

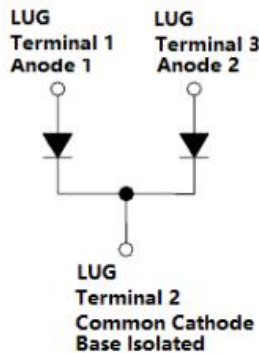
304CMQ400 ULTRAFAST RECTIFIER



Features

- 150 °C T_J 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
- Base plate: Nickel plated; Terminals: Nickel plated
- The terminal hardware is supplied with the module.
- The mounting hardware is not supplied. Recommended is the use of ¼-20 or M6 screws with spring washer.
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

Circuit Diagram



Applications

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

Maximum Ratings(limiting values, at 25 °C unless otherwise specified)

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage	V _{RRM}	-	400	V
Working Peak Reverse Voltage	V _{RWM}			
DC Blocking Voltage	V _R			
Average Rectified Forward Current	I _{F(AV)}	50% duty cycle @T _C =115°C, rectangular wave form	150(per leg) 300(per device)	A
Peak One Cycle Non-Repetitive Surge Current(per leg)	I _{FSM}	8.3 ms, half Sine pulse	1200	A

Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop (per leg) *	V _{F1}	@ 150A, Pulse, T _J = 25 °C	0.96	1.40	V
		@ 300A, Pulse, T _J = 25 °C	1.04	1.60	V
Reverse Current (per leg) *	I _{R1}	@ V _R = rated V _R T _J = 25 °C	0.23	100	mA
		@ V _R = rated V _R T _J = 125 °C	0.03	3	mA
Reverse Recovery Time	t _{rr}	I _F =0.5A, I _R =1A, and I _{RR} =0.25A	150	200	ns
Typical Series Inductance (per leg)	L _S	Measured lead to lead 5 mm from package body	-	5.0	nH
Max. Voltage Rate of Change	dv/dt	-	-	10,000	V/μs

* Pulse width < 300 μs, duty cycle < 2%

Thermal-Mechanical Specifications:

Characteristics	Symbol	Condition	Specification		Units
Junction Temperature	T _J	-	-55 to +150		°C
Storage Temperature	T _{stg}	-	-55 to +150		°C
Typical Thermal Resistance Junction to Case (per leg)	R _{θJC}	DC operation	0.30		°C/W
Typical Thermal Resistance Junction to Case (per package)	R _{θJC}	DC operation	0.15		°C/W
Typical Thermal Resistance, Case to Heat Sink	R _{θCS}	Mounting surface, smooth and greased	0.05		°C/W
Approximate Weight	wt	-	110		g
Mounting Torque	T _M	-	Mounting Torque	3.84(min) 4.80(max)	Nm
Mounting Torque	T _M	-	Terminal Torque	2.35(min) 3.43(max)	
Case Style	PRM4 Isolated				

Ratings and Characteristics Curves

Figure 1
Typical Forward Characteristics

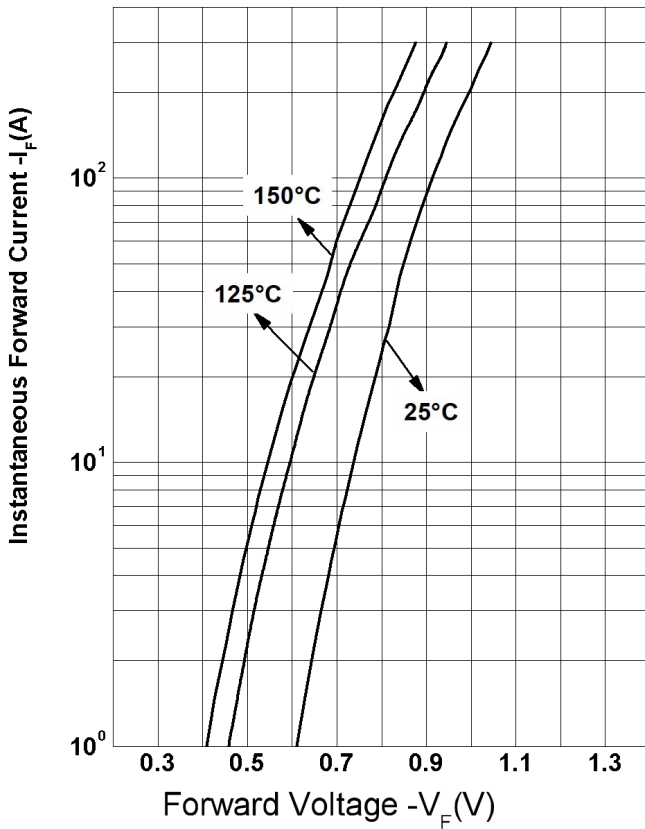


Figure 2
Typical Reverse Characteristics

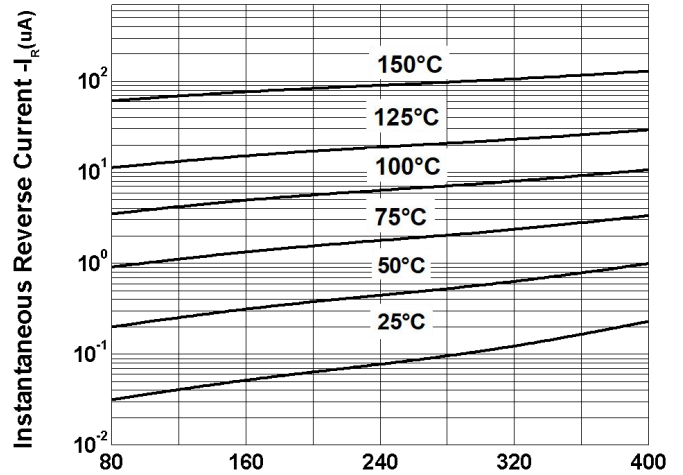
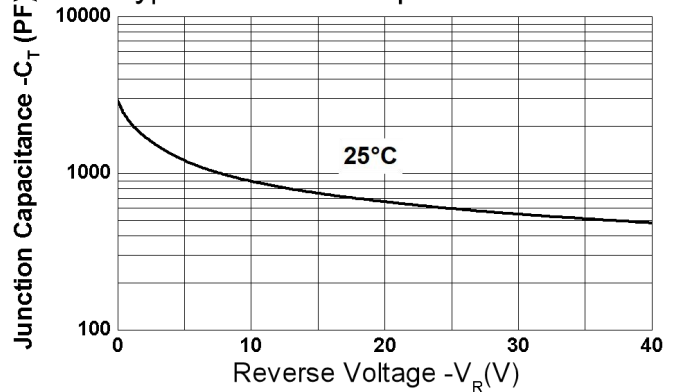


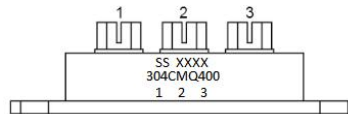
Figure 3
Reverse Voltage $-V_R$ (V)
Typical Junction Capacitance



Ordering Information

Device	Package	Shipping
304CMQ400	PRM4 (Isolated) (Pb-Free)	9pcs/ box

Marking Diagram

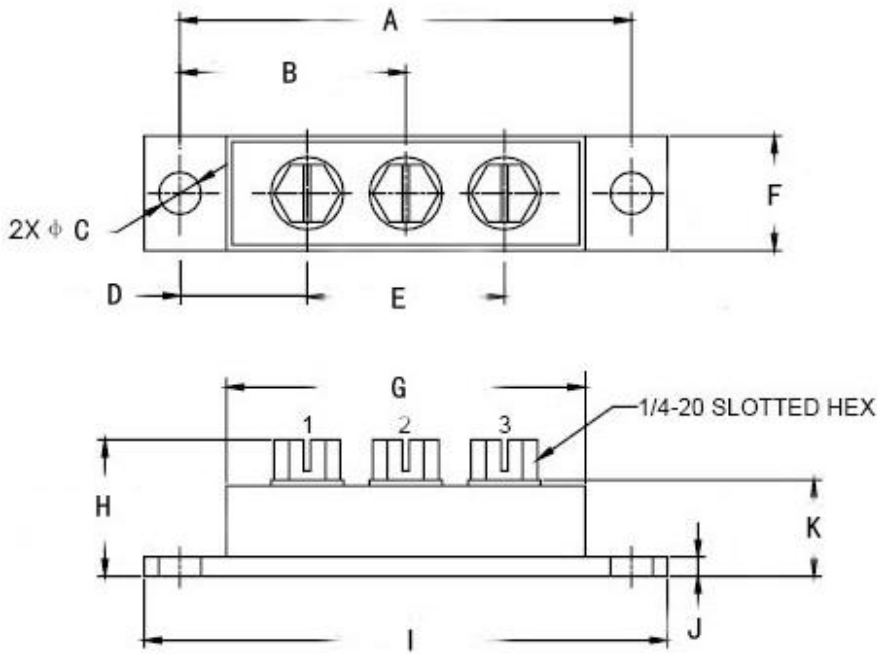


Where XXXX is YYWW

1st row SS YYWW
2nd row 304CMQ400
SS = SS
YY = Year
WW = Week

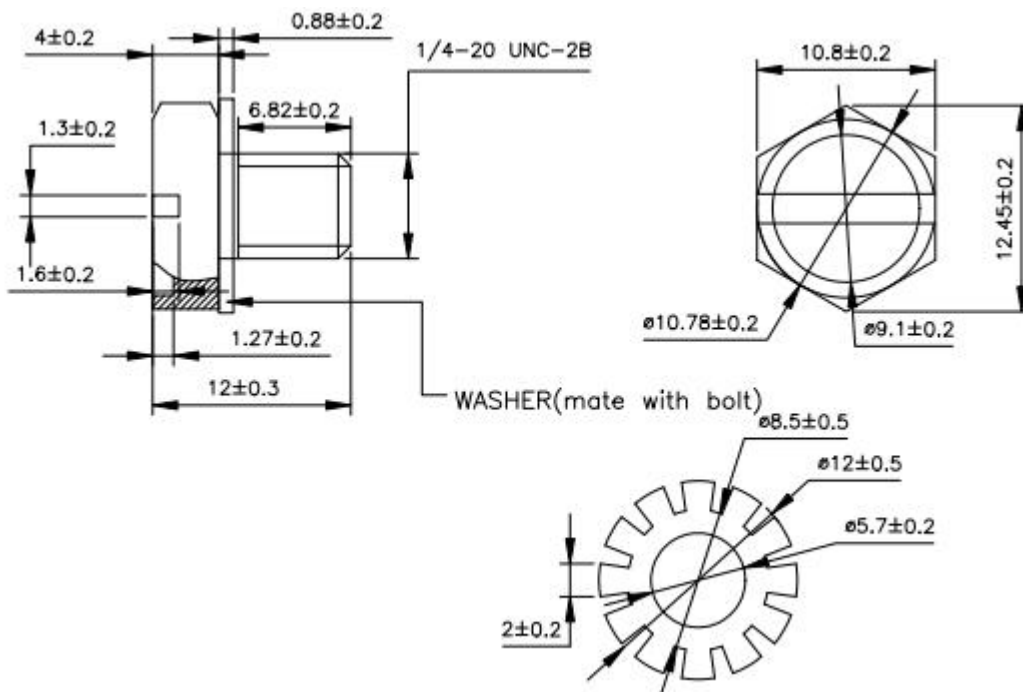
Cautions: Molding resin
Epoxy resin UL:94V-0

Mechanical Dimensions PRM4 Isolated (Millimeters/Inches)



SYMBOL	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	78.74	81.28	3.100	3.200
B	37.47	42.55	1.475	1.675
C	6.89	7.69	0.271	0.303
D	19.51	24.59	0.768	0.968
E	33.02	38.10	1.300	1.500
F	17.78	20.32	0.700	0.800
G	60.96	64.77	2.400	2.550
H	17.56	23.55	0.691	0.927
I	90.17	92.71	3.550	3.650
J	3.02	3.68	0.119	0.145
K	15.75	17.50	0.620	0.689

1/4-20 screws (Millimeters)





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