

# THYRISTOR MODULE

75A / 1600V

# PGH7516AM

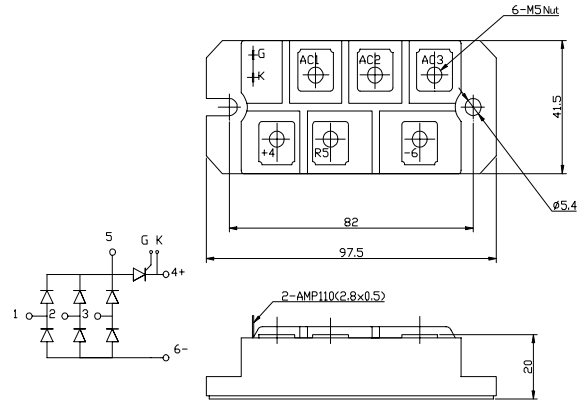
OUTLINE DRAWING

## 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:200g

## Pert 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	$T_c=99^{\circ}C$ (Non-Bias) $T_c=74^{\circ}C$ (Biased)	75	A
Operating JunctionTemperature Range		$T_{jw}$	$T_j > 125^{\circ}C$ , Can not be Biased for Thyristor		-40 to +150	$^{\circ}C$
Storage Temperature Range		$T_{stg}$			-40 to +125	$^{\circ}C$
Isoration Voltage		Viso	Base Plate to Terminals, AC1min.		2500	V
Mounting torque	Case mounting	Ftor	Greased	M5 Screw	2.4 to 2.8	N.m
	Terminals			M5 Screw	2.4 to 2.8	

## Thermal Characteristics

Characteristics	Symbol	Test Conditions	Maximum Value.	Unit
Thermal Resistance	$R_{th}(c-f)$	Case to Fin,Total,Greased	0.06	$^{\circ}C/W$

## Part of Diode Bridge (6 dies)

### Maximum Ratings

Parameter	Symbol	Grade		Unit
		PGH7516AM		
Repetitive Peak Reverse Voltage *1	$V_{RRM}$	1600		V
Non Repetitive Peak Reverse Voltage *1	$V_{RSM}$	1700		

Parameter	Symbol	Conditions	Max Rated Value	Unit
Surge Forward Current *1	$I_{FSM}$	50 Hz Half Sine Wave,1Pulse, Non-Repetitive	600	A
I Squared t *1	$I^2t$	2msec to 10msec	1800	$A^2s$
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	$I_{RM}$	$V_{RM} = V_{RRM}, T_j = 125^\circ\text{C}$			15	mA
Peak Forward Voltage *1	$V_{FM}$	$I_{FM} = 75\text{A}, T_j = 25^\circ\text{C}$			1.40	V
Thermal Resistance	$R_{th(j-c)}$	Junction to Case (Total)			0.24	$^\circ\text{C/W}$

\*1 Value Per 1 Arm

**Part of Thyristor (1 die)**
**Maximum Ratings**

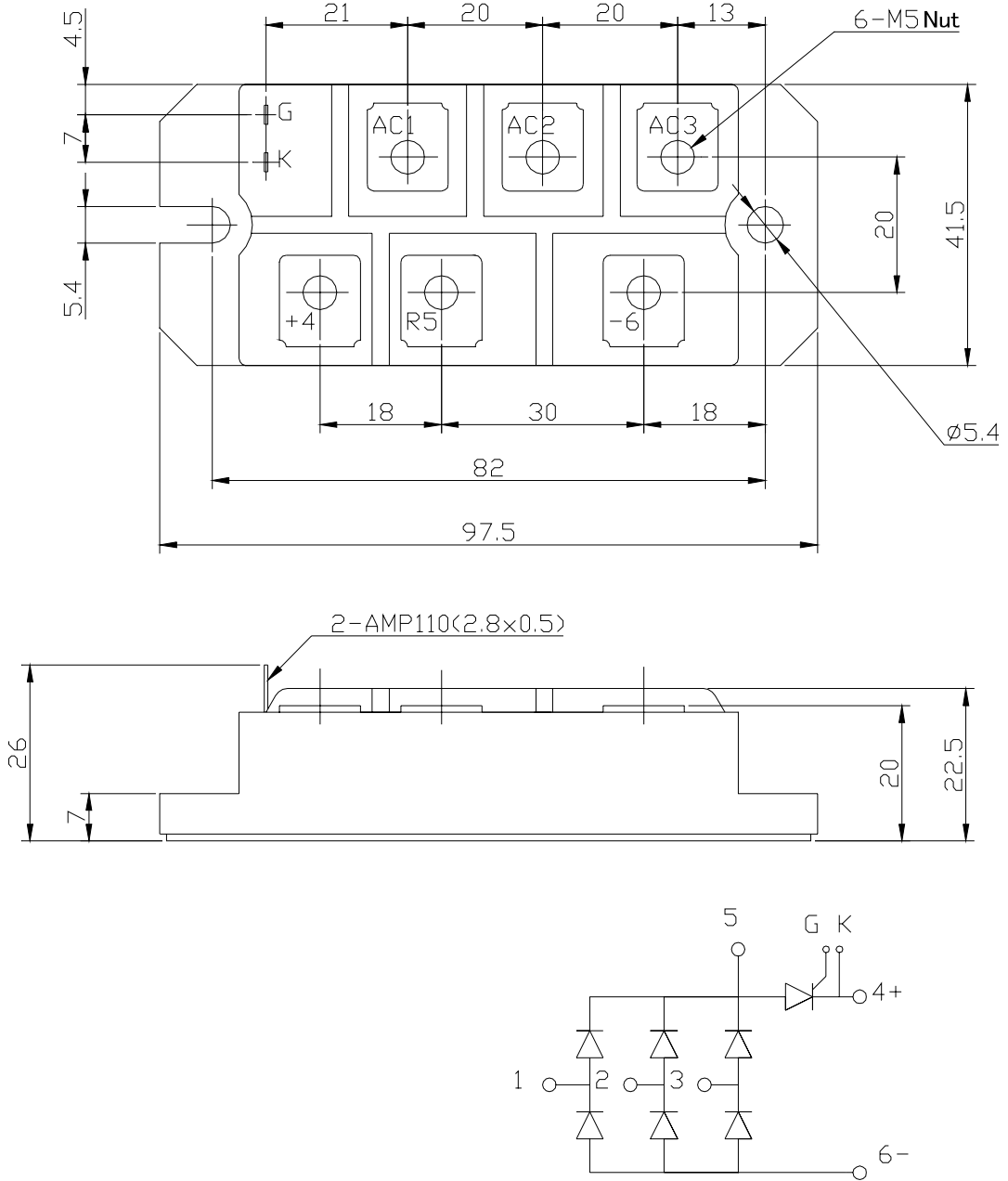
Parameter	Symbol	Grade		Unit
		PGH7516AM		
Repetitive Peak Off-State Voltage	$V_{DRM}$	1600		V
Non Repetitive Peak Off-State Voltage	$V_{DSM}$	1700		
Repetitive Peak Reverse Voltage	$V_{RRM}$	1600		V
Non Repetitive Peak Reverse Voltage	$V_{RSM}$	1700		

Parameter		Conditions	Max Rated Value	Unit
Surge On-State Current	$I_{TSM}$	50 Hz Half Sine Wave, 1 Pulse Non-Repetitive	1000	A
I Squared t	$I^2t$	2msec to 10msec	5000	$\text{A}^2\text{s}$
Critical Rate of Turned-On Current	$di/dt$	$V_D = 2/3V_{DRM}, I_{TM} = 2 \cdot I_O, T_j = 125^\circ\text{C}$ $I_G = 200\text{mA}, di_G/dt = 0.2\text{A}/\mu\text{s}$	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

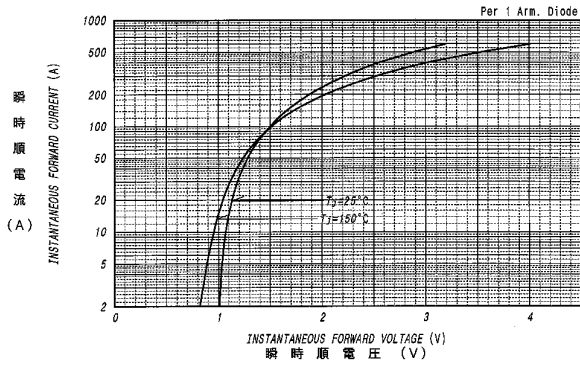
**Electrical • Thermal Characteristics**

Characteristics	Symbol	Test Conditions	Maximum Value.			Unit
			Min.	Typ.	Max.	
Peak Off-State Current	$I_{DM}$	$V_{DM} = V_{DRM}, T_j = 125^\circ\text{C}$			15	mA
Peak Reverse Current	$I_{RM}$	$V_{RM} = V_{RRM}, T_j = 125^\circ\text{C}$			15	mA
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 75\text{A}, T_j = 25^\circ\text{C}$			1.20	V
Gate Current to Trigger	$I_{GT}$	$V_D = 6\text{V}, I_T = 1\text{A}$	$T_j = -40^\circ\text{C}$		200	mA
			$T_j = 25^\circ\text{C}$		100	
			$T_j = 125^\circ\text{C}$		50	
Gate Voltage to Trigger	$V_{GT}$	$V_D = 6\text{V}, I_T = 1\text{A}$	$T_j = -40^\circ\text{C}$		4	V
			$T_j = 25^\circ\text{C}$		2.5	
			$T_j = 125^\circ\text{C}$		2	
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		$\mu\text{s}$
Turn-On Time	$t_{gt}$	$V_D = 2/3V_{DRM}, T_j = 125^\circ\text{C}$ $I_G = 200\text{mA}, di_G/dt = 0.2\text{A}/\mu\text{s}$		6		$\mu\text{s}$
Delay Time	$t_d$			2		$\mu\text{s}$
Rise Time	$t_r$			4		$\mu\text{s}$
Latching Current	$I_L$		$T_j = 25^\circ\text{C}$		100	
Holding Current	$I_H$	$T_j = 25^\circ\text{C}$		80		
Thermal Resistance	$R_{th(j-c)}$	Junction to Case			0.6	$^\circ\text{C/W}$

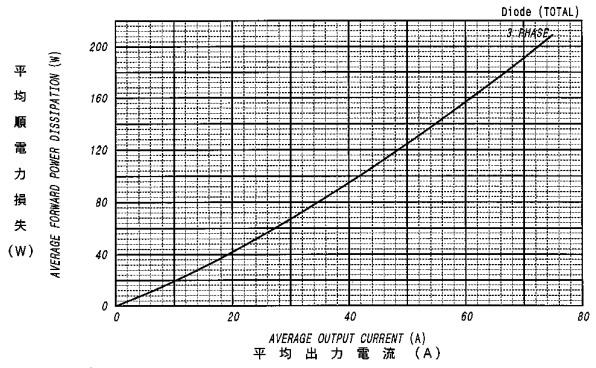
PGH7516AM OUTLINE DRAWING (Dimensions in mm)



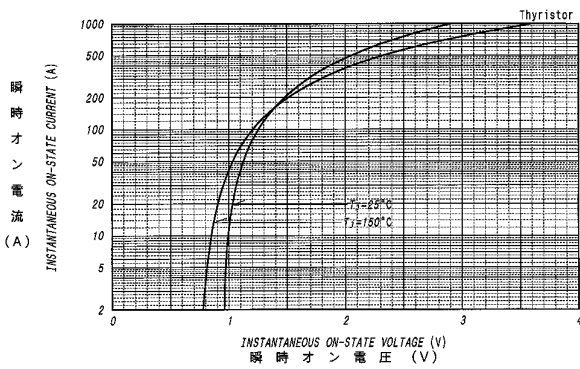
順電圧特性  
FORWARD CURRENT VS. VOLTAGE



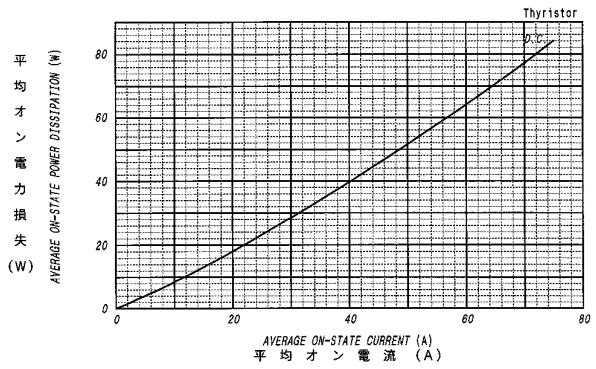
平均順電力損失特性  
AVERAGE FORWARD POWER DISSIPATION



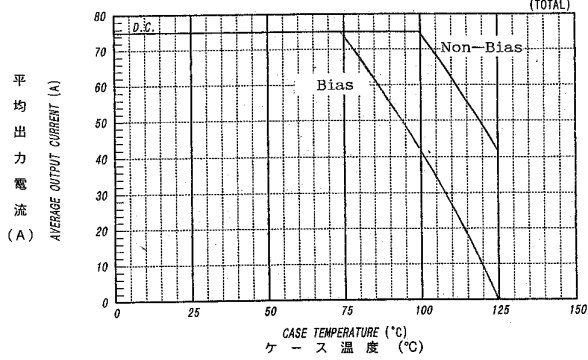
オン電圧特性  
ON-STATE CURRENT VS. VOLTAGE



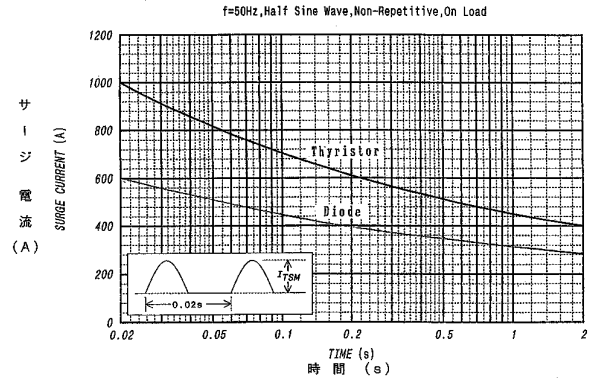
平均オン電力損失特性  
AVERAGE ON-STATE POWER DISSIPATION



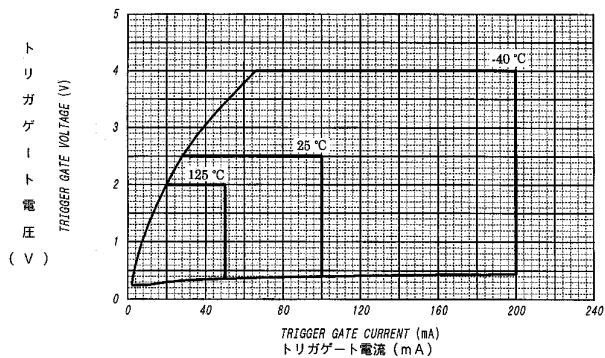
平均出力電流 - ケース温度定格  
AVERAGE OUTPUT CURRENT VS. CASE TEMPERATURE



サージ電流定格  
SURGE CURRENT RATINGS



ゲート特性  
GATE CHARACTERISTICS



ゲート定格  
GATE RATINGS

