

PK(PD,PE)250HB



UL:E76102(M)

Power Thyristor/Diode Module **PK250HB** 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.

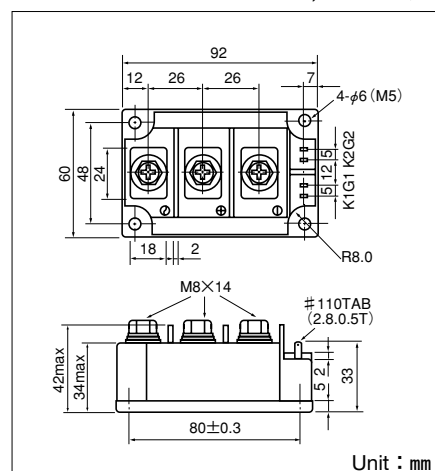
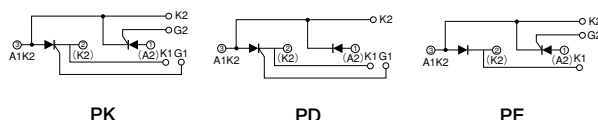
Isolated mounting base

- $I_{T(AV)}$ 250A, $I_{T(RMS)}$ 310A, 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

Internal Configurations



■ Maximum Ratings

Symbol	Item	Ratings		Unit
		PK250HB120 PE250HB120	PD250HB120 PK250HB160 PD250HB160	
V _{RRM}	* Repetitive Peak Reverse Voltage	1200	1600	V
V _{RSM}	* Non-Repetitive Peak Reverse Voltage	1300	1700	V
V _{DRM}	Repetitive Peak Off-State Voltage	1200	1600	V

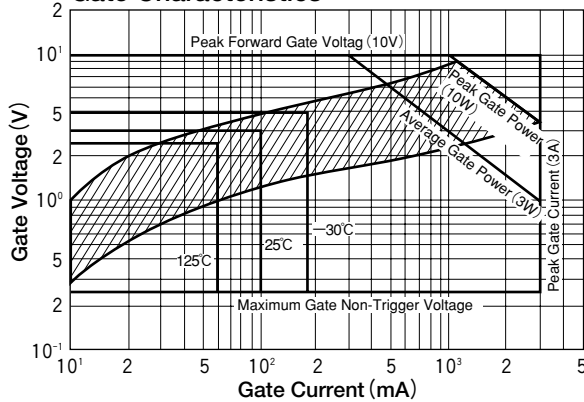
Symbol	Item	Conditions	Ratings	Unit
$I_T(AV)$	* Average On-State Current	Single phase, half wave, 180° conduction, $T_c : 72^{\circ}C$	250	A
$I_T(RMS)$	* R.M.S. On-State Current	Single phase, half wave, 180° conduction, $T_c : 72^{\circ}C$	390	A
I_{TSM}	* Surge On-State Current	$\frac{1}{2}$ cycle, 50Hz/60Hz, peak Value, non-repetitive	5000/5500	A
I^2t	* I^2t	Value for one cycle of surge current	125000	A ² S
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	$I_G=100mA, T_j=25^{\circ}C, V_D=\frac{1}{2}V_{DRM}, dI_G/dt=0.1A/\mu s$	200	A/ μs
V_{ISO}	* Isolation Breakdown Voltage (R.M.S.)	A.C. 1 minute	2500	V
T_j	* Operating Junction Temperature		-40 to +125	°C
T_{stg}	* Storage Temperature		-40 to +125	°C
	Mounting Torque	Mounting (M5)	Recommended Value 1.5-2.5 (15-25)	N·m (kgf·cm)
		Terminal (M8)	Recommended Value 8.8-10 (90-105)	
	Mass	Typical Value	510	g

■Electrical Characteristics

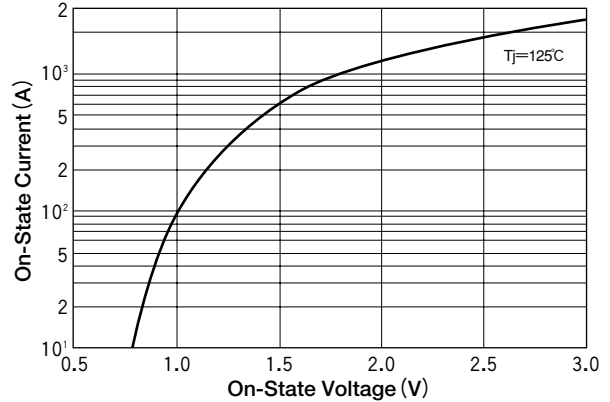
Symbol	Item	Conditions	Ratings	Unit
I _{DRM}	Repetitive Peak Off-State Current, max.	at V _{DRM} , Single phase, half wave, T _j =125°C	50	mA
I _{RRM}	* Repetitive Peak Reverse Current, max.	at V _{DRM} , Single phase, half wave, T _j =125°C	50	mA
V _{TM}	* Peak On-State Voltage, max.	On-State Current 750A, T _j =125°C Inst. measurement	1.60	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 =½V _{DRM}	0.25	V
t _{gt}	Turn On Time, max.	I _T =250A, I _G =100mA, T _j =25°C, V _D =½V _{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 =⅔V _{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	0.14	°C/W

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

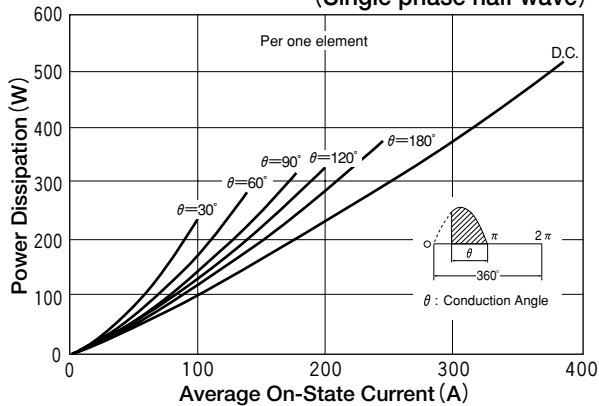
Gate Characteristics



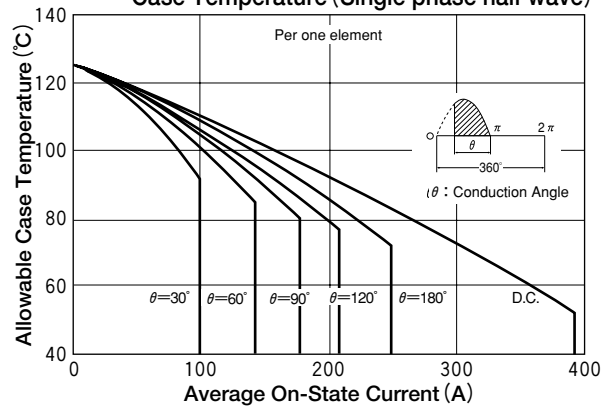
On-State Characteristics



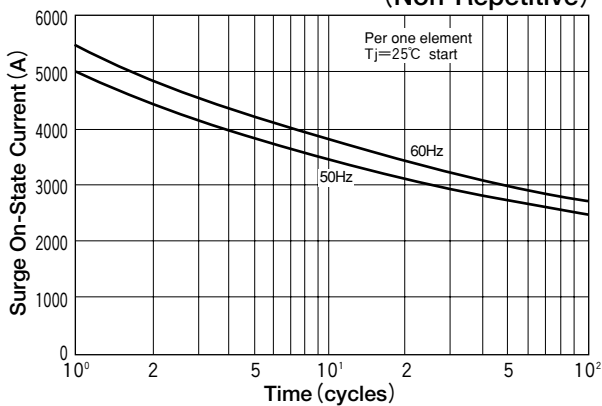
Average On-State Current Vs Power Dissipation (Single phase half wave)



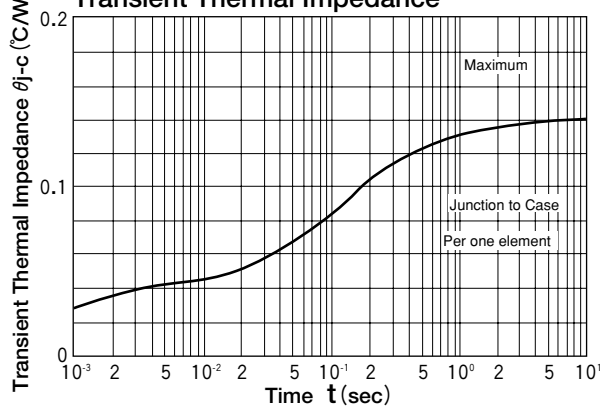
Average On-State Current Vs Maximum Allowable Case Temperature (Single phase half wave)



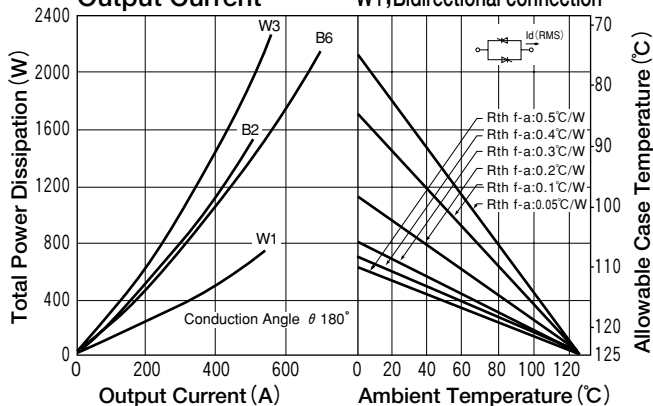
Surge On-State Current Rating (Non-Repetitive)



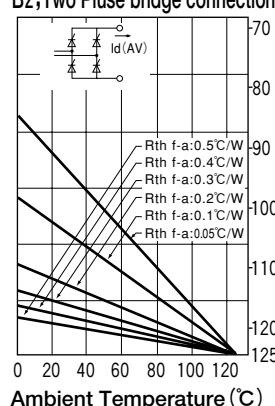
Transient Thermal Impedance



Output Current



B2; Two Pulse bridge connection



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

