

THYRISTOR MODULE

PDT40012 PDT40016

400A/1200V/1600V

FEATURES

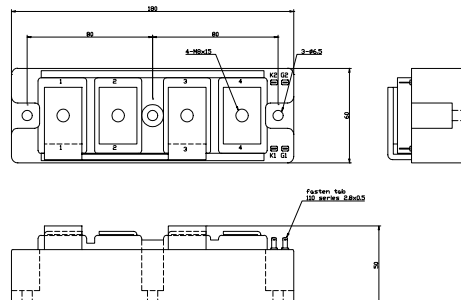
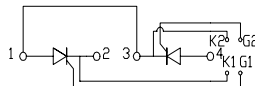
- * Isolated Base
- * Dual Thyristors Cascaded Circuit
- * High Surge Capability
- * UL Recognized, File No. E187184

TYPICAL APPLICATIONS

- * Rectified For General Use

OUTLINE DRAWING

PDT



Maximum Ratings

Approx Net Weight:1350g

Parameter	Symbol	Grade		Unit
		PDT40012	PDT40016	
Repetitive Peak Off-State Voltage	V_{DRM}	1200	1600	V
Non Repetitive Peak Off-State Voltage	V_{DSM}	1300	1700	
Repetitive Peak Reverse Voltage	V_{RRM}	1200	1600	V
Non Repetitive Peak Reverse Voltage	V_{RSM}	1300	1700	

Parameter		Conditions	Max Rated Value	Unit
Average Rectified Output Current	$I_{O(AV)}$	50Hz Half Sine Wave condition $T_c=61^{\circ}\text{C}$	400	A
RMS On-State Current	$I_{T(RMS)}$		630	A
Surge On-State Current	I_{TSM}	50 Hz Half Sine Wave, 1Pulse Non-Repetitive	7200	A
I Squared t	I^2t	2msec to 10msec	259000	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
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	V_{iso}	Base Plate to Terminals, AC1min	2500	V
Mounting torque	Case mounting	Ftor	M6 Screw	2.5 to 3.5
	Terminals		M8 Screw	9.0 to 10.0

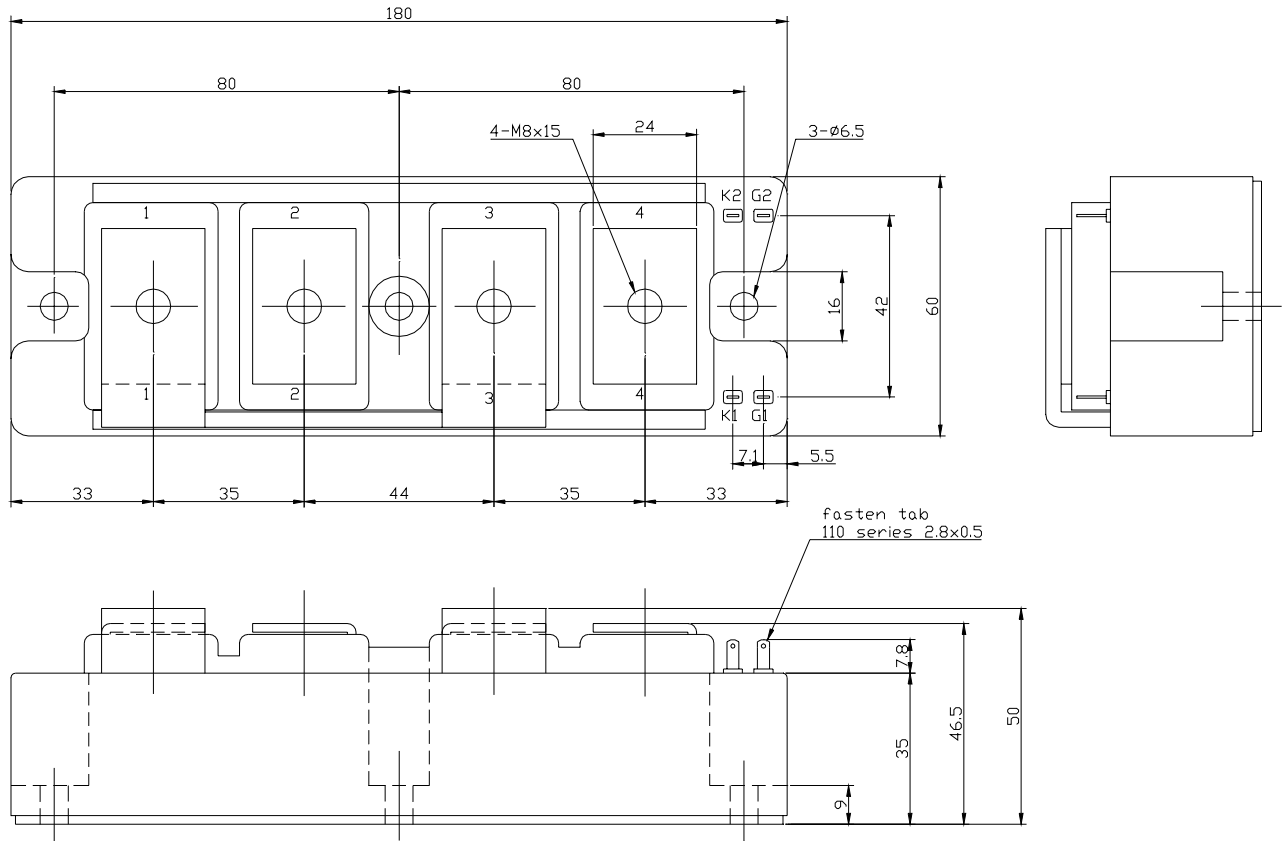
Value per 1 Arm

Electrical • Thermal Characteristics

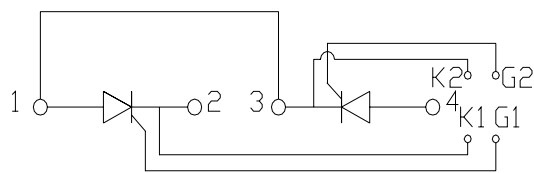
Characteristics	Symbol	Test Conditions	Maximum Value.			Unit
			Min.	Typ.	Max.	
Peak Off-State Current	I_{DM}	$V_{DM} = V_{DRM}, T_j = 125^{\circ}C$			100	mA
Peak Reverse Current	I_{RM}	$V_{RM} = V_{RRM}, T_j = 125^{\circ}C$			100	mA
Peak Forward Voltage	V_{TM}	$I_{TM} = 1300A, T_j = 25^{\circ}C$			1.52	V
Gate Current to Trigger	I_{GT}	$V_D = 6V, I_T = 1A$	$T_j = -40^{\circ}C$		300	mA
			$T_j = 25^{\circ}C$		150	
			$T_j = 125^{\circ}C$		80	
Gate Voltage to Trigger	V_{GT}	$V_D = 6V, I_T = 1A$	$T_j = -40^{\circ}C$		5	V
			$T_j = 25^{\circ}C$		3	
			$T_j = 125^{\circ}C$		2	
Gate Non-Trigger Voltage	V_{GD}	$V_D = 2/3V_{DRM}, T_j = 125^{\circ}C$	0.25			V
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_D = 2/3V_{DRM}, T_j = 125^{\circ}C$	500			V/ μs
Turn-Off Time	t_q	$I_{TM} = I_O, V_D = 2/3V_{DRM}$ $dv/dt = 20V/\mu s, V_R = 100V$ $-di/dt = 20A/\mu s, T_j = 125^{\circ}C$		100		μs
Turn-On Time	t_{gt}	$V_D = 2/3V_{DRM}, T_j = 125^{\circ}C$ $I_G = 300mA, di_G/dt = 0.2A/\mu s$		6		μs
Delay Time	t_d			2		μs
Rise Time	t_r			4		μs
Latching Current	I_L	$T_j = 25^{\circ}C$		150		mA
Holding Current	I_H	$T_j = 25^{\circ}C$		60		
Thermal Resistance	$R_{th(j-c)}$	Junction to Case			0.11	$^{\circ}C/W$
	$R_{th(c-f)}$	Base Plate to Heat Sink with Thermal Compound			0.05	

Value Per 1Arm

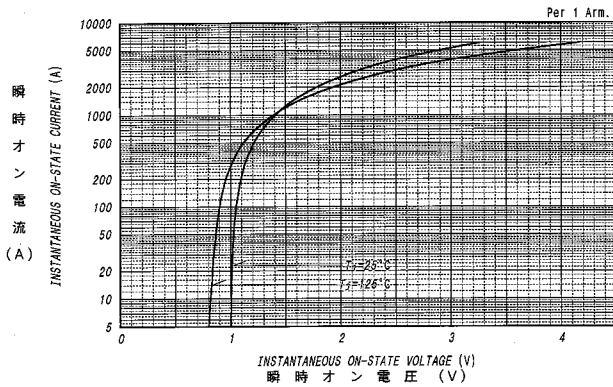
PDT4001x OUTLINE DRAWING (Dimensions in mm)



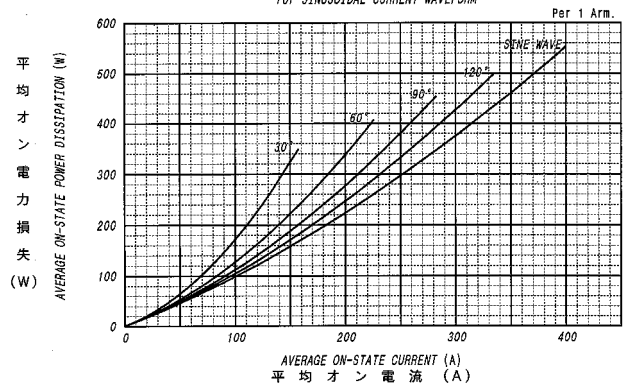
PDT



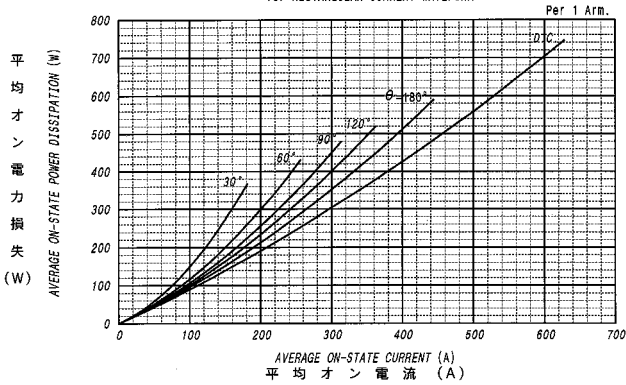
オン電圧特性
ON-STATE CURRENT VS. VOLTAGE



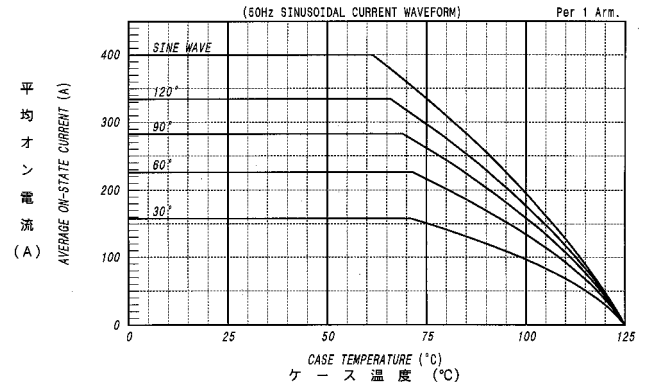
平均オン電力損失特性
AVERAGE ON-STATE POWER DISSIPATION
for SINUSOIDAL CURRENT WAVEFORM



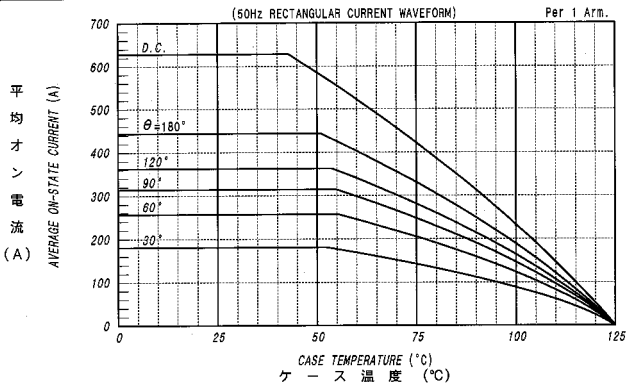
平均オン電力損失特性
AVERAGE ON-STATE POWER DISSIPATION
for RECTANGULAR CURRENT WAVEFORM



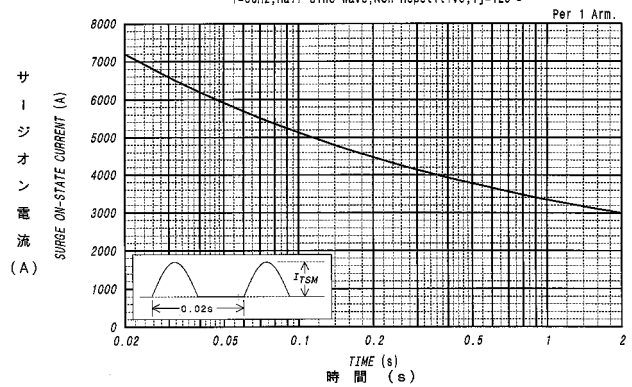
平均オン電流 - ケース温度定格
AVERAGE ON-STATE CURRENT VS. CASE TEMPERATURE



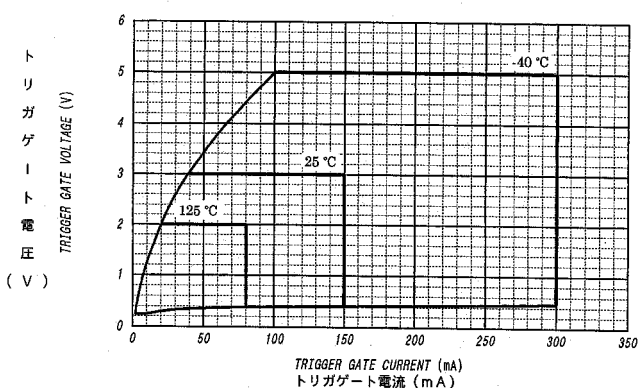
平均オン電流 - ケース温度定格
AVERAGE ON-STATE CURRENT VS. CASE TEMPERATURE



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

