

# PK(PD,PE,KK)130F

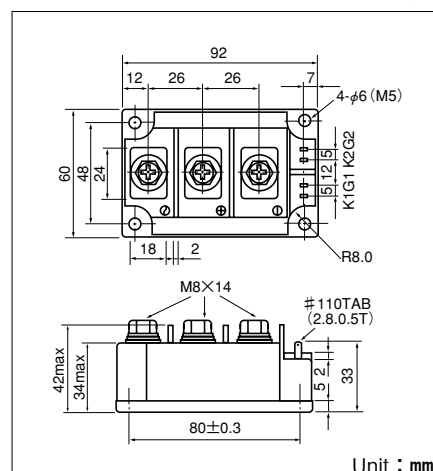
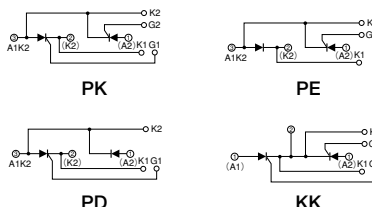
UL:E76102(M)

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/ $\mu$ s
- $dv/dt$  500V/ $\mu$ s

(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 <sub>RRM</sub>	* Repetitive Peak Reverse Voltage	400	800	1200	1600	V
V <sub>RSM</sub>	* Non-Repetitive Peak Reverse Voltage	480	960	1300	1700	V
V <sub>DRM</sub>	Repetitive Peak Off-State Voltage	400	800	1200	1600	V

Symbol	Item		Conditions	Ratings	Unit
I <sub>T(AV)</sub>	* Average On-State Current		Single phase, half wave, 180° conduction, T <sub>c</sub> : 90°C	130	A
I <sub>T(RMS)</sub>	* R.M.S. On-State Current		Single phase, half wave, 180° conduction, T <sub>c</sub> : 90°C	205	A
I <sub>TSM</sub>	* Surge On-State Current		1/2cycle, 50Hz/60Hz, peak Value, non-repetitive	4000/4400	A
I <sup>2</sup> t	* I <sup>2</sup> t		Value for one cycle of surge current	8×10 <sup>4</sup>	A <sup>2</sup> S
P <sub>GM</sub>	Peak Gate Power Dissipation			10	W
P <sub>G(AV)</sub>	Average Gate Power Dissipation			3	W
I <sub>FGM</sub>	Peak Gate Current			3	A
V <sub>FGM</sub>	Peak Gate Voltage (Forward)			10	V
V <sub>RGM</sub>	Peak Gate Voltage (Reverse)			5	V
di/dt	Critical Rate of Rise of On-State Current		I <sub>G</sub> =100mA, T <sub>j</sub> =25°C, V <sub>D</sub> =1/2V <sub>DRM</sub> , dI <sub>G</sub> /dt=0.1A/μs	200	A/μs
V <sub>ISO</sub>	* Isolation Breakdown Voltage (R.M.S.)		A.C.1minute	2500	V
T <sub>j</sub>	* Operating Junction Temperature			-40 to +125	°C
T <sub>stg</sub>	* Storage Temperature			-40 to +125	°C
	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
IDRM	Repetitive Peak Off-State Current, max.	at $V_{DRM}$ , single phase, half wave, $T_J=125^{\circ}\text{C}$	50	mA
IRRM	* 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
tgt	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	$\mu\text{s}$
$dv/dt$	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	$\text{V}/\mu\text{s}$
$I_H$	Holding Current, typ.	$T_J=25^{\circ}\text{C}$	50	mA
$I_L$	Lutching Current, typ.	$T_J=25^{\circ}\text{C}$	100	mA
$R_{th}(j-c)$	* Thermal Impedance, max.	Junction to case	0.2	$^{\circ}\text{C}/\text{W}$

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

