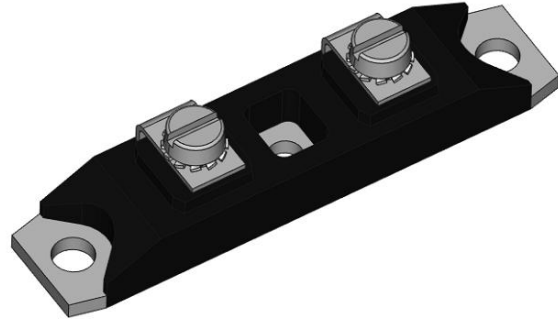


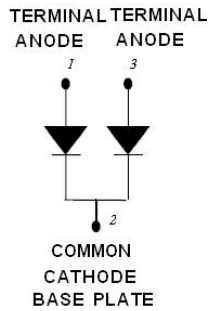
## 403CNQ600-1/403CNQ600R-1 ULTRAFAST RECTIFIER

### Features

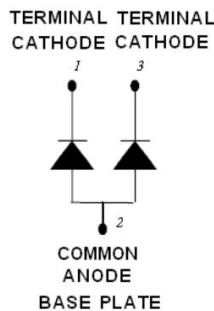
- 175 °C T<sub>J</sub> operation
- Dual Diode construction
- Low Leakage Current
- Low forward voltage drop
- High surge current capability
- Super Fast Switching
- Baseplate: Nickel plated; Terminals: Nickel plated
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request



### Circuit Diagram



403CNQ600-1



403CNQ600R-1

The top side is terminal, the bottom side is base plate.

### Applications

- High current switching power supply
- Plating power supply
- Free-Wheeling diodes
- Reverse battery protection
- Converters
- UPS System
- Welding

### Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage	$V_{RRM}$	-	600	V
Working Peak Reverse Voltage	$V_{RWM}$			
DC Blocking Voltage	$V_R$			
Average Rectified Forward Current	$I_{F(AV)}$	50% duty cycle @T <sub>c</sub> =125°C, rectangular wave form	200(Per Leg)	A
			400(Per Device)	
Peak One Cycle Non-Repetitive Surge Current (Per Leg)	$I_{FSM}$	8.3 ms, half Sine pulse	2800	A

### Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	$V_{F1}$	@ 200A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	1.25	1.35	V
Reverse Current*	$I_{R1}$	@ $V_R = \text{rated } V_R$ , $T_J = 25\text{ }^\circ\text{C}$	0.40	20	$\mu\text{A}$
	$I_{R2}$	@ $V_R = \text{rated } V_R$ , $T_J = 125\text{ }^\circ\text{C}$	-	3	mA
Reverse Recovery Time	$t_{rr}$	IF=500mA, IR=1A, and Irm=250mA	146	180	ns

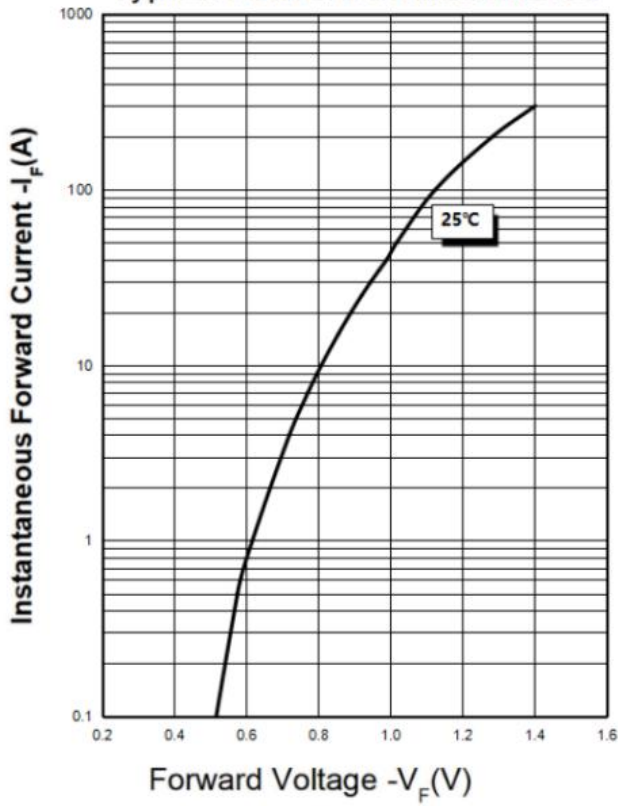
\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

### Thermal-Mechanical Specifications:

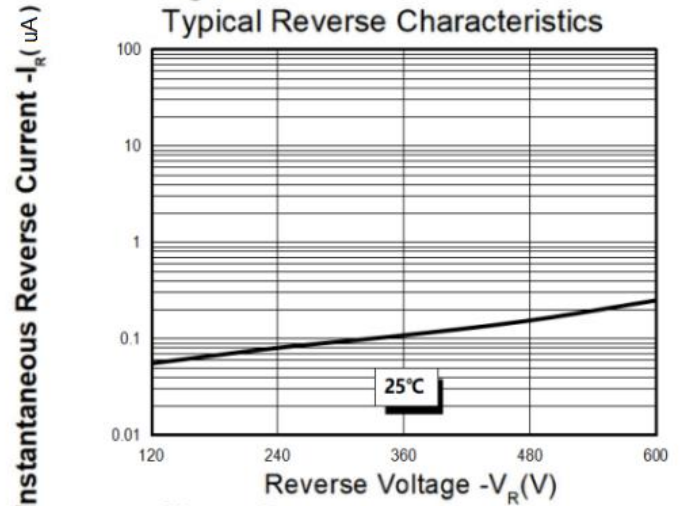
Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	$T_J$	-	-55 to +175	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-	-55 to +175	$^\circ\text{C}$
Typical Thermal Resistance Junction to Case(Per leg)	$R_{\theta JC}$	DC operation	0.14	$^\circ\text{C/W}$
Approximate Weight	wt	-	80	g
Mounting torque (M6)	$T_M$	-	30(3.4) max.	lbf in (N·m)
Mounting torque for center screw (M5)			18(2.1) max.	
Terminal torque (M6)			30(3.4) max.	
Approximate Weight	wt	-	80	g
Case Style	PRM4-1 (Non-Isolated)			

**Ratings and Characteristics Curves**

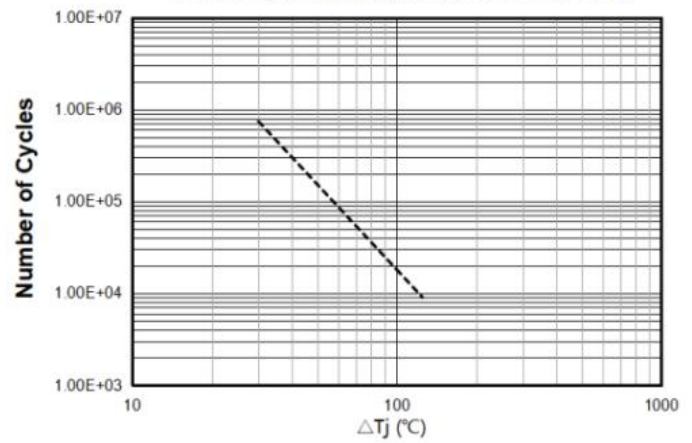
**Figure 1**  
Typical Forward Characteristics



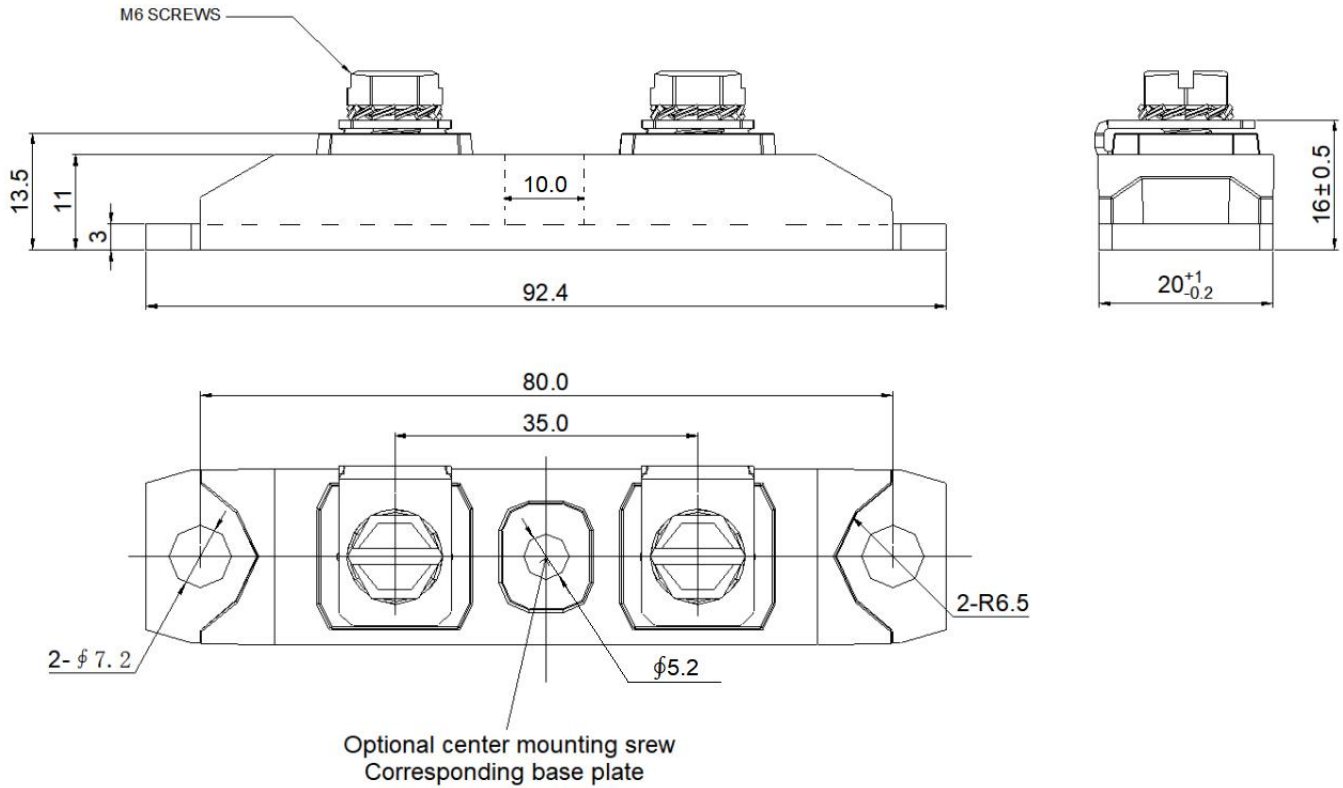
**Figure 2**  
Typical Reverse Characteristics



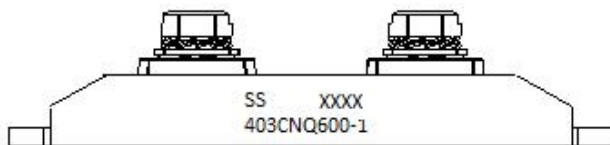
**Figure 3**  
Power Cycle Reliability for Diode Module



**Mechanical Dimensions PRM4-1 Non-Isolated(Millimeters/Inches)**



**Marking Diagram**



Where XXXX is YYWW

403CNQ600-1 = Part name  
403CNQ600R-1 = Part name  
SS = SS  
YY = Year  
WW = Week

**Cautions:** Molding resin  
Epoxy resin UL:94V-0

**Ordering Information**

Device	Package	Shipping
403CNQ600-1 403CNQ600R-1	PRM4-1(Non- Isolated) (Pb-Free)	15 pcs/box

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