

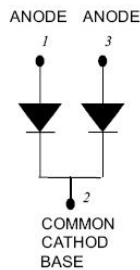
301CNQ035/301CNQ040/301CNQ045/301CNQ050 SCHOTTKY RECTIFIER



Features

- 175°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
- 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



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 Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	-	35	301CNQ035	V
			40	301CNQ040	
			45	301CNQ045	
			50	301CNQ050	
Average Rectified Forward Current	I _{F(AV)}	50% duty cycle @T _c =81°C, rectangular wave form	150(Per Leg)		A
			300(Per Device)		
Peak One Cycle Non-Repetitive Surge Current (Per Leg)	I _{FSM}	8.3 ms, half Sine pulse	3840		A
Non-Repetitive Avalanche Energy(Peg Leg)	E _{AS}	T _J =25°C, I _{AS} =40A, L=0.34mH	202		mJ
Repetitive Avalanche Current (Peg Leg)	I _{AR}	Current decaying linearly to zero in 1 μsec Frequency limited by T _J max. V _A =1.5×V _R typical	30		A

Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop(Per Leg)*	V _{F1}	@ 150A, Pulse, T _J = 25 °C @ 300A, Pulse, T _J = 25 °C	0.56 0.67	0.69 0.90	V
	V _{F2}	@ 150A, Pulse, T _J = 125 °C @ 300A, Pulse, T _J = 125 °C	0.49 0.60	0.59 0.76	V
Reverse Current(Per Leg)*	I _{R1}	@V _R = rated V _R , T _J = 25 °C	0.2	10	mA
	I _{R2}	@V _R = rated V _R , T _J = 125 °C	100	135	mA
Junction Capacitance(Per leg)	C _T	@V _R = 5V, T _C = 25 °C f _{sig} = 1MHz	6500	7800	pF
Voltage Rate of Change	dv/dt	-	-	10,000	V/μs

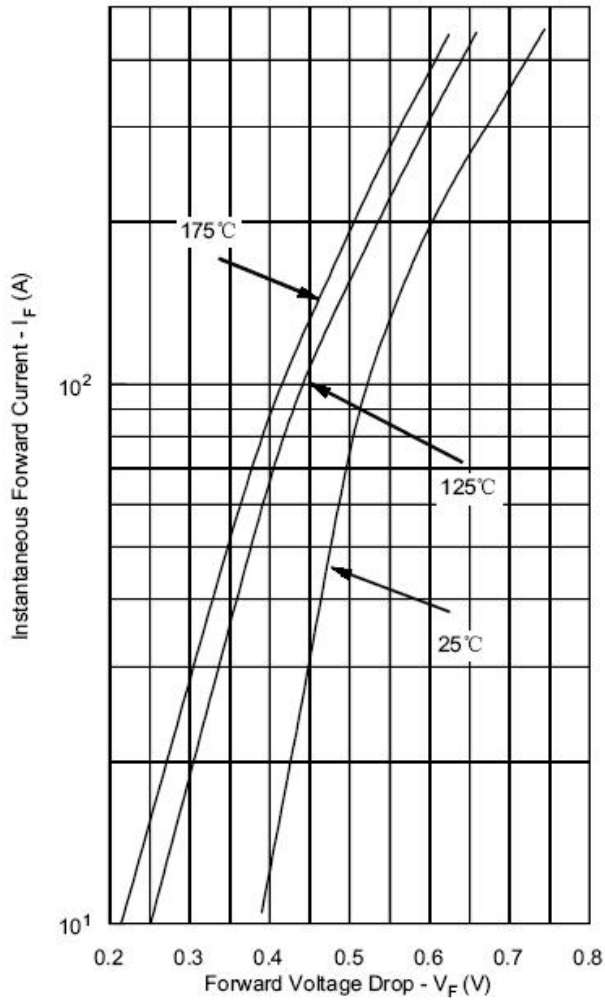
* Pulse width < 300 μs, duty cycle < 2%

Thermal-Mechanical Specifications:

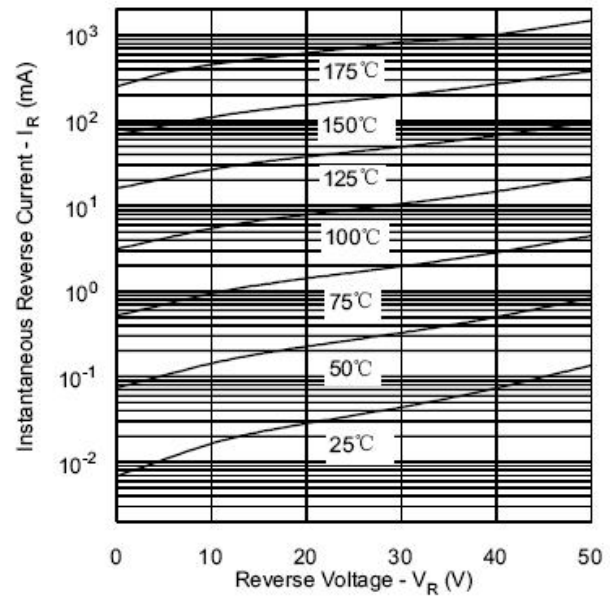
Characteristics	Symbol	Condition	Specification	Units	
Junction Temperature	T _J	-	-55 to +175	°C	
Storage Temperature	T _{stg}	-	-55 to +175	°C	
Typical Thermal Resistance Junction to Case(Per leg)	R _{θJC}	DC operation	0.40	°C/W	
Typical Thermal Resistance Junction to Case(Per package)	R _{θJC}	DC operation	0.20	°C/W	
Typical Thermal Resistance, case to Heat Sink	R _{θcs}	Mounting surface, smooth and greased	0.10	°C/W	
Mounting Torque	T _M	-	Mounting Torque	24(min) 35(max)	Kg-cm
			Terminal Torque	35(min) 46(max)	
Approximate Weight	wt	-	79	g	
Case Style	PRM4 Non-Isolated				

Ratings and Characteristics Curves

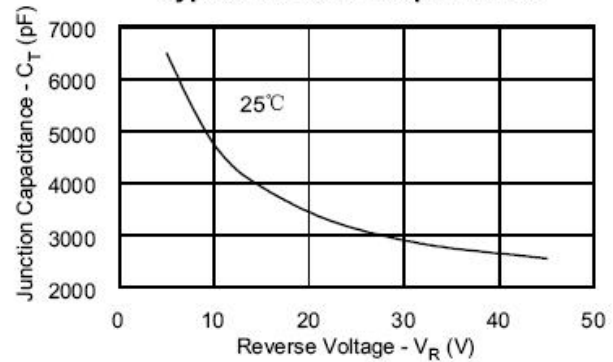
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance



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