

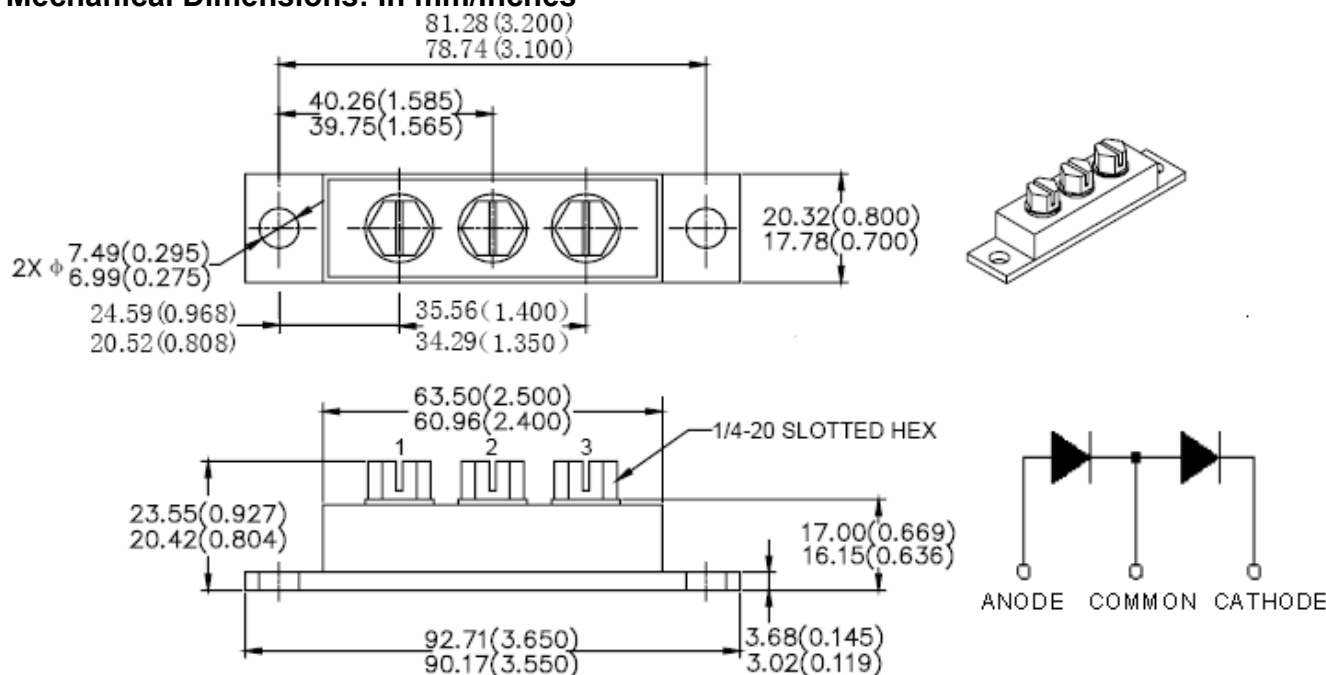
## 303DMQ600 ULTRAFast RECTIFIER

**Applications:**

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

**Features:**

- 175 °C T<sub>J</sub> operation
- Center tap module
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

**Mechanical Dimensions: In mm/Inches**


Please Note: Anode 1 = Terminal 1; Anode 2 = Terminal 3; Common Cathode = Terminal 2  
 Suffix R Denotes for Reversed Polarity.

**PRM4 (Isolated)**
**MARKING, MOLDING RESIN**

Marking for 303DMQ600, 1<sup>st</sup> row SS YYWWL, 2<sup>nd</sup> row 303DMQ600

Where YY is the manufacture year

WW is the manufacture week code

L is the wafer's Lot Number

Molding resin

Epoxy resin UL:94V-0

**Technical Data**  
**Data Sheet N1674, Rev. -**  
**Maximum Ratings:**
**Green Products**

Characteristics	Symbol	Condition	Max.	Units
Peak Inverse Voltage	$V_{RVM}$	-	600(303DMQ600)	V
Max. Average Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_C$ =117°C, rectangular wave form	150(per leg) 300(per device)	A
Peak One Cycle Non-Repetitive Surge Current	$I_{FSM}$	8.3 ms, half Sine pulse	3000	A
Non-Repetitive Avalanche Energy(per leg)	EAS	$T_J=25^\circ\text{C}, I_{AS}=1\text{A}, L=30\text{mH}$	15	mJ
Repetitive avalanche current (per leg)	$I_{AR}$	Current decaying linearly to zero in 1μsec frequency limited by $T_J$ max. $V_A=1.5X V_R$ typical	1	A

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Max.	Units
Forward Voltage Drop	$V_{F1}$	@ 150A, Pulse, $T_J = 25^\circ\text{C}$	1.40	V
		@ 300 A, Pulse, $T_J = 25^\circ\text{C}$	1.68	
	$V_{F2}$	@ 150A, Pulse, $T_J = 125^\circ\text{C}$	1.20	V
		@ 300 A, Pulse, $T_J = 125^\circ\text{C}$	1.38	
Reverse Current	$I_{R1}$	@ $V_R = \text{rated } V_R$ $T_J = 25^\circ\text{C}$	0.1	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R$ $T_J = 125^\circ\text{C}$	20	mA
Junction Capacitance	$C_T$	@ $V_R = 5\text{V}, T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$	4150	pF
Typical Series Inductance	$L_S$	Measured lead to lead 5 mm from package body	6.0	nH
Max. Voltage Rate ofChange	dv/dt	-	10,000	V/μs

\* Pulse Width < 300μs, Duty Cycle <2%

**Thermal-Mechanical Specifications:**

Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	$T_J$	-	-55 to +175	°C
Storage Temperature	$T_{stg}$	-	-55 to +175	°C
Maximum Thermal Resistance Junction to Case (per leg)	$R_{\theta JC}$	DC operation	0.50	°C/W
Maximum Thermal Resistance Junction to Case (per package)	$R_{\theta JC}$	DC operation	0.25	°C/W
Maximum Thermal Resistance, Case to Heat Sink	$R_{\theta CS}$	Mounting surface, smooth and greased	0.10	°C/W
Approximate Weight	wt	-	79	g
Mounting Torque	$T_M$	Non-lubricated threads	Mounting Torque	24 (min) 35 (max)
			Terminal Torque	35(min) 46 (max)
Case Style	PRM4 Isolated			

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