THYRISTOR MODULE

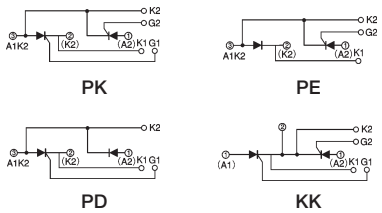
PK(PD,PE,KK)130F

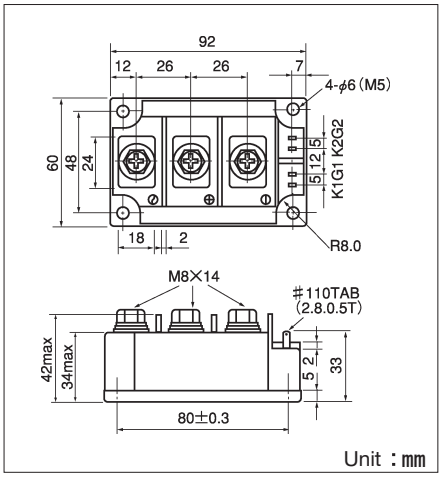
UL:E76102 (M)

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/ μs
- dv/dt 500V/ μs

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





■Maximum Ratings

Symbol	Item	Ratings				Unit
		PK130F40 PD130F40 PE130F40 KK130F40	PK130F80 PD130F80 PE130F80 KK130F80	PK130F120 PD130F120 PE130F120 KK130F120	PK130F160 PD130F160 PE130F160 KK130F160	
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：90℃	130	A
$I_{T(RMS)}$	＊R.M.S. On-State Current		Single phase, half wave, 180˚conduction, Tc：90℃	205	A
I_{TSM}	＊Surge On-State Current		½cycle, 50Hz/60Hz, peak Value, non-repetitive	4000/4400	A
I^2t	＊I^2t		Value for one cycle of surge current	8×10^4	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=½V_{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 (M8)	Recommended 8.8～10 (90～105)	11 (115)	
	Mass			510	g

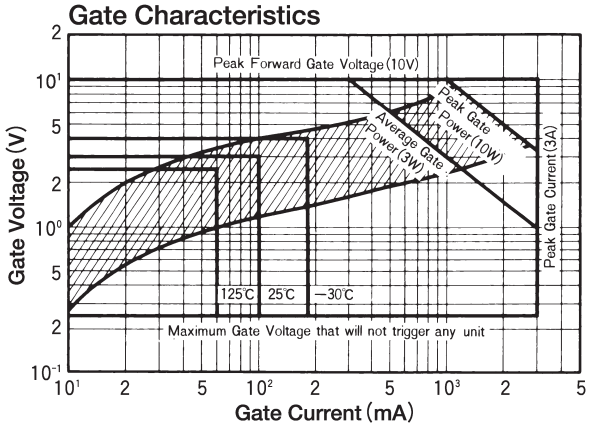
■Electrical Characteristics

Symbol	Item	Conditions	Ratings	Unit
I_{DRM}	Repetitive Peak Off-State Current, max.	at V_{DRM}, single phase, half wave, Tj=125℃	50	mA
I_{RRM}	＊Repetitive Peak Reverse Current, max.	at V_{DRM}, single phase, half wave, Tj=125℃	50	mA
V_{TM}	＊Peak On-State Voltage, max.	On-State Current 400A, Tj=25℃ Inst. measurement	1.40	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=½V_{DRM}	0.25	V
tgt	Turn On Time, max.	I_T=130A, I_G=100mA, Tj=25℃, V_D=½V_{DRM}, dI_G/dt=0.1A/μs	10	μs
dv／dt	Critical Rate of Rise of Off-State Voltage, min.	Tj=125℃, V_D=⅔V_{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	0.2	℃/W

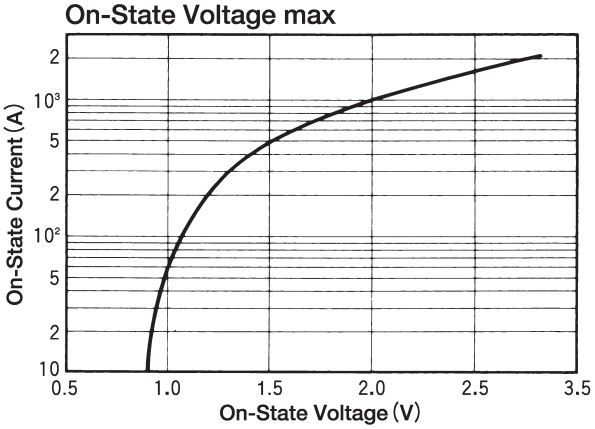
＊mark：Thyristor and Diode part. No mark：Thyristor part

SanRex

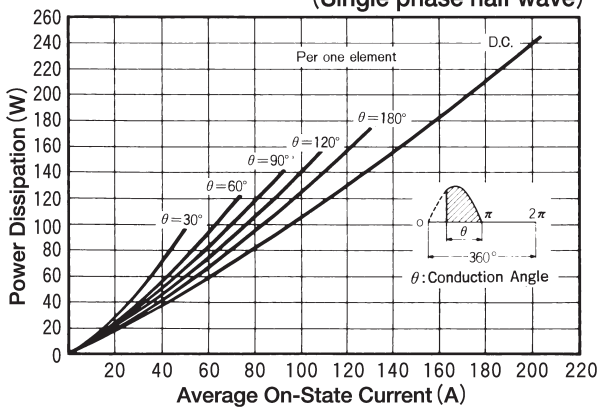
Gate Characteristics



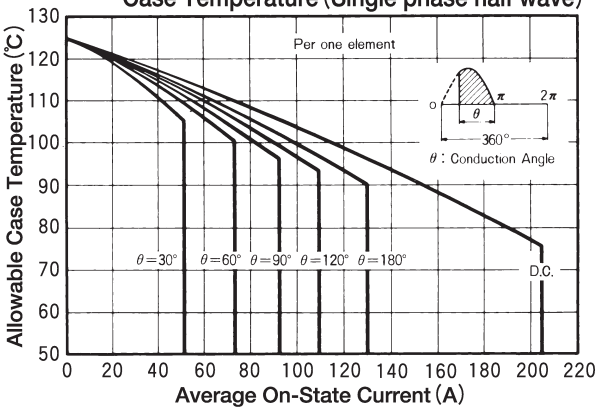
On-State Voltage max



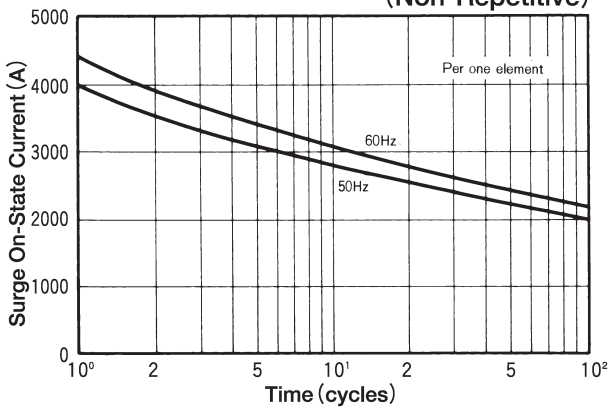
Average On-State Current Vs Power Dissipation (Single phase half wave)



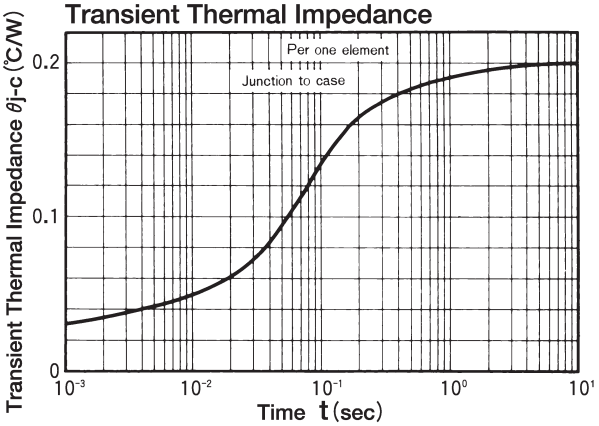
Average On-State Current Vs Maximum Allowable Case Temperature (Single phase half wave)



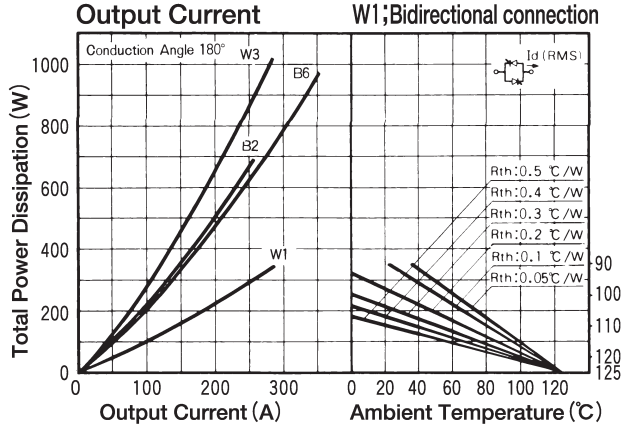
Surge On-State Current Rating (Non-Repetitive)



Transient Thermal Impedance

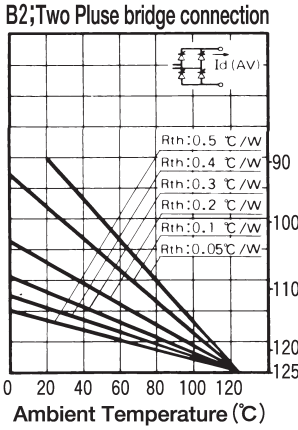
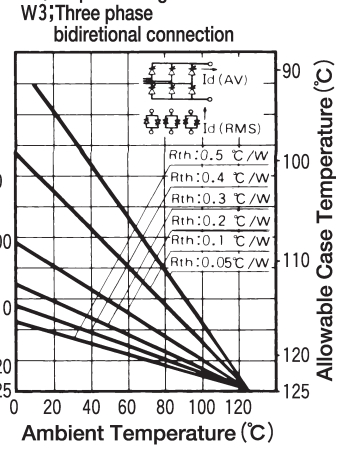


Output Current



W1;Bidirectional connection

B2;Two Pluse bridge connection



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