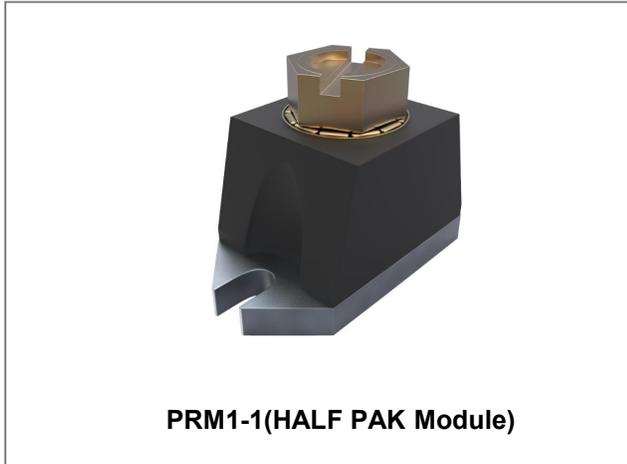


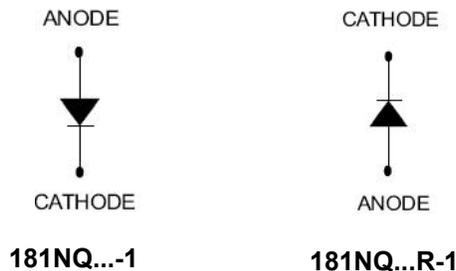
## 181NQ035/R-1 181NQ040/R-1 181NQ045/R-1 SCHOTTKY RECTIFIER



### Features

- 175°C T<sub>J</sub> operation
- Unique high power, Half-Pak module
- Replaces three parallel DO-5' S
- Easier to mount and lower profile than DO-5' S
- 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

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

### Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units	
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	-	35	181NQ035(R)-1	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		40	181NQ040(R)-1	
DC Blocking Voltage	V <sub>R</sub>		45	181NQ045(R)-1	
Average Forward Current	I <sub>F(AV)</sub>	50% duty cycle @T <sub>C</sub> =125°C, rectangular wave form	180	A	
Peak One Cycle Non-Repetitive Surge Current	I <sub>FSM</sub>	8.3 ms, half Sine pulse	3000	A	
Non-Repetitive Avalanche Energy	E <sub>AS</sub>	T <sub>J</sub> =25°C, I <sub>AS</sub> =36A, L=0.38mH	243	mJ	
Repetitive Avalanche Current	I <sub>AR</sub>	Current decaying linearly to zero in 1 µsec Frequency limited by T <sub>J</sub> max. V <sub>A</sub> =1.5×V <sub>R</sub> typical	36	A	

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	$V_{F1}$	@ 180A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.58	0.66	V
		@ 360A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.70	0.80	
	$V_{F2}$	@ 180A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.53	0.56	V
		@ 360A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.63	0.69	
Reverse Current*	$I_{R1}$	@ $V_R = \text{rated } V_R$ , $T_J = 25\text{ }^\circ\text{C}$	0.1	15	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R$ , $T_J = 125\text{ }^\circ\text{C}$	20	135	mA
Junction Capacitance	$C_T$	@ $V_R = 5\text{V}$ , $T_C = 25\text{ }^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$	6500	7800	pF
Voltage Rate of Change	dv/dt	-	-	10,000	V/ $\mu\text{s}$

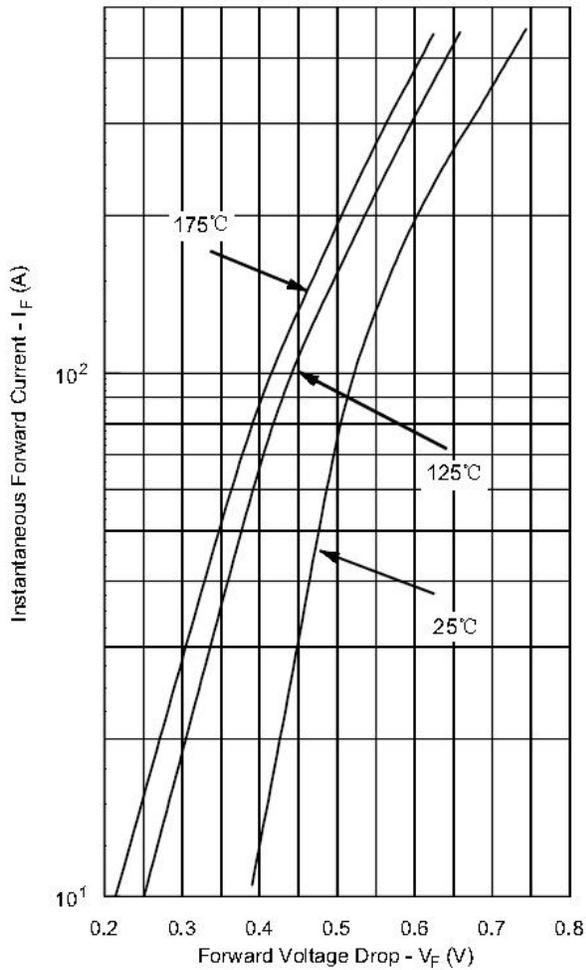
\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications:**

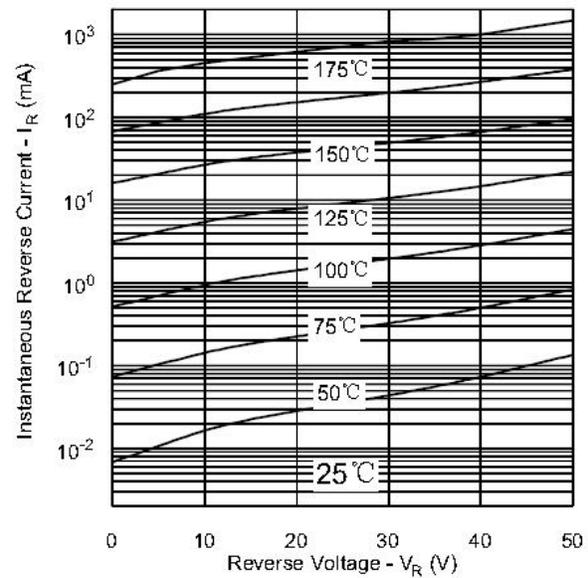
Characteristics	Symbol	Condition	Specification		Units
Junction Temperature	$T_J$	-	-55 to +175		$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-	-55 to +175		$^\circ\text{C}$
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	0.30		$^\circ\text{C/W}$
Typical Thermal Resistance, case to Heat Sink	$R_{\theta cs}$	Mounting surface, smooth and greased	0.15		$^\circ\text{C/W}$
Mounting Torque	$T_M$	Non-lubricated threads	Mounting Torque	23(min) 29(max)	Kg-cm
			Terminal Torque	35(min) 46(max)	
Approximate Weight	wt	-	25.6		g
Case Style	PRM1-1				

**Ratings and Characteristics Curves**

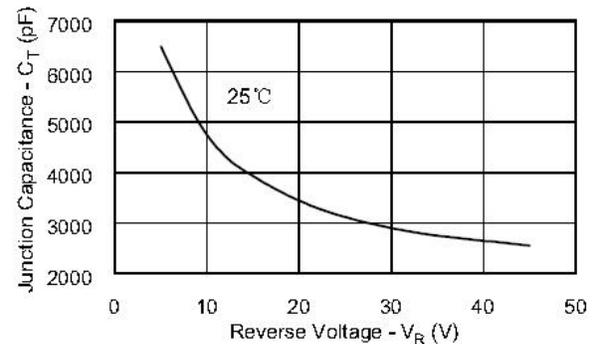
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**

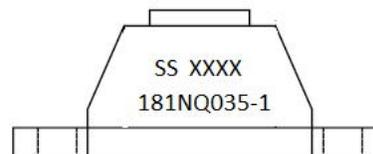


**Ordering Information**

Device	Package	Shipping
181NQ SERIES	PRM1-1(Pb-Free)	27pcs/ box

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

**Marking Diagram**

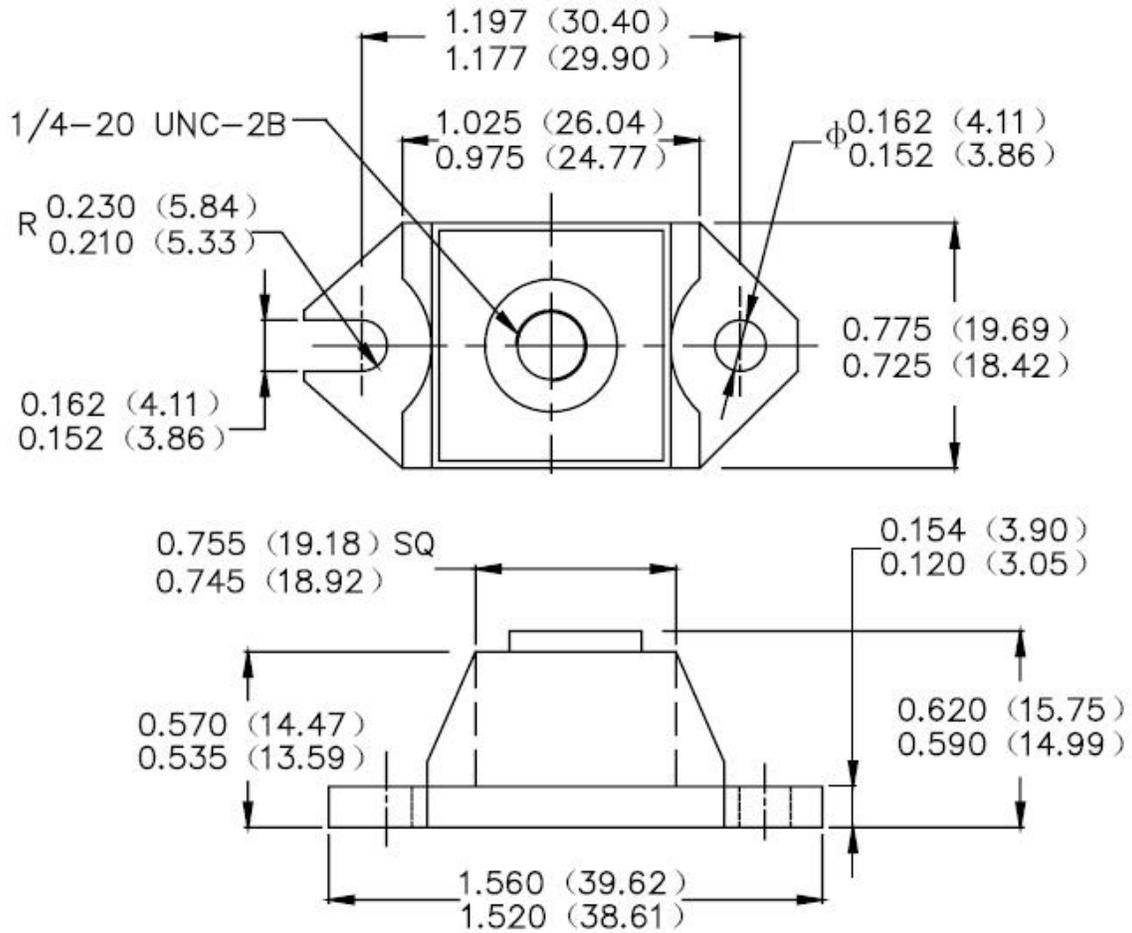


Where XXXX is YYWW

1st row SS YYWW  
2nd row 181NQ035-1  
SS = SS  
YY = Year  
WW = Week

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

**Mechanical Dimensions PRM1-1 (Inches/Millimeters)**



**DISCLAIMER:**

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- 2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment, and safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement.
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