

THYRISTOR MODULE

P C H 3 0 1 2 P C H 3 0 1 6
30A / 1200 to 1600V

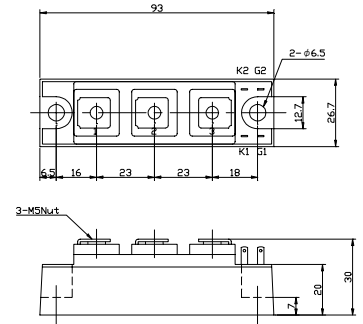
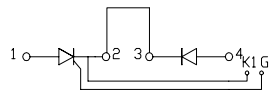
FEATURES

- * Isolated Base
- * Thyristor and Diode Cathode Common
- * High Surge Capability
- * UL Recognized, File No. E187184

OUTLINE DRAWING

TYPICAL APPLICATIONS

- * Rectified For General Use

PCH


Maximum Ratings

Approx Net Weight:155g

Parameter	Symbol	Grade		Unit
		PCH3012	PCH3016	
Repetitive Peak Off-State Voltage	V_{DRM}	1200	1600	V
Non Repetitive Peak Off-State Voltage	V_{DSM}	1300	1700	V
Repetitive Peak Reverse Voltage	V_{RRM}	1200	1600	V
Non Repetitive Peak Reverse Voltage	V_{RSM}	1300	1700	V

Parameter	Symbol	Conditions	Max Rated Value	Unit	
Average Rectified Output Current	$I_{O(AV)}$	50Hz Half Sine Wave condition $T_c=96^\circ\text{C}$	30	A	
RMS On-State Current	$I_{T(RMS)}$		47	A	
Surge On-State Current	I_{TSM}	50 Hz Half Sine Wave, 1Pulse Non-Repetitive	600	A	
I Squared t	I^2t	2msec to 10msec	1800	A^2s	
Critical Rate of Turned-On Current	di/dt	$V_D=2/3V_{DRM}$, $I_{TM}=2\cdot I_o$, $T_j=125^\circ\text{C}$ $I_G=200\text{mA}$, $di_G/dt=0.2\text{A}/\mu\text{s}$	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	
Operating Junction Temperature Range	T_{jw}		-40 to +125	$^\circ\text{C}$	
Storage Temperature Range	T_{stg}		-40 to +125	$^\circ\text{C}$	
Isolation Voltage	Viso	Base Plate to Terminals, AC1min	2500	V	
Mounting torque	Case mounting	Ftor	M6 Screw	2.4 to 3.5	N.m
	Terminals		M5 Screw	2.4 to 2.8	

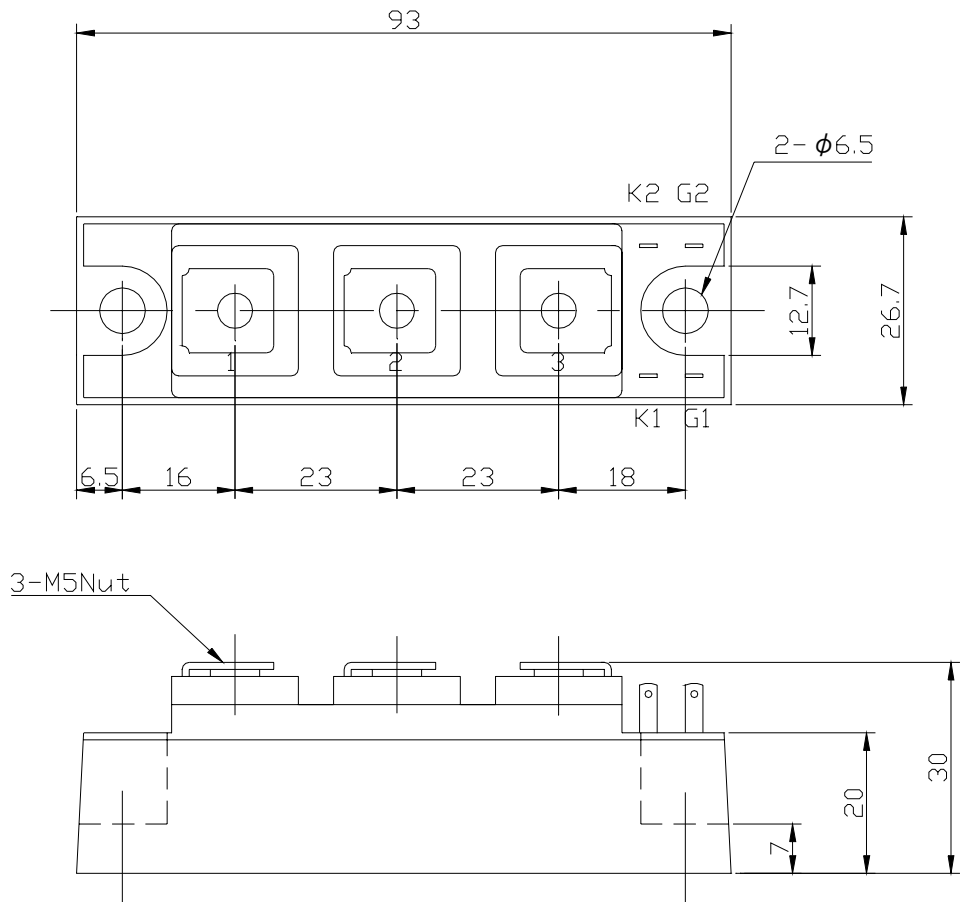
Value per 1 Arm

Electrical • Thermal Characteristics

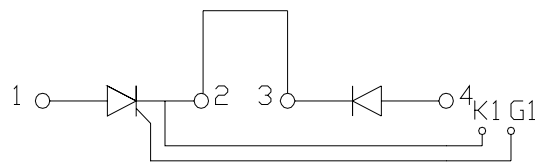
Characteristics	Symbol	Test Conditions	Maximum Value.			Unit
			Min.	Typ.	Max.	
Peak Off-State Current	I_{DM}	$V_{DM} = V_{DRM}, T_j = 125^\circ\text{C}$			10	mA
Peak Reverse Current	I_{RM}	$V_{RM} = V_{RRM}, T_j = 125^\circ\text{C}$			10	mA
Peak Forward Voltage	V_{TM}	$I_{TM} = 90\text{A}, T_j = 25^\circ\text{C}$			1.50	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			V/ μs
Turn-Off Time	tq	$I_{TM} = I_O, V_D = 2/3V_{DRM}$ $dv/dt = 20\text{V}/\mu\text{s}, V_R = 100\text{V}$ $-di/dt = 20\text{A}/\mu\text{s}, T_j = 125^\circ\text{C}$		100		μs
Turn-On Time	tgt	$V_D = 2/3V_{DRM}, T_j = 125^\circ\text{C}$ $I_G = 200\text{mA}, di_G/dt = 0.2\text{A}/\mu\text{s}$		6		μs
Delay Time	td			2		μs
Rise Time	tr			4		μs
Latching Current	I_L	$T_j = 25^\circ\text{C}$		100		mA
Holding Current	I_H	$T_j = 25^\circ\text{C}$		50		
Thermal Resistance	Rth(j-c)	Junction to Case			0.7	$^\circ\text{C}/\text{W}$
	Rth(c-f)	Base Plate to Heat Sink with Thermal Compound			0.2	

Value Per 1Arm

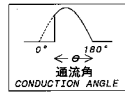
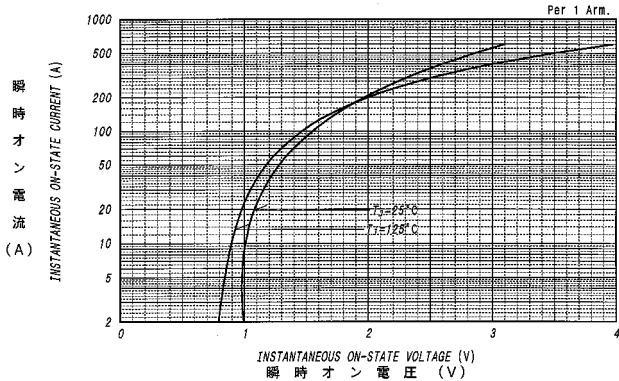
PCH301x OUTLINE DRAWING (Dimensions in mm)



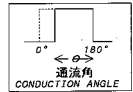
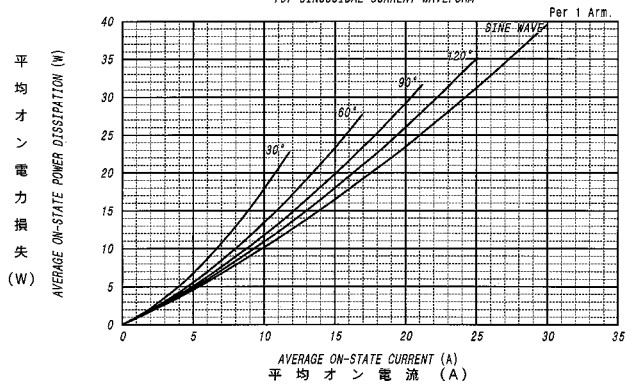
PCH



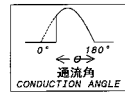
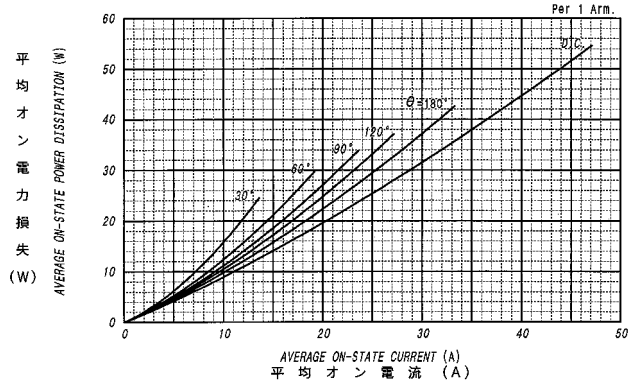
オン電圧特性
ON-STATE CURRENT VS. VOLTAGE



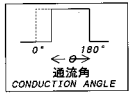
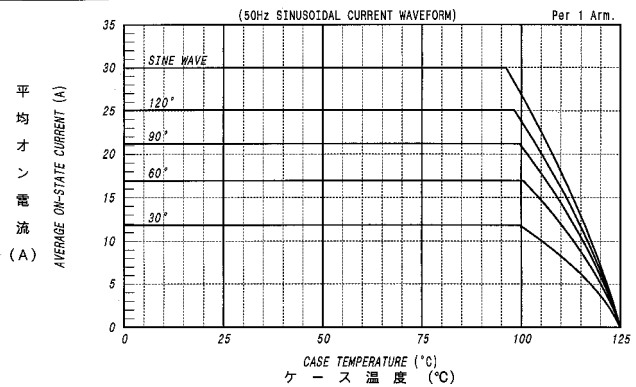
平均オン電力損失特性
AVERAGE ON-STATE POWER DISSIPATION
for SINUSOIDAL CURRENT WAVEFORM



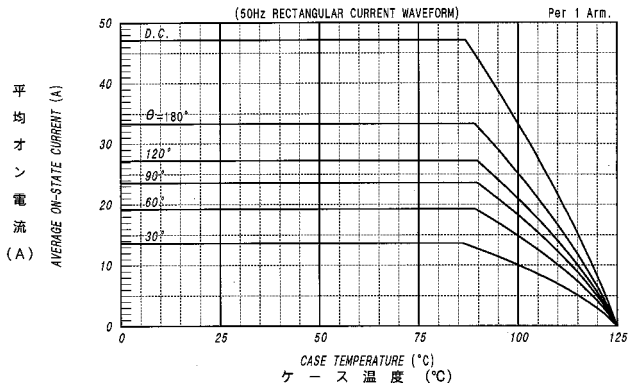
平均オン電力損失特性
AVERAGE ON-STATE POWER DISSIPATION
for RECTANGULAR CURRENT WAVEFORM



平均オン電流 - ケース温度定格
AVERAGE ON-STATE CURRENT VS. CASE TEMPERATURE

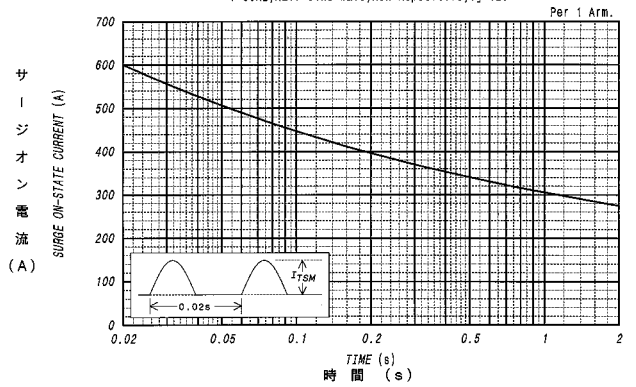


平均オン電流 - ケース温度定格
AVERAGE ON-STATE CURRENT VS. CASE TEMPERATURE

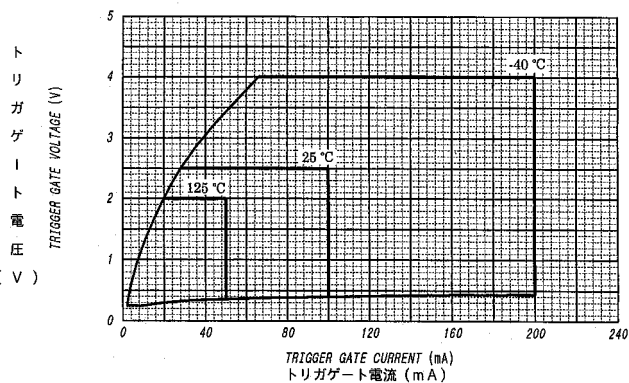


サージオン電流定格
SURGE CURRENT RATINGS

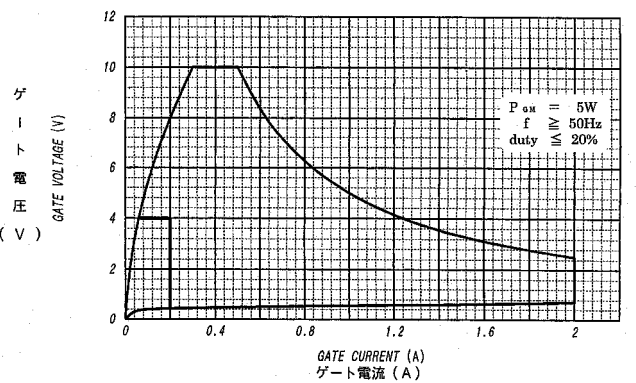
f=50Hz, Half Sine Wave, Non-Repetitive, Tj=125°C



ゲート特性
GATE CHARACTERISTICS



ゲート定格
GATE RATINGS



$P_{OM} = 5W$
 $f = 50Hz$
duty $\leq 20\%$

過渡熱抵抗特性
MAXIMUM TRANSIENT THERMAL IMPEDANCE
Junction to Case

Per 1 Arm.

