

PK(PD,PE,KK)160F

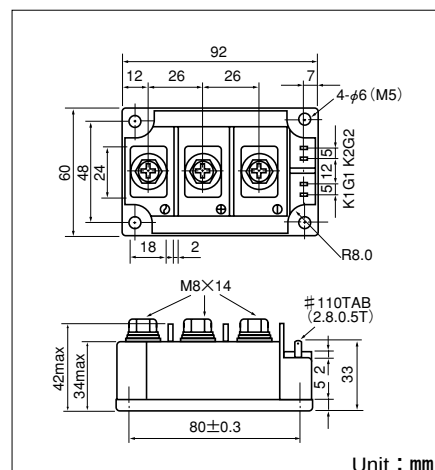
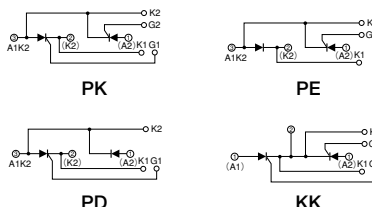
UL:E76102(M)

Power Thyristor/Diode Module **PK160F** 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.

- $I_{T(AV)}$ 160A, $I_{T(RMS)}$ 250A, I_{TSM} 5500A
- 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
		PK160F40 PD160F40 PE160F40 KK160F40	PK160F80 PD160F80 PE160F80 KK160F80	PK160F120 PD160F120 PE160F120 KK160F120	PK160F160 PD160F160 PE160F160 KK160F160	
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
$I_{T(AV)}$, $I_{F(AV)}$	* Average On-State Current		Single phase, half wave, 180° conduction, $T_c : 87^{\circ}\text{C}$	160	A
$I_{T(RMS)}$, $I_{F(RMS)}$	* R.M.S. On-State Current		Single phase, half wave, 180° conduction, $T_c : 87^{\circ}\text{C}$	250	A
I_{TSM} , I_{FSM}	* Surge On-State Current		$\frac{1}{2}$ cycle, 50Hz/60Hz, peak Value, non-repetitive	5000/5500	A
I^2t	* I^2t		Value for one cycle of surge current	1.25×10^5	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		$I_G=100\text{mA}$, $T_j=25^{\circ}\text{C}$, $V_D=\frac{1}{2}V_{DRM}$, $dI_G/dt=0.1\text{A}/\mu\text{s}$	200	$\text{A}/\mu\text{s}$
V_{ISO}	* Isolation Breakdown Voltage (R.M.S.)		A.C.1minute	2500	V
T_j	* Operating Junction Temperature			-40 to $+125$	$^{\circ}\text{C}$
T_{stg}	* Storage Temperature			-40 to $+125$	$^{\circ}\text{C}$
	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
I _{DRM}	Repetitive Peak Off-State Current, max.	at V _{DRM} , single phase, half wave, T _j =125°C	50	mA
I _{RRM}	* Repetitive Peak Reverse Current, max.	at V _{DRM} , single phase, half wave, T _j =125°C	50	mA
V _{TM}	* Peak On-State Voltage, max.	On-State Current 500A, T _j =25°C Inst. measurement	1.42	V
I _{GT} /V _{GT}	Gate Trigger Current/Voltage, max.	T _j =25°C, I _T =1A, V _D =6V	100/3	mA/V
V _{GD}	Non-Trigger Gate, Voltage. min.	T _j =125°C, V _D =1/2V _{DRM}	0.25	V
t _{gt}	Turn On Time, max.	I _T =160A, I _G =100mA, T _j =25°C, V _D =1/2V _{DRM} , dI _G /dt=0.1A/μs	10	μs
dv/dt	Critical Rate of Rise of Off-State Voltage, min.	T _j =125°C, V _D =2/3V _{DRM} , Exponential wave.	500	V/μs
I _H	Holding Current, typ.	T _j =25°C	50	mA
I _L	Lutching Current, typ.	T _j =25°C	100	mA
R _{th} (j-c)	* Thermal Impedance, max.	Junction to case	0.18	°C/W

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

