

THYRISTOR MODULE

200A / 1600V

PGH20016AM

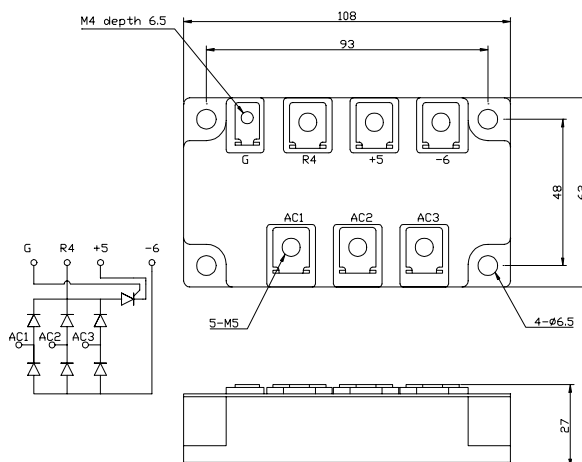
OUTLINE DRAWING

FEATURES

- * Isolated Base
- * 3 Phase Converter with Rush-Current Controllable Thyristor
- * High Surge Capability
- * UL Recognized, File No. E187184

TYPICAL APPLICATIONS

- * Converter For UPS , VVVF and Servo Motor Drive Amplifier



Approx Net Weight:530g

Part of Diode Bridge and Thyristor

Maximum Ratings

Parameter			Conditions		Max Rated Value	Unit
Average Rectified Output Current		I _{O(AV)}	3 Phase Full Wave Rectified	T _c =90°C(Non-Bias)	200	A
				T _c =65°C(Biased)		
Operating JunctionTemperature Range		T _{jw}	T _j >125°C, Can not be Biased for Thyristor.		-40 to +150	°C
Storage Temperature Range		T _{stg}			-40 to +125	°C
Isoration Voltage		Viso	Base Plate to Terminals, AC1min.		2500	V
Mounting torque	Case mounting	F _{tor}	Greased	M6 Screw	2.5 to 3.5	N•m
	Terminals			M6 Screw	2.5 to 3.5	
				M4 Screw	1.2 to 1.6	

Thermal Characteristics

Characteristics	Symbol	Test Conditions	Maximum Value.	Unit
Thermal Resistance	Rth(c-f)	Case to Fin,Total,Greased	0.06	°C/W

Part of Diode Bridge (6 dies)

Maximum Ratings

Parameter	Symbol	Grade	Unit
		PGH20016AM	
Repetitive Peak Reverse Voltage *1	VRRM	1600	V
Non Repetitive Peak Reverse Voltage *1	VRSM	1700	

Parameter	Symbol	Conditions	Max Rated Value	Unit
Surge Forward Current *1	IFSM	50 Hz Half Sine Wave,1Pulse, Non-Repetitive	1800	A
I Squared t *1	I ² t	2msec to 10msec	16200	A ² s
Allowable Operating Frequency	f		400	Hz

*1 Value Per 1 Arm

Electrical • Thermal Characteristics

Characteristics	Symbol	Test Conditions	Maximum Value.			Unit
Peak Reverse Current *1	I_{RM}	$V_{RM} = V_{RRM}$, $T_j = 125^\circ\text{C}$			20	mA
Peak Forward Voltage *1	V_{FM}	$I_{FM} = 200\text{A}$, $T_j = 25^\circ\text{C}$			1.35	V
Thermal Resistance	$R_{th(j-c)}$	Junction to Case (Total)			0.10	$^\circ\text{C/W}$

*1 Value Per 1 Arm

Part of Thyristor (1 die)

Maximum Ratings

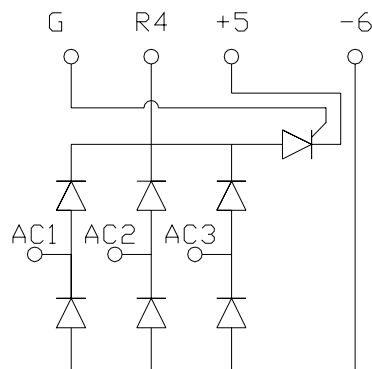
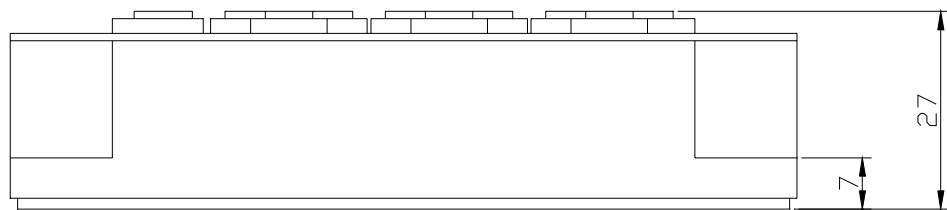
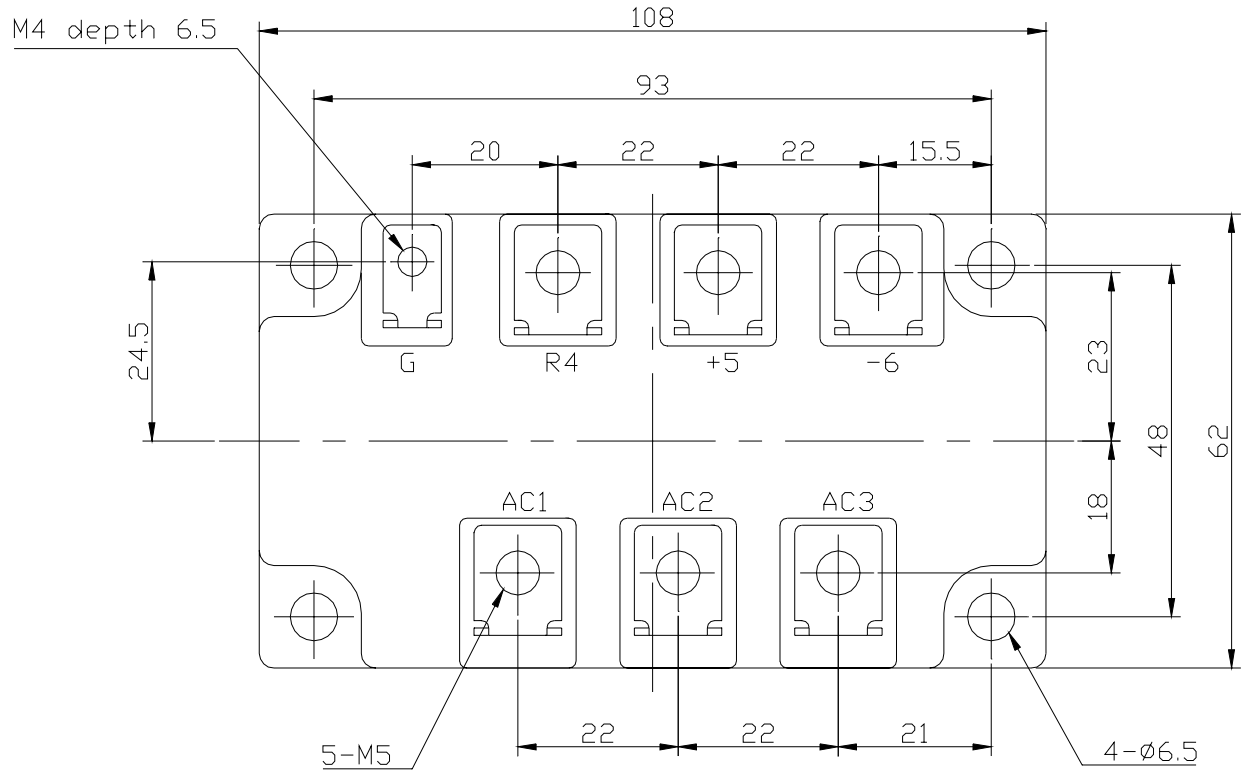
Parameter	Symbol	Grade	Unit
		PGH20016AM	
Repetitive Peak Off-State Voltage	V_{DRM}	1600	V
Non Repetitive Peak Off-State Voltage	V_{DSM}	1700	
Repetitive Peak Reverse Voltage	V_{RRM}	1600	V
Non Repetitive Peak Reverse Voltage	V_{RSM}	1700	

Parameter		Conditions	Max Rated Value	Unit
Surge On-State Current	I_{TSM}	50 Hz Half Sine Wave, 1 Pulse Non-Repetitive	3200	A
I Squared t	I^2t	2msec to 10msec	51200	A^2s
Critical Rate of Turned-On Current	di/dt	$V_D = 2/3V_{DRM}$, $I_{TM} = 2 \cdot I_O$, $T_j = 125^\circ\text{C}$ $I_G = 300\text{mA}$, $di_G/dt = 0.2\text{A}/\mu\text{s}$	100	$\text{A}/\mu\text{s}$
Peak Gate Power	P_{GM}		5	W
Average Gate Power	$P_{G(AV)}$		1	W
Peak Gate Current	I_{GM}		2	A
Peak Gate Voltage	V_{GM}		10	V
Peak Gate Reverse Voltage	V_{RGM}		5	V

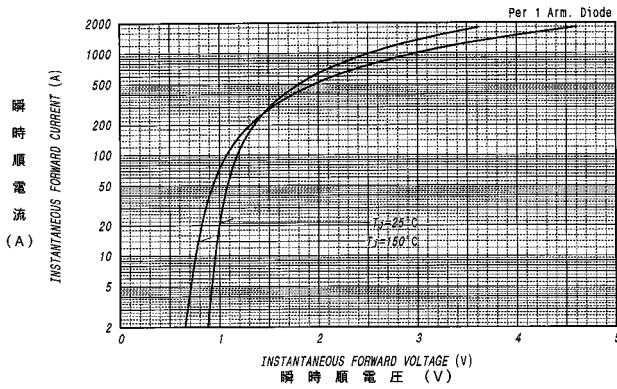
Electrical • Thermal Characteristics

Characteristics	Symbol	Test Conditions	Maximum Value.			Unit
			Min.	Typ.	Max.	
Peak Off-State Current	I_{DM}	$V_{DM} = V_{DRM}$, $T_j = 125^\circ\text{C}$			50	mA
Peak Reverse Current	I_{RM}	$V_{RM} = V_{RRM}$, $T_j = 125^\circ\text{C}$			50	mA
Peak On-State Voltage	V_{TM}	$I_{TM} = 200\text{A}$, $T_j = 25^\circ\text{C}$			1.35	V
Gate Current to Trigger	I_{GT}	$V_D = 6\text{V}$, $I_T = 1\text{A}$			300	mA
					150	
					80	
Gate Voltage to Trigger	V_{GT}	$V_D = 6\text{V}$, $I_T = 1\text{A}$			5.0	V
					3.0	
					2.0	
Gate Non-Trigger Voltage	V_{GD}	$V_D = 2/3V_{DRM}$, $T_j = 125^\circ\text{C}$	0.25			V
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_D = 2/3V_{DRM}$, $T_j = 125^\circ\text{C}$	500			$\text{V}/\mu\text{s}$
Turn-Off Time	t_q	$I_{TM} = I_O$, $V_D = 2/3V_{DRM}$ $dv/dt = 20\text{V}/\mu\text{s}$, $V_R = 100\text{V}$ $-di/dt = 20\text{A}/\mu\text{s}$, $T_j = 125^\circ\text{C}$		150		μs
Turn-On Time	t_{gt}	$V_D = 2/3V_{DRM}$, $T_j = 125^\circ\text{C}$ $I_G = 300\text{mA}$, $di_G/dt = 0.2\text{A}/\mu\text{s}$		6		μs
Delay Time	t_d			2		μs
Rise Time	t_r			4		μs
Latching Current	I_L	$T_j = 25^\circ\text{C}$		150		mA
Holding Current	I_H	$T_j = 25^\circ\text{C}$		100		
Thermal Resistance	$R_{th(j-c)}$	Junction to Case			0.25	$^\circ\text{C/W}$

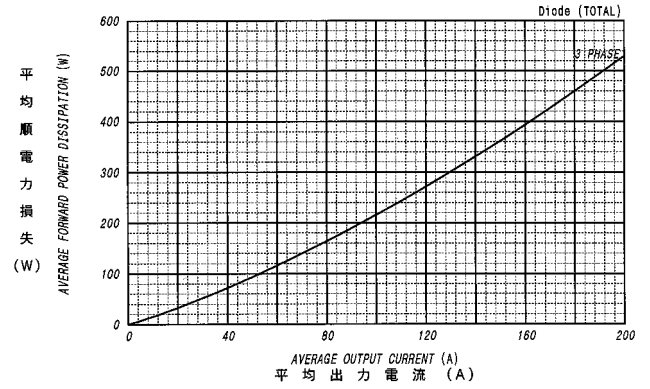
PGH20016AM OUTLINE DRAWING (Dimensions in mm)



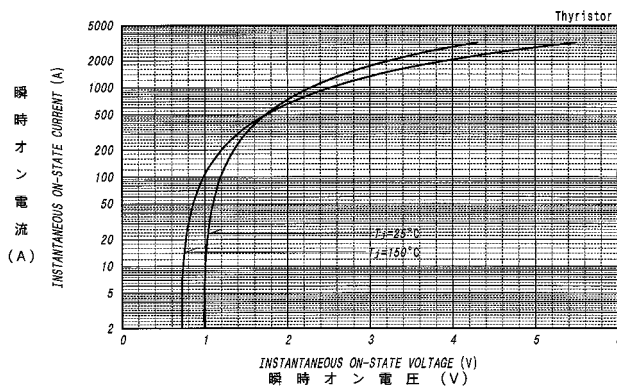
順電圧特性
FORWARD CURRENT VS. VOLTAGE



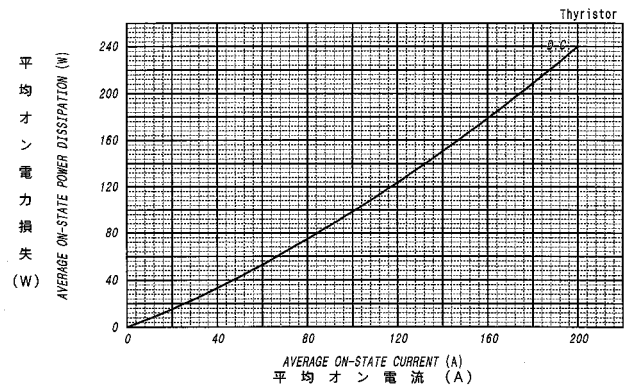
平均順電力損失特性
AVERAGE FORWARD POWER DISSIPATION



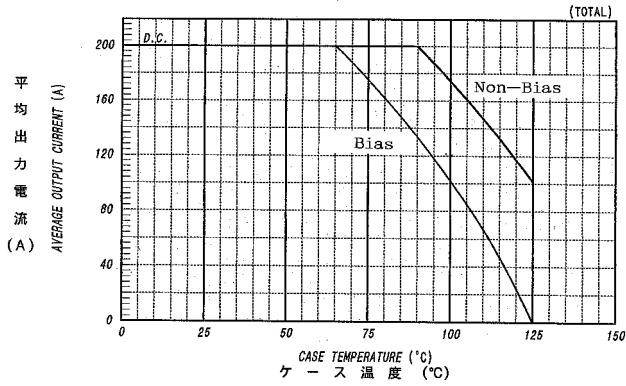
オン電圧特性
ON-STATE CURRENT VS. VOLTAGE



平均オン電力損失特性
AVERAGE ON-STATE POWER DISSIPATION

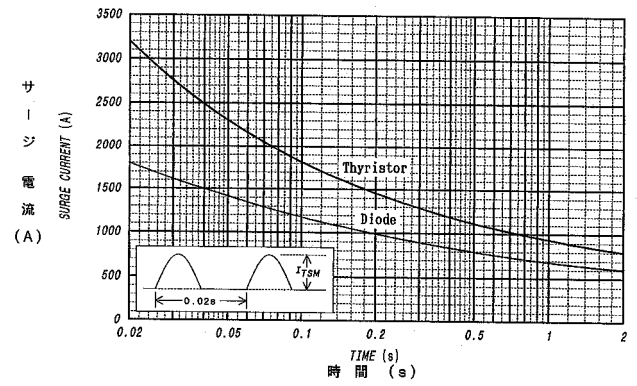


平均出力電流 - ケース温度定格
AVERAGE OUTPUT CURRENT VS. CASE TEMPERATURE
3-Phase Full Wave, Resistive or Inductive Load

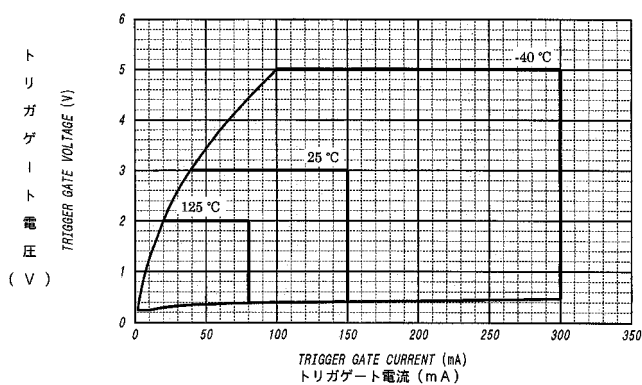


サージ電流定格
SURGE CURRENT RATINGS

$f=50\text{Hz}$, Half Sine Wave, Non-Repetitive, On Load



ゲート特性
GATE CHARACTERISTICS



ゲート定格
GATE RATINGS

