

THYRISTOR MODULE (THREE PHASES A.C. CONTROL)

PFB15AA

UL:E76102(M)

PFB15AA is a 6 chip Thyristor module which contains 3 independent back-to-back SCR configurations.

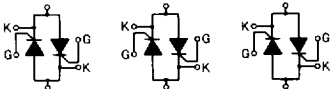
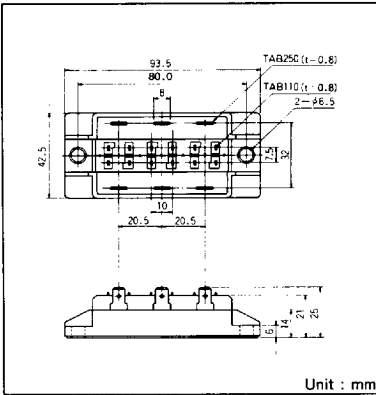
- Easy construction by 3 phase back-to-back SCRs in one package.
- High voltage 1600V

(Applications)

SSR

3 Phase Motor Control

Heater Control



Maximum Ratings

Symbol	Item	PFB15AA80	PFB15AA100	PFB15AA120	PFB15AA140	PFB15AA160	Unit
V_{DRM}	Repetitive Peak Off-State Voltage	800	1000	1200	1400	1600	V

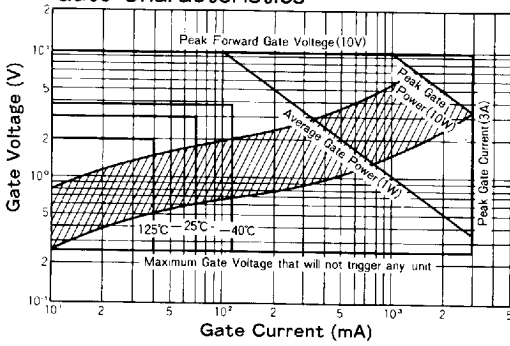
Symbol	Item	Conditions	Ratings	Unit
$I_{T(AV)}$	Average On-State Current	Single phase, half wave, 180° conduction, $T_c : 77^{\circ}C$	15	A
$I_{T(RMS)}$	R.M.S On-State Current	$T_c : 77^{\circ}C$	33	A
I_{TSM}	Surge On-State Current	$\frac{1}{2}$ cycle, 50Hz/60Hz, peak value, non-repetitive	320/350	A
I^2t	I^2t		512	A ² S
P_{GM}	Peak Gate Power Dissipation		10	W
$P_{G(AV)}$	Average Gate Power Dissipation		1	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	$I_G=100mA, T_j=25^{\circ}C, V_D = \frac{1}{2} V_{DRM}, dI_G/dt=1A/\mu s$	100	A/ μs
V_{ISO}	Isolation Breakdown Voltage(R.M.S)	A.C. 1minute	2500	V
T_j	Operating Junction Temperature		-40~+125	°C
T_{stg}	Storage Temperature		-40~+125	°C
	Mounting Torque (M6)	Recommended Value 2.5~3.9 (25~40)	4.7 (48)	N·m (kgf·cm)
	Mass		115	g

Electrical Characteristics

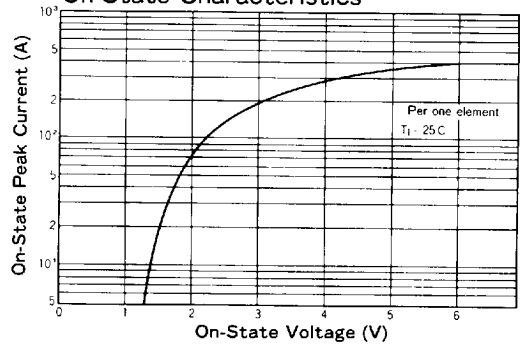
Symbol	Item	Conditions	Ratings	Unit
I_{DRM}	Repetitive Peak Off-State Current, max.	at V_{DRM} , single phase, half wave, $T_j=125^{\circ}C$	10	mA
V_{TM}	Peak On-State Voltage, max.	On-State Current 45A, $T_j=125^{\circ}C$ Inst. measurement	1.75	V
I_{GT}/V_{GT}	Gate Trigger Current/Voltage, max.	$T_j=25^{\circ}C, I_T=1A, V_D=6V$	70/3	mA/V
V_{GD}	Non-Trigger Gate, Voltage, min.	$T_j=125^{\circ}C, V_D = \frac{1}{2} V_{DRM}$	0.25	V
t_{gt}	Turn On Time, max	$I_T=15A, I_G=100mA, T_j=25^{\circ}C, V_D = \frac{1}{2} V_{DRM}, dI_G/dt=1A/\mu s$	10	μs
dv/dt	Critical Rate of Rise of On-State Voltage, min.	$T_j=125^{\circ}C, V_D = \frac{2}{3} V_{DRM}$, Exponential wave.	500	V/ μs
I_H	Holding Current, typ.	$T_j=25^{\circ}C$	50	mA
I_L	Lutching Current, typ.	$T_j=25^{\circ}C$	100	mA
$R_{th(j-c)}$	Thermal Impedance, max. (単位エレメント)	Junction to case	1.90	°C/W
$R_{th(j-c)}$	Thermal Impedance, max. (6エレメント)	Junction to case	0.317	°C/W

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

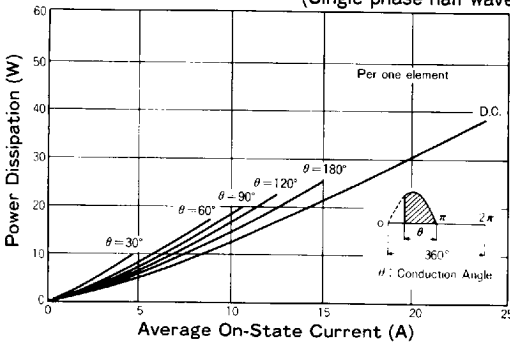
Gate Characteristics



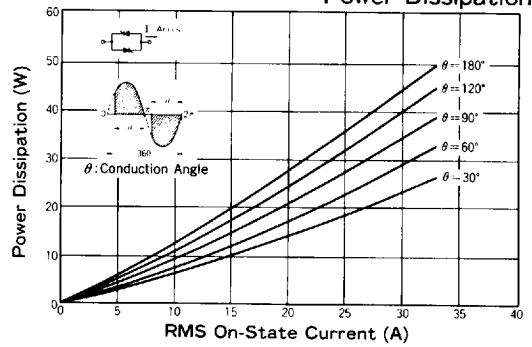
On-State Characteristics



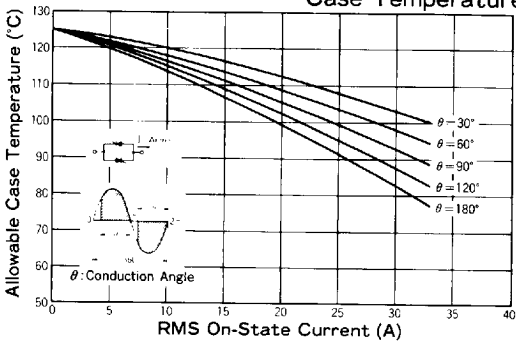
Average On-State Current Vs Power Dissipation (Single phase half wave)



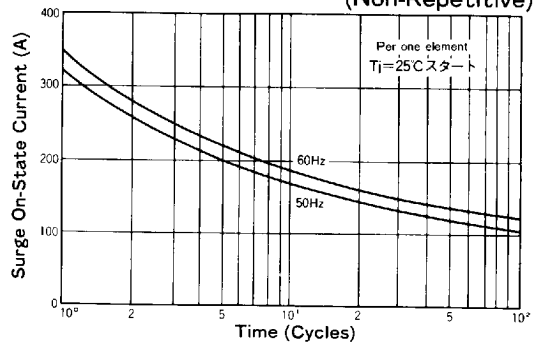
RMS On-State Current Vs Maximum Power Dissipation



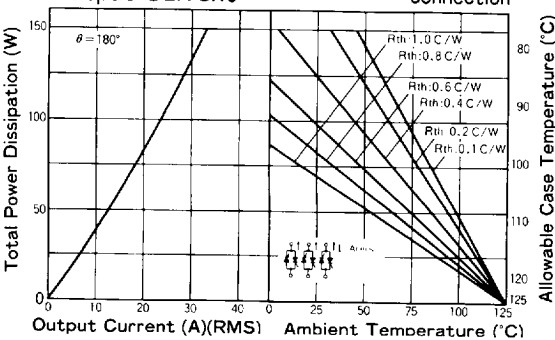
RMS On-State Current Vs Allowable Case Temperature



Surge On-State Current Rating (Non-Repetitive)



Three phase Bidirectional Output Current connection



Transient Thermal Impedance

