text{C}$, $V_D = \frac{1}{2}V_{DRM}$	0.25	V
t _{gt}	Turn On Time, max.	$I_T = 130\text{A}$, $I_G = 100\text{mA}$, $T_j = 25^\circ\text{C}$, $V_D = \frac{1}{2}V_{DRM}$, $di_G/dt = 0.1\text{A}/\mu\text{s}$	10	μ s
dv/dt	Critical Rate of Rise of Off-State Voltage, min.	$T_j = 125^\circ\text{C}$, $V_D = \frac{2}{3}V_{DRM}$, Exponential wave.	500	V/ μ 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	0.2	°C/W

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

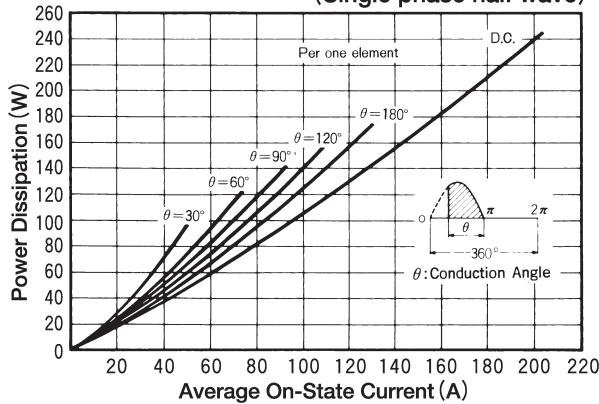
Gate Characteristics



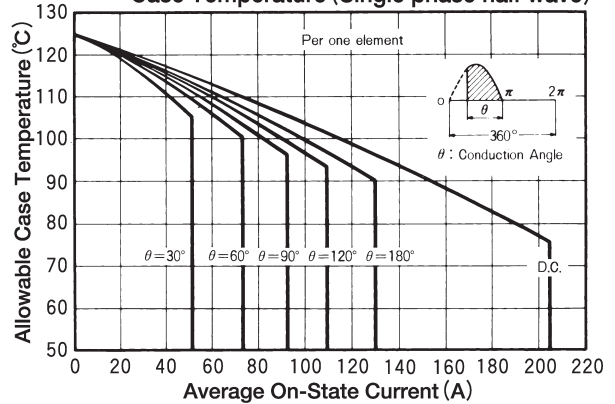
On-State Voltage max



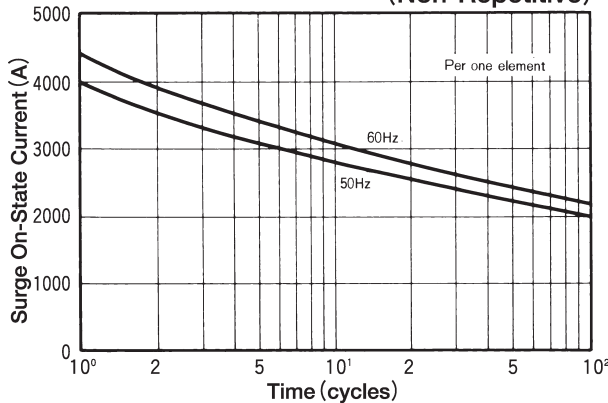
Average On-State Current Vs Power Dissipation (Single phase half wave)



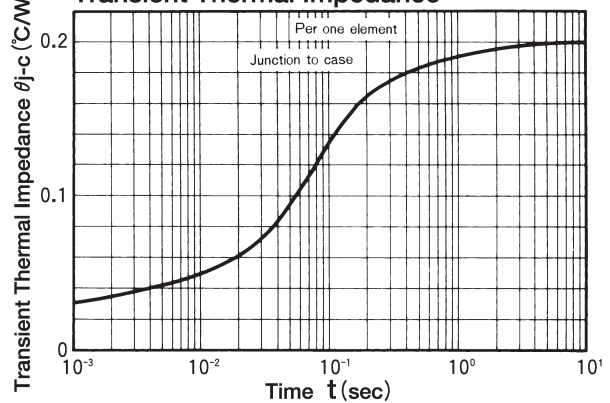
Average On-State Current Vs Maximum Allowable Case Temperature (Single phase half wave)



Surge On-State Current Rating (Non-Repetitive)

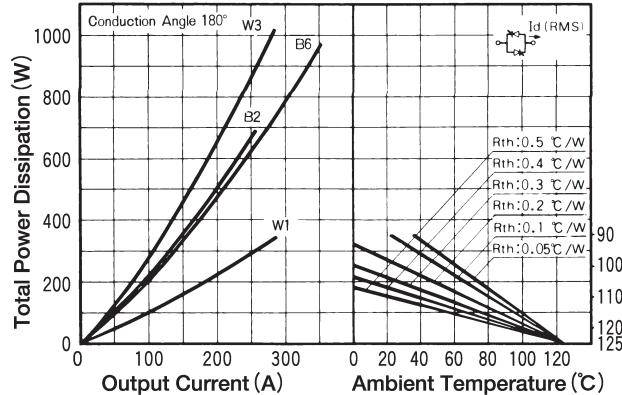


Transient Thermal Impedance

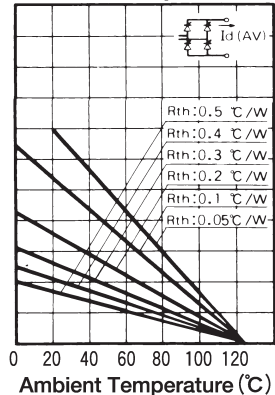


Output Current

W1; Bidirectional connection



B2; Two Pluse bridge connection



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

