

THYRISTOR MODULE

PDT20116 PDH20116

200A / 1600V

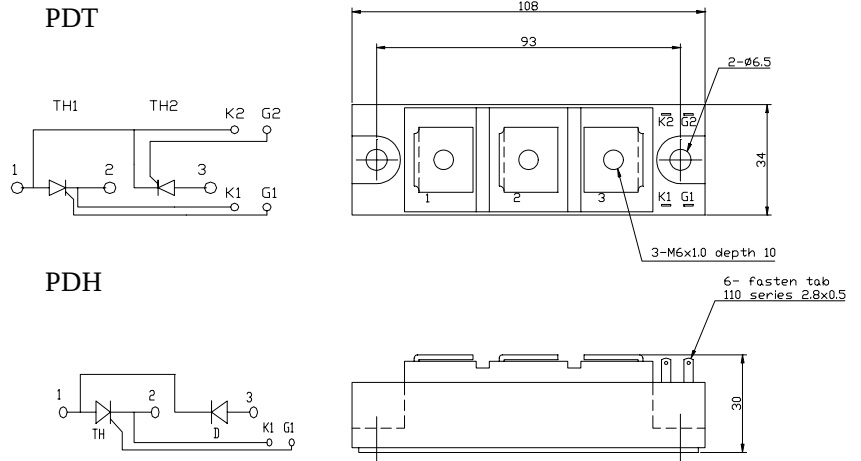
OUTLINE DRAWING

FEATURES

- * 108mm Short Size Case
- * Isolated Base
- * Dual Thyristors or Thyristor and Diode Cascaded Circuit
- * High Surge Capability
- * UL Recognized, File No. E187184

TYPICAL APPLICATIONS

- * AC phase control



Maximum Ratings

Approx Net Weight:280g

Parameter	Symbol	Grade	Unit
		PDT/PDH20116	
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
Average Rectified Output Current	$I_{O(AV)}$	50Hz Half Sine Wave condition $T_c=71^{\circ}C$	200	A
RMS On-State Current	$I_{T(RMS)}$		314	A
Surge Forward Current	I_{FSM}	50 Hz Half Sine Wave, 1cycle Non-Repetitive	4000	A
I Squared t	I^2t	2msec to 10msec	80000	A ² s
Critical Rate of Turned-On Current	di/dt	$V_D=2/3V_{DRM}$, $I_{TM}=2 \cdot I_O$, $T_j=125^{\circ}C$ $I_G=300mA$, $di_G/dt=0.2A/\mu s$	100	A/ μs
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	$^{\circ}C$
Storage Temperature Range	T_{stg}		-40 to +125	$^{\circ}C$
Isolation Voltage	V_{iso}	Base Plate to Terminals, AC1min	2500	V
Mounting torque	Case mounting	Ftor	M6 Screw	2.5 to 3.5
	Terminals		M6 Screw	2.5 to 3.5

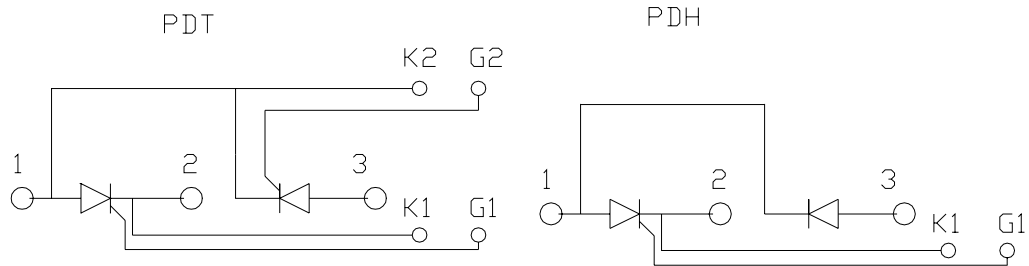
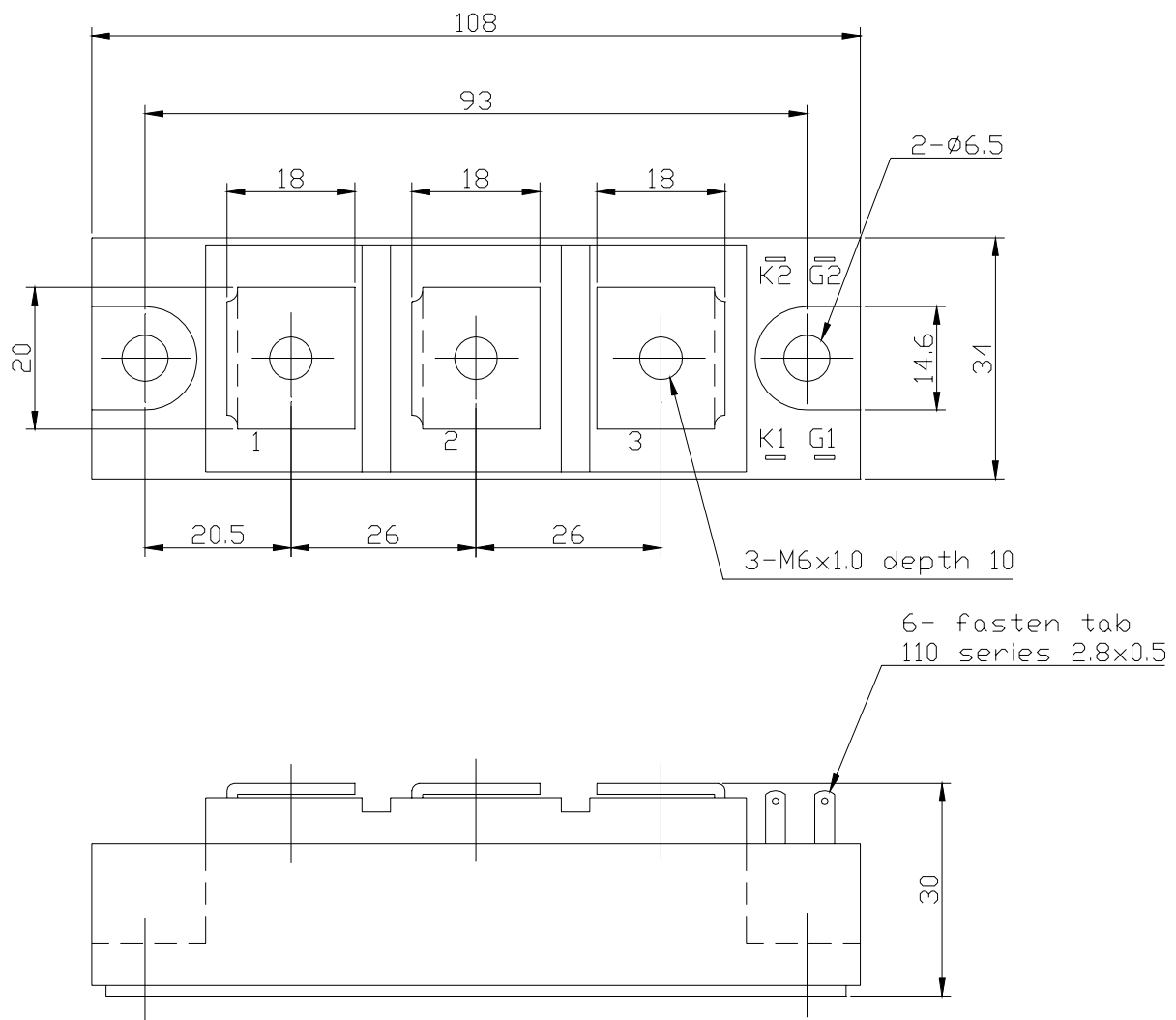
Value per 1 Arm

Electrical • Thermal Characteristics

Characteristics	Symbol	Test Conditions	Maximum Value.			Unit
			Min.	Typ.	Max.	
Peak Off-State Current	I_{DM}	$V_{DM} = V_{DRM}, T_j = 125^{\circ}C$			80	mA
Peak Reverse Current	I_{RM}	$V_{RM} = V_{RRM}, T_j = 125^{\circ}C$			80	mA
Peak On-State Voltage	V_{TM}	$I_{TM} = 600A, T_j = 25^{\circ}C$			1.4	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}	$T_j = 25^{\circ}C, I_{TM} = I_{T(RMS)}$		6		μs
Delay Time	t_d	$V_D = 2/3V_{DRM}, I_G = 300mA$		2		μs
Rise Time	t_r	$di_G/dt = 0.2A/\mu s$		4		μs
Latching Current	I_L	$T_j = 25^{\circ}C$		100		mA
Holding Current	I_H	$T_j = 25^{\circ}C$		60		
Thermal Resistance	$R_{th(j-c)}$	Junction to Case			0.2	$^{\circ}C/W$
	$R_{th(c-f)}$	Base Plate to Heat Sink with Thermal Compound			0.1	

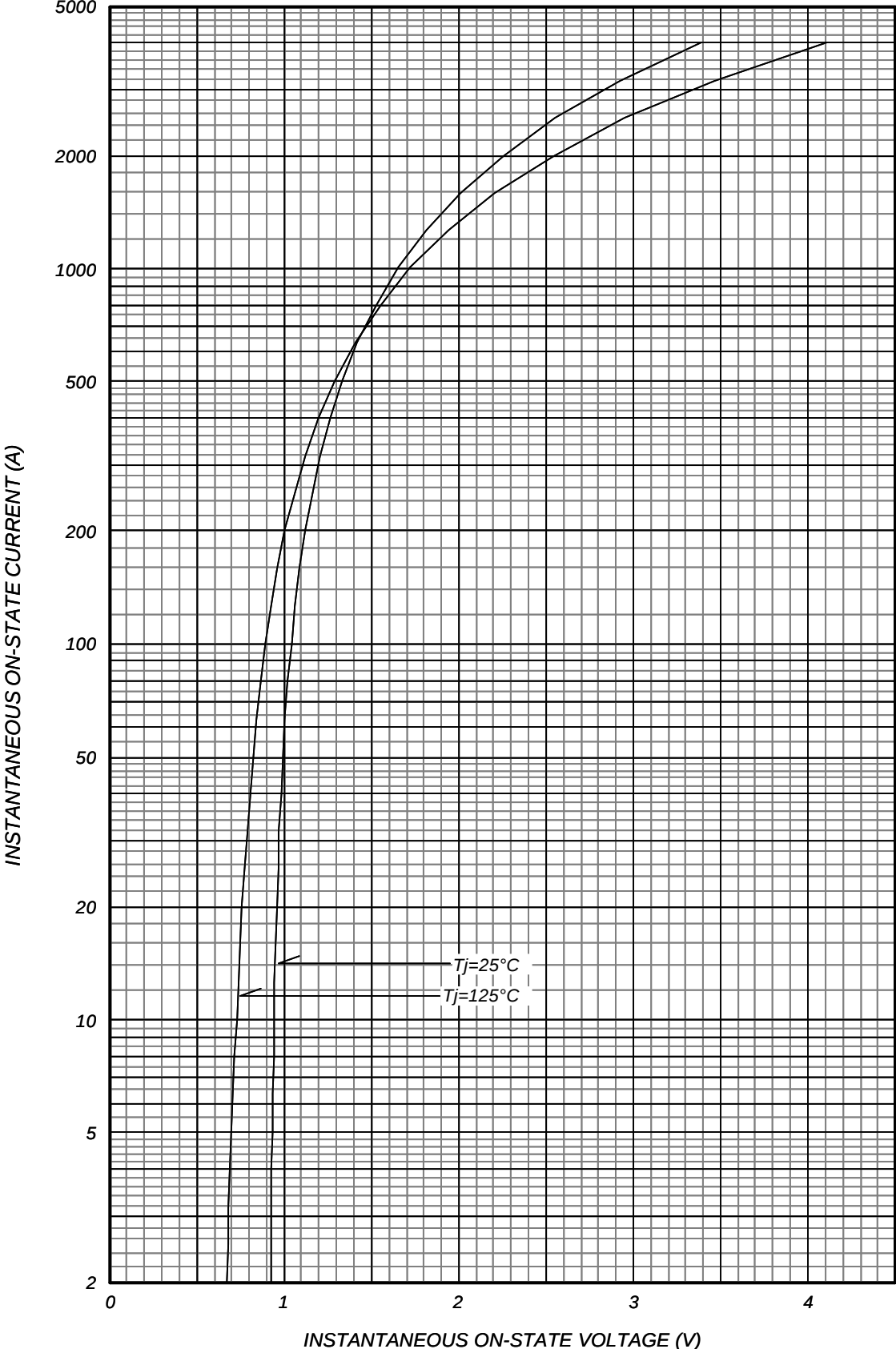
Value Per 1Arm

PDT/PDH20116 OUTLINE DRAWING (Dimensions in mm)



ON-STATE CURRENT VS. VOLTAGE

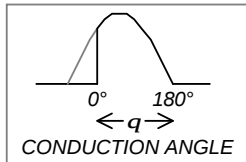
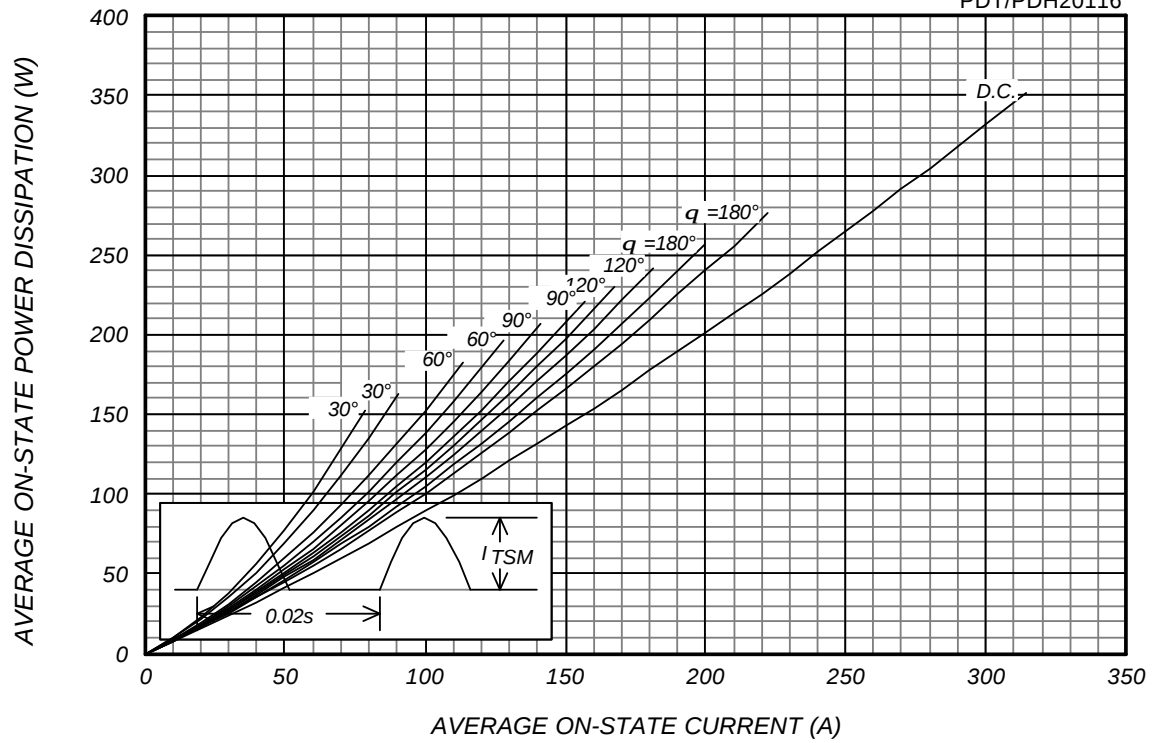
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AVERAGE ON-STATE POWER DISSIPATION

for

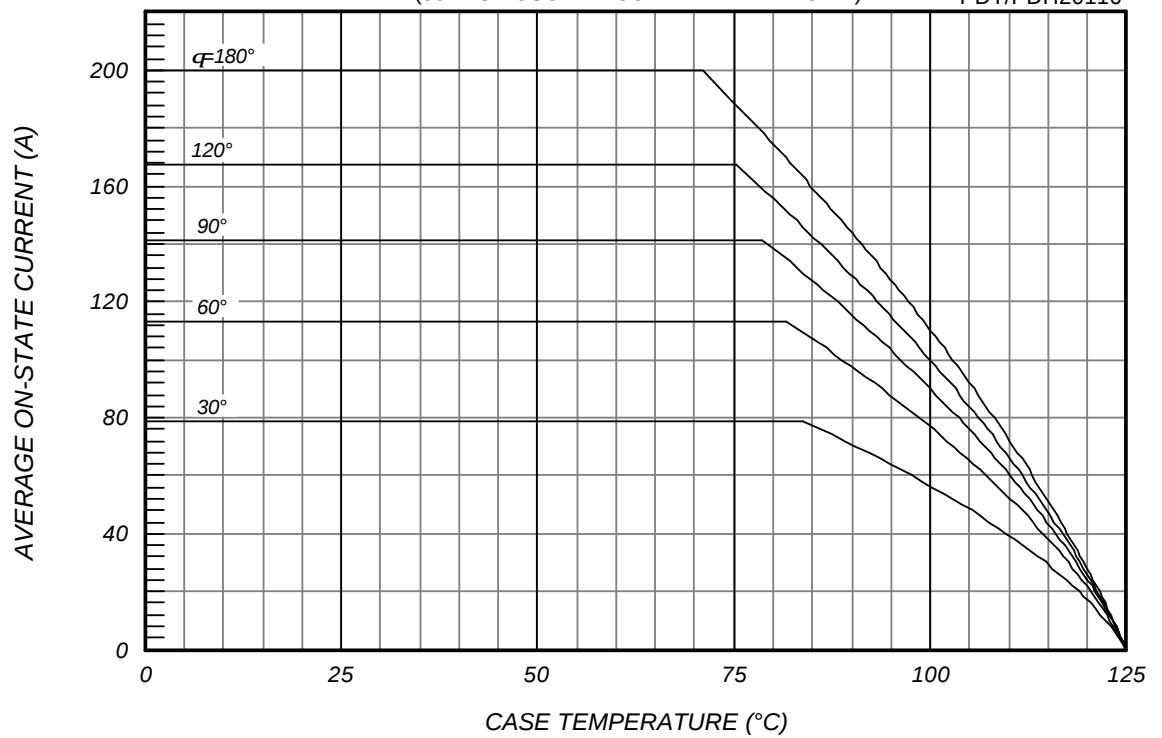
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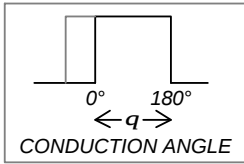


AVERAGE ON-STATE CURRENT VS. CASE TEMPERATURE

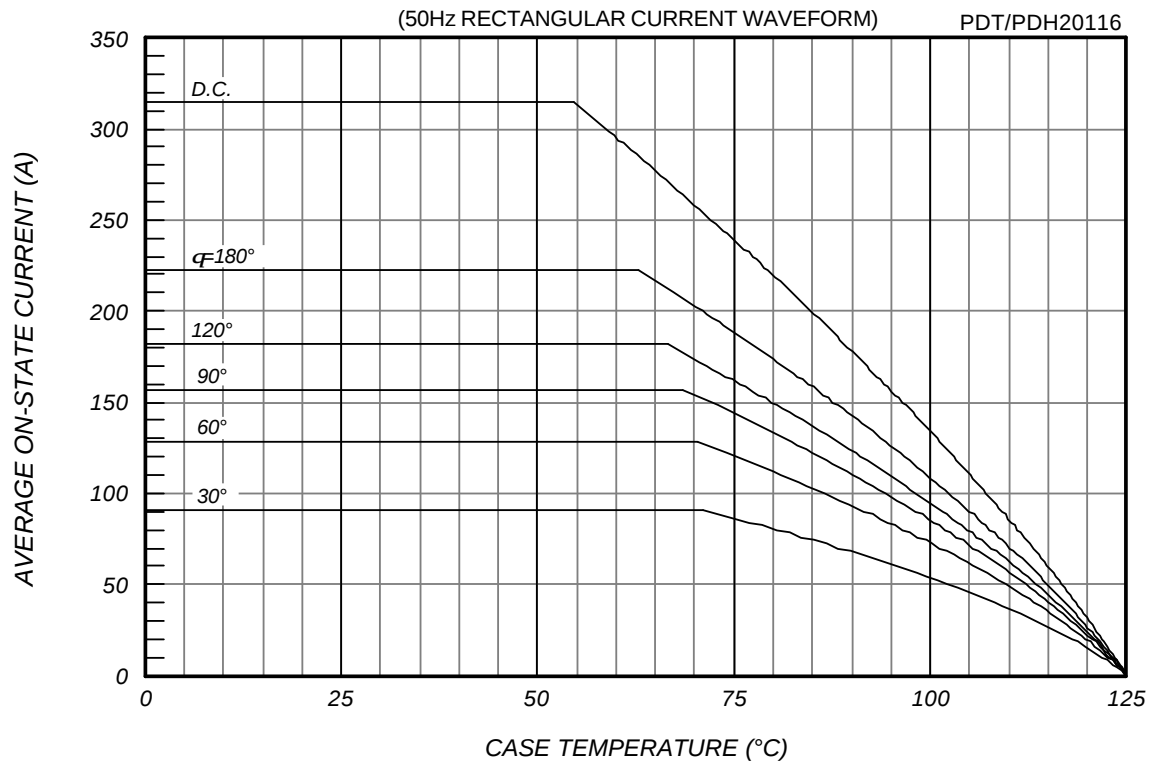
(50Hz SINUSOIDAL CURRENT WAVEFORM)

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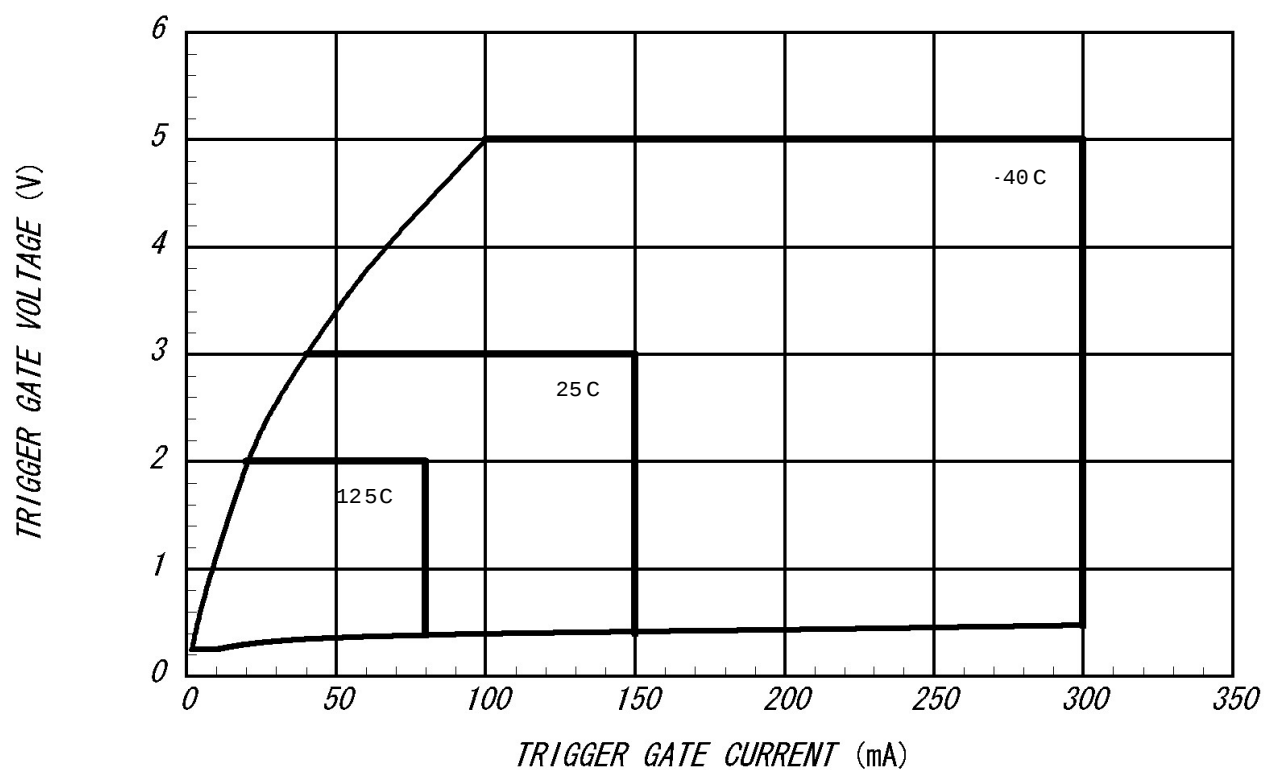




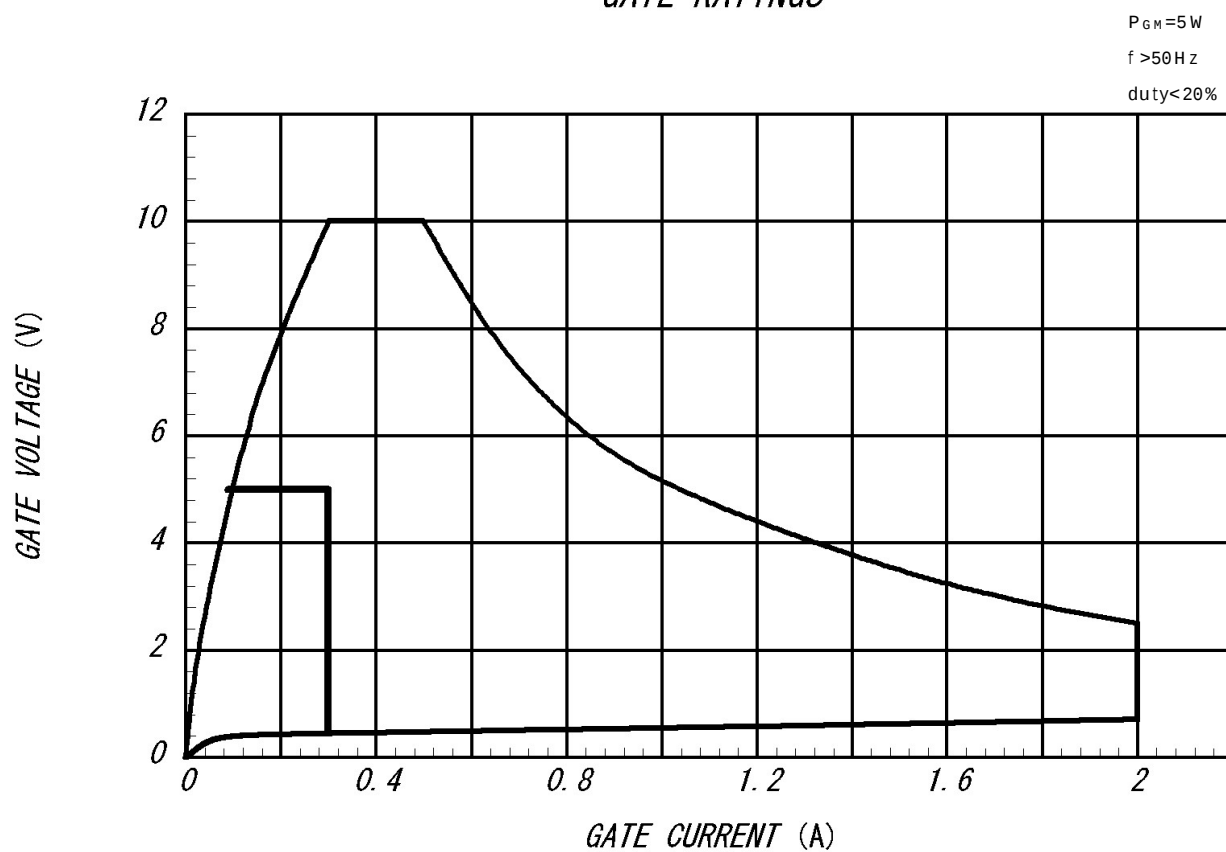
AVERAGE ON-STATE CURRENT VS. CASE TEMPERATURE



GATE CHARACTERISTICS



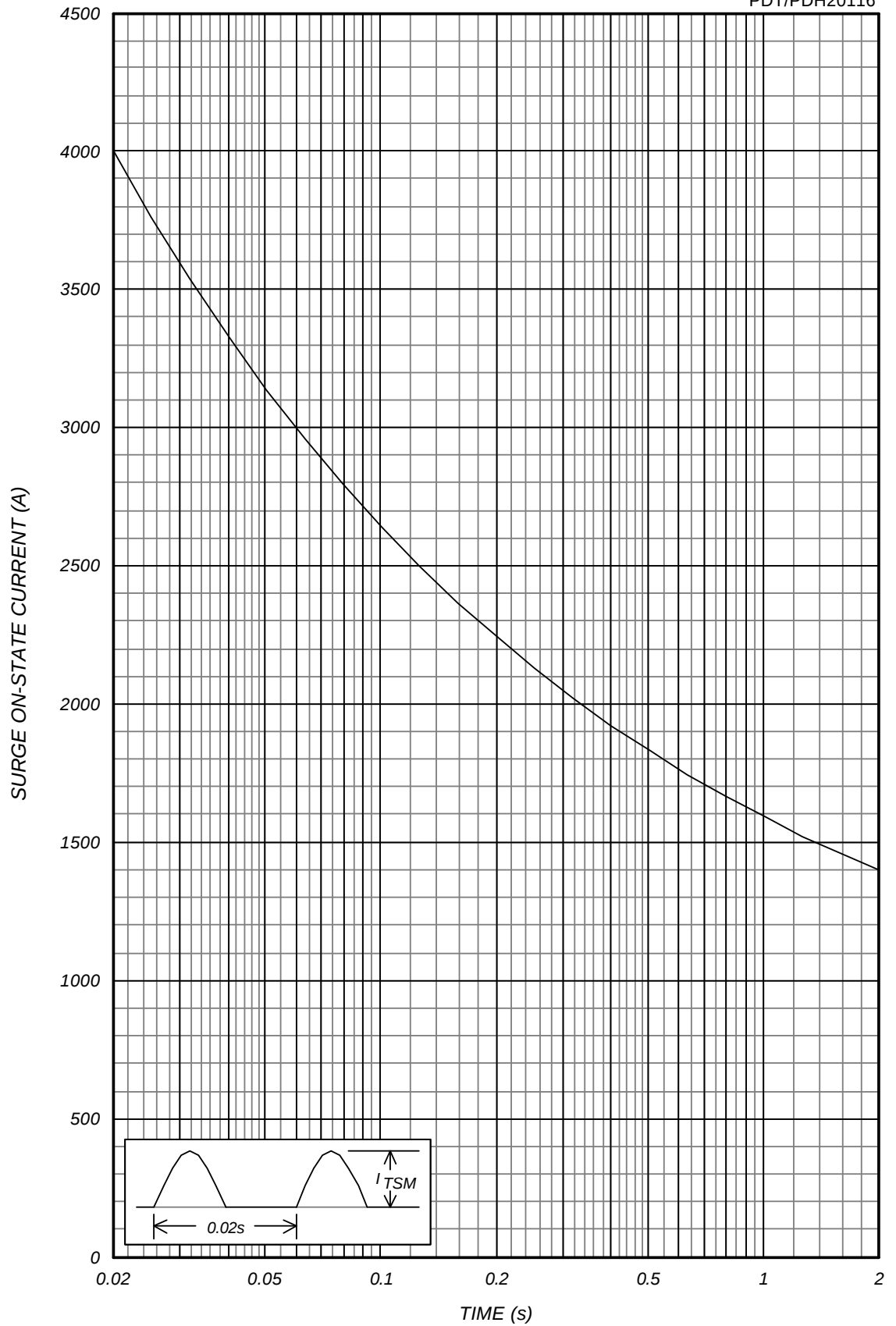
GATE RATINGS



SURGE CURRENT RATINGS

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

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MAXIMUM TRANSIENT THERMAL IMPEDANCE

Junction to Case

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